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Hazard Communication (HazCom); Final Rule and Withdrawal of Interim Final Rule

DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Parts 42, 46, 47, 48, 56, 57, and 77

RIN 1219–AA47

Hazard Communication (HazCom)

AGENCY: Mine Safety and Health Administration (MSHA), Labor.

ACTION: Final rule and withdrawal of interim final rule.

SUMMARY: We (MSHA) are establishing this final rule on ''Hazard Communication (HazCom)'' to reduce injuries and illnesses related to chemicals in the mining industry. HazCom requires mine operators to evaluate the hazards of chemicals they produce or use and provide information to miners concerning chemical hazards by means of a written hazard communication program; labeling containers of hazardous chemicals; providing access to material safety data sheets (MSDSs); and initial miner training. While most of the requirements in this final rule are substantially the same as in the proposed and interim final rules, portions have been revised in response to public comments. The most significant revision involves the HazCom training requirements. Initial HazCom training for current miners will be conducted under the HazCom final rule. Conforming amendments with requirements for subsequent HazCom training have been added to existing training standards. With the publication of this final rule, the mining industry joins other industry groups in requiring that chemical hazard information be offered to employees.

DATES: This rule is effective on September 23, 2002. This rule is applicable at mines that employ five or fewer miners on March 21, 2003. The interim final rule published on October 3, 2000 (65 FR 59048) and delayed on August 28, 2001 (66 FR 45167) is withdrawn as of June 21, 2002.

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SUPPLEMENTARY INFORMATION: The following is an outline of this HazCom preamble to help you find information more quickly.

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I. Introduction

We refer to our hazard communication standard as ''HazCom'' to help distinguish it from the Occupational Safety and Health Administration's (OSHA's) Hazard Communication Standard (HCS). In this final rule, ''you'' refers to production operators and independent contractors, who have the primary responsibility for complying with our standards. Where needed, we use the terms ''operator'' or ''independent contractor'' to avoid confusion. ''We'' and ''us'' refers to MSHA.

Also, for the purpose of simplicity, we continue to use the term ''written'' or ''writing'' in the regulatory language to include electronic transmission of information. Operators are expected to exercise reasonable judgment. A label can be a sign, placard, process sheet, batch ticket, operating procedure, or other alternative. A label must be in a form that can be clearly and quickly associated with the hazardous chemical. A label in a computer, for example, will be inadequate as a way of labeling a truckload of lime. The purpose of an MSDS, on the other hand, can be readily achieved through an electronic access to the information.

Some of HazCom's provisions differ from the proposed and interim final rules in response to commenters' concerns and suggestions. These changes clarify the rule's intent, reduce the operator's burden to comply without reducing protections afforded by the interim final rule, and eliminate unnecessary language and needless repetition. We have tailored provisions to fit the mining industry. Despite these changes, the substance of most requirements remains the same as in the proposed and interim final rules. We have organized the rule to optimize the reader's ability to understand the rule's requirements.

This final rule reflects comments received during the entire rulemaking process including the advance notice of proposed rulemaking, the proposed rule, the limited re-opening of the record in 1999, the interim final rule comment periods, and the public hearings. All comments and testimony became part of the rulemaking record.

A. Overview of Rulemaking

HazCom is based on two safety and health principles: miners have a right to know about the chemical hazards where they work; and you have a responsibility to know about the chemical hazards at your mine.

Chemically related injuries and illnesses in the mining industry indicate that many operators and miners are not as aware of the presence and nature of hazardous chemicals as they should be.

Injury and illness reports sent to us describe instances where miners—

- Were using inadequate or improper personal protective equipment,
- Did not know what they had been exposed to that caused their symptoms,
- Failed to follow instructions because they misunderstood or were unaware of the consequences, and
- Inadvertently misused a chemical from an unlabeled container.

Our existing standards already require you to train miners in occupational health, hazard recognition, and the safety and health aspects of tasks, among other subjects. Except at underground coal mines, you are also currently required to label hazardous materials. The intent of HazCom is to ensure that your mine has a program emphasizing chemical hazards by requiring you to take certain actions. Current regulations do not require you to collect material safety data sheets (MSDSs), give copies of hazard information to miners, or keep a list of the hazardous chemicals at the mine.

HazCom requires you to inform miners about chemical hazards. This information is important because miners are at risk of harm in the absence of such knowledge. We expect HazCom, by increasing both knowledge and awareness, to bolster good work procedures and safer behavior, thus reducing injuries and illnesses related to chemicals. When put into effect at a mine, HazCom should result in better hazard identification and assessment; more consistent use of personal protective equipment; and greater awareness and care when working near hazardous chemicals.

Communicating the hazards of chemicals can be difficult because it requires using unfamiliar technical terms, scientific symbols, and complex physical laws. For the training to be effective, it must balance scientific precision with the practical needs of miners to understand chemical hazards and protect themselves in their daily work. When miners understand the chemical hazards of mine processes and recognize the job elements that can lead to chemical exposures, they will be more successful in reducing accidents and injuries.

The final rule requires operators of mines initially to instruct each miner with information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. Subsequent HazCom training must be conducted in accordance with 30 CFR parts 46 and 48. This modification of the HazCom training requirements is a result of comments received during the last reopening of the rulemaking record, as well as testimony presented at the public hearings. Accordingly, the HazCom final rule modifies the interim final rule by removing Subpart F—HazCom Training and adding conforming amendments to the training requirements of 30 CFR parts 46 and 48 to include instruction about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. The conforming amendments to parts 46 and 48 apply to new miner training, new experienced miner training, task training, and annual refresher training.

The major provisions of HazCom are as follows:

Hazard determination. You must identify the chemicals at your mine and determine if they can present a physical or health hazard to miners. If you produce a chemical, such as gold, molybdenum sulfide, calcium oxide (lime), sand, and phosphates, among others, you must review available scientific evidence to determine if it is hazardous. Some of the chemicals you produce that result from a chemical reaction, such as nitrogen oxides from blasting or an intermediate chemical formed during mineral processing, may already be addressed on the MSDS for the original chemical. For a chemical or mixture brought to your mine, such as diesel fuel, lubricants, solvents, and paints, you can rely on the evaluation performed by the chemical's manufacturer or supplier. Although you do not need to modify the MSDS or label that comes from the chemical's manufacturer or supplier, you must review the label and MSDS to learn what hazards the chemical can present to your miners.

HazCom program. You must develop, implement, and maintain a written comprehensive plan to formalize a HazCom program. The program must include provisions for container labeling, collection and availability of MSDSs, and training of miners, among other requirements. It also must contain a list of the hazardous chemicals known to be at the mine. If a mine has more than one operator on site, such as an independent contractor and a primary operator, each HazCom program must describe how you will inform the other operator(s) about the chemical hazards you produce or bring to the mine and the protective measures needed.

Container labeling. A label is an immediate warning about a chemical's most serious hazards. You must ensure that containers of hazardous chemicals are marked, tagged, or labeled with the identity of the hazardous chemical and appropriate hazard warnings. The label must be in English and prominently displayed. We are not requiring you to label mine products that go off mine property, though you must provide the hazard information if a customer asks for it.

Material safety data sheet (MSDS). A chemical's MSDS provides comprehensive technical and emergency information. It serves as a reference document for operators, exposed miners, health professionals providing services to exposed miners, and firefighters or other public safety workers. You must have an MSDS for each hazardous chemical at your mine. The MSDS must be accessible in the work area where the chemical is present or in an alternate location readily available to miners in an emergency.

Initial HazCom training. You must initially instruct each miner about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against those hazards, and the contents of the mine's HazCom program by the effective date of this final HazCom rule. Subsequent HazCom training must be conducted in accordance with 30 CFR parts 46 and 48.

Making HazCom information available. You must provide miners, their designated representatives, MSHA, and NIOSH with access to the materials that are part of the HazCom program. These include the HazCom program, the list of hazardous chemicals, labeling information, MSDSs, some training materials, and any other material associated with the HazCom program. You do not have to disclose the identity of a trade secret chemical except when there is a compelling medical need or as specified in this rule.

B. Need for HazCom

Chemicals in the mining industry pose a range of hazards, from mild health effects, such as irritation, to death. Some chemicals cause or contribute to chronic diseases, such as heart disease, kidney disease, sterility, or cancer. The relationship between these injuries and illnesses and exposure to a chemical can be obscured by years of latency between the exposure and the onset of symptoms. Many chemicals cause acute injuries or illnesses such as dermatitis, burns, and poisonings. Some chemicals pose hazards by contributing to fires and explosions.

Even relatively harmless substances can pose a hazard under certain

conditions. If mixed or heated, for example, some chemicals give off toxic fumes. Calcium chloride is generally considered a relatively harmless chemical, however, the MSDS for the compound lists its toxic decomposition products as chlorine fumes or hydrogen chloride. An ammonia based window cleaner mixed with common household bleach can produce deadly fumes. Miners must be made aware of these potential, life-threatening hazards.

Also pre-existing conditions, such as respiratory or central nervous system diseases, can be aggravated by exposure to some chemicals. For example, open wounds, skin disorders, and chronic respiratory disease can be aggravated by exposure to unleaded gasoline. Miners with existing health conditions need to be aware of the potential additional hazard that exposure to chemicals presents.

1. Chemical Injuries and Illnesses

In considering a HazCom standard, we reviewed reports of chemically related injuries and illnesses reported to MSHA. From January 1990 through December 1999, the mining industry reported over 2,500 chemical burns. More than 1,200 of these burns were lost work time cases, involving over 50 commodities, more than 60 job classifications, and exposures to chemicals at all sizes and types of mines. Bituminous coal mines reported the most chemical burns for that industry. Crushed and broken limestone mines reported the most chemical burns in the metal and nonmetal industry. This same accident and injury data indicated more than 400 poisonings. This data takes into account only some of the acute effects reported as a result of chemical exposures and does not include the chronic effects that we know also occur. MSHA believes that injuries, illnesses, and accidents reported to us understate the extent of the health and safety problems caused by chemicals in the workplace.

Reporting injuries and illnesses. Lack of knowledge about chronic health effects associated with chemical exposures contributes to the under-reporting of occupational illnesses. Employers, such as mine operators, and doctors often lack information to link occupational illnesses with exposures to chemical hazards.[1] Symptoms of chemically related, chronic, occupational illnesses are often treated without realizing that the cause is an occupational exposure. The Bureau of Labor Statistics (BLS) made note of this reporting disparity in one of their annual reports.[2]

> * * * Some conditions (*e.g.,* long-term latent illnesses caused by exposure to carcinogens) are often difficult to link to the workplace and, therefore, may not be recognized and reported. Because of this, these long-term latent illnesses are believed to be understated in the survey's illness measures. * * *

Worker turnover also increases the likelihood that the link between a workplace chemical exposure and subsequent illness will be overlooked and will not be reported. MSHA's experience under part 50 reveals that occupational illnesses are frequently unreported because the miner has retired or taken a job in another industry. This is particularly true for long-term health effects which develop over time or after repeated exposures. Many chronic diseases are characterized by latency periods of 20–30 years or longer.

In addition, health effects of some chemicals may contribute to the occurrence of injuries that are reported but are not causatively linked to chemical exposures. Part of the purpose of the hazard communication standard is to increase awareness regarding these potential effects.

Although MSHA's frequent presence at mines tends to minimize under-reporting, we believe the reporting is still incomplete. Our experience indicates that reporting of injuries and illnesses increases when we systematically audit operator reporting. For example, a nationwide audit of operator accident and injury reporting in the late 1970's produced a 13% increase in reported injuries. During MSHA's ''part 50 grace period'' for chronic illnesses in the late 1990's, industry reported an additional 3900 cases of silicosis, pneumoconiosis, hearing loss, and chronic musculoskeletal injuries. This increase strongly suggests that there is under-reporting. We expect improved reporting of occupational illnesses and injuries caused by chemical exposures to be one of the positive effects of this standard.

Hazards to miners working with chemicals. Between 1984 and 1989, the National Institute for Occupational Safety and Health (NIOSH) surveyed almost 500 individual mines covering 70 commodities and about 60,000 miners for the National Occupational Health Survey of Mining (NOHSM). NOHSM documented over 10,000 individual hazardous chemicals and mixtures of hazardous chemicals to which miners could be exposed.

Comments to the proposed and interim final rules suggested that HazCom apply only to those chemicals posing a risk to miners. We decided against limiting the application of HazCom to the chemicals NIOSH identified as most commonly posing a risk to miners because—

- New hazardous chemicals would not be covered,
- There are likely to be some hazardous chemicals used or produced at mines that are not on NIOSH's list, and
- NIOSH did not survey all mines.

In September of 1996, NIOSH published *Results from the National Occupational Health Survey of Mining (NOHSM)* [DHHS(NIOSH) Publication No. 96–136]. NOHSM's Appendix O listed ''100 Chemical Substances with the Highest Projected Number of Workers Potentially Exposed.'' This appendix projected only potential exposure to chemical substances purchased and used at mines. The NOHSM report is in the rulemaking record. The addendum to this preamble (VII. Addendum: Physical and Health Effects of Chemical Substances Normally Used by Miners) lists the health effects of chemicals for which NIOSH projects more than 1000 miners to be potentially exposed.

We listed the health effects for these substances to illustrate the acute and chronic effects of exposures to substances common in mining. It is apparent that many of these chemicals have serious acute health effects, as well as life-shortening chronic health effects. Diesel fuel and kerosene are examples of such chemicals. We found the listed health effects for most of these substances on material safety data sheets (MSDSs) available free on the internet. The *NIOSH Pocket Guide to Chemical Hazards,* a copy of which is in the rulemaking record, also lists health effects.

Current hazard communication programs in mining. Some operators began complying with OSHA's HCS requirements in 1983 when it was first promulgated. Others began complying when the scope of OSHA's HCS was extended to cover general industry. In anticipation of a similar MSHA standard, some began complying after MSHA published its proposed HazCom rule, using the unregulated interval as a time to assimilate the requirements into

[1] Rosenstock, L., ''Occupational Medicine: Too Long Neglected'', *Annals of Internal Medicine,* Vol. 95, No. 6, December 1981, pp. 774–776.

American Lung Assn., ''Diagnosis and Treatment, Taking the Occupational History'', *Annals of Internal Medicine,* Vol. 99, No. 5, November 1983, pp. 641–651.

[2] U.S. Department of Labor, Bureau of Labor Statistics, *Occupational Injuries and Illneses: Counts, Rates, and Characteristics, 1994,* Bulletin 2485 (April 1997), page 7.

their mines' standard operating procedures. Although some operators on their own initiative have established programs that meet HazCom's provisions and goals, and have integrated OSHA's HCS requirements into the cultures of their mines, many have not made that effort or fully met those objectives.

Some operators have a comprehensive HazCom program in place, while others have some elements of a HazCom program. This HazCom rule requires that operators give all miners the information, initial training, and access needed to protect themselves from chemically related injuries and illnesses. HazCom unifies, focuses, and clarifies existing requirements.

2. Existing Parts 46 and 48 Training

The principal training standards that apply at your mine are found in parts 46 or 48, depending on the commodity you produce and the type of mine you have. Under existing parts 46 and 48, you must provide new miner training, newly hired or experienced miner training, new task training, and annual refresher training and, for those less exposed, hazard awareness training.

An issue throughout this rulemaking has been whether the training under parts 46 and 48 negates the need for the HazCom standard. Several commenters to the interim final rule said that the existing training requirements under parts 46 and 48 already cover hazard recognition and prevention. The HazCom standard would be, in their view, needlessly duplicative and burdensome. As a few commenters pointed out, parts 56 and 57 already have standards for labeling toxic substances. Others said that, in their part 48 training, they endeavor to fully encompass the health and safety aspects of working with hazardous chemicals at their operations. Still others said that part 46, effective only recently, has not been given a chance to show that it can work for purposes of hazard communication.

By contrast, several commenters stressed the need for the HazCom standard. They said that the important job of educating people within the mining industry on the dangers of chemicals in the workplace was not being done. Misuse of chemicals at the mines was a significant concern to them. Not only are miners left uninformed about hazardous chemicals, but according to many of these commenters, the operators, who are expected to know about these hazards, often need help themselves and provide little guidance to miners, even about elementary precautions to take when working around hazardous chemicals. Some operators may not be familiar with basic sources of information such as MSDSs. These commenters maintained that a more effective means of getting the information out and increasing the awareness of chemical hazards is vital so people can avoid misuse and make intelligent decisions to safeguard their health.

In the interim final rule we stated that although we have standards for labeling toxic substances under parts 56 and 57, these standards do not contain any training requirements on hazardous chemicals. With regard to the existing training under parts 46 and 48, we stated that these training regulations were insufficient for purposes of HazCom training because they do not specify the training content. They basically require instruction in hazard recognition and the health and safety aspects of new work tasks.

After carefully reviewing all comments, and testimony presented at all the HazCom hearings, however, we have determined that subsequent HazCom training requirements, after initial training, can be eliminated from the HazCom rule, but effectively provided under existing parts 46 and 48 by adding language to the training subjects of these parts. Accordingly, the HazCom final rule requires operators of mines initially to instruct each miner with information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. While initial training is required under § 47.2(b) of the final HazCom rule, subsequent HazCom training must be conducted in accordance with the conforming amendments added under 30 CFR parts 46 and 48. We believe that this modification of the training requirements of the HazCom standard and parts 46 and 48 is responsive to commenters' concerns regarding training and, at the same time, ensures that parts 46 and 48 training requirements concerning hazard recognition specifically includes instruction on the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

C. OSHA's HCS and MSHA's HazCom Final Rule

In addition to the requirements in the Mine Act and our experience in the mining industry, we based our final rule on—

- The comments received in response to the advance notice of proposed rulemaking (ANPRM), the notice of proposed rulemaking, the limited re-opening, and the interim final rule;
- The testimony presented at the public hearings on the proposed and interim final rules; and
- The related standards of other federal agencies, such as OSHA and EPA.

To the extent practical, the substance of MSHA's HazCom requirements is the same as that in OSHA's HCS. Also, we have expressly stated that if a HazCom program meets OSHA's HCS requirements, it will satisfy MSHA's requirements except for the coverage of EPA-regulated hazardous waste (OSHA has a separate standard for hazardous waste operations). We will publish a Compliance Guide to help you understand the application of this rule.

Hazardous waste. The treatment of hazardous waste in MSHA's HazCom standard differs from OSHA's HCS. OSHA exempts hazardous waste because its Hazardous Waste Operations and Emergency Response rule (Hazwoper, 29 CFR 1910.120) addresses these hazards. Because we do not have similar standards that address miners' exposures to hazardous waste, we needed supplemental requirements to ensure that miners understand the hazards and take precautions.

HazCom fills an important gap in protecting the health and safety of miners who may be exposed to hazardous waste. HazCom does *not* require you to determine the components of the hazardous waste, research the components' health and safety effects, or prepare an MSDS. HazCom requires you to—

- Label the hazardous waste, if it is not already labeled;
- Inform miners about hazardous waste in their work areas, its hazards, and safe work procedures; and
- Provide miners access to any information about the hazardous waste that addresses its components or their health and safety effects.

We addressed the subject of hazardous waste at all stages of the rulemaking process. MSHA is confident that the coverage of hazardous waste in HazCom provides essential protection for miners and avoids unnecessary burden on mine operators.

Temporary, portable containers. Labeling of temporary, portable containers is another area where MSHA and OSHA standards differ. In response to comments, HazCom allows more flexibility and compliance options than OSHA's HCS with respect to labeling temporary, portable containers. OSHA's

HCS does not require the employer to label a temporary, portable container into which a hazardous chemical is transferred from a labeled container for the immediate use of the employee who performs the transfer. MSHA's HazCom provides the following choice of compliance methods:

- You do not have to label the container if your miners know the identity, hazards, and protective measures for the chemical in the container, and leave the container empty at the end of the shift; or
- You must label the container, at least with the common name of its contents.

Although OSHA's requirements for portable containers are sufficiently protective, HazCom's differences from HCS are deliberate and appropriate to mining conditions. The HazCom provision provides a flexible and practical alternative for mining operations.

Labels for customers. HazCom does not specifically require you to label hazardous chemical products that go off mine property. Your customers, however, may have to comply with the OSHA HCS which requires hazardous chemicals to be labeled. For this reason, HazCom requires you to provide the label information (and MSDS) if a customer asks for one.

D. Reasons for Not Exempting Aggregate Producers

An aggregates industry commenter to the interim final rule argued that his industry should be exempt from HazCom. The commenter stated that—

> * * * an overwhelming number of entries [injuries and illnesses associated with chemical exposures] would most likely not have been prevented if HazCom were in place. * * * In nearly all cases, regulations already in place apply and would have prevented the incidents from occurring in the first place.

The commenter asserted that other existing standards would provide the safety and health protection afforded by HazCom. The commenter also downplayed the number of injuries and illnesses reported to MSHA.

The existing MSHA safety and health regulations cannot be equated with or replace the HazCom standard. The HazCom rules are not duplicative of existing standards and, in fact, encompass a broader scope of activities than the other regulations. For example, the requirements for a chemical inventory and current, accessible MSDSs are not included in other existing regulations, but are integral parts of HazCom. Under HazCom, operators are responsible for disseminating accurate safety and health information to miners, and in a timely manner to best accomplish the goal of accident, injury, and illness ''prevention.'' Miners, in turn, have a right to know the identity of chemicals with which they are working, the hazards of these chemicals, and how to properly protect themselves. This right has been afforded for years to other workers in the United States, and to many workers in other countries.

HazCom is not dependent on a risk analysis. We conducted a general finding of risk to help operators appreciate the need for the standard. This general finding of risk determined that—

- Hazardous chemicals are at all sizes and types of mines,
- Miners are exposed to these hazardous chemicals, and
- Miners get injuries and illnesses from exposure to hazardous chemicals at the mine.

MSHA examined 14,505 incidents of injuries or illnesses reported to the Agency between 1983 and 2000. Commenters' review of the MSHA data indicated that there was an average of 50 chemical burns in the aggregates industry per year that would be addressed by HazCom. The preponderance of these chemical burns are the result of acids (*e.g.*, in batteries) and alkalis (*e.g.*, lime) present in the aggregates industry. The commenter also estimates that ¾ of the HazCom-covered chemical burns are related to eyes. We agree with the commenter that these are valuable findings about eye injuries and that some corrective action is needed to prevent such injuries. The continuing reports of chemical burns, particularly involving the eyes, represent a serious problem and the possible loss of a miner's sight requires the immediate attention of mine operators.

After separating the eye injuries from the data and excluding cases for which the commenter had concerns (e.g., applicability of HazCom, verification), the commenter concluded that there were an average of 20 cases (injuries and illnesses) per year in the aggregates industry over the 17-year period. The commenter then went on to say, '' * * * this figure hardly seems to us to justify imposition of a multi-million dollar regulation.'' The commenter presumably was referring to the entire metal and nonmetal and coal mining industry. MSHA disagrees with this statement. Given the benefits of this rule to the mining industry as a whole and miners in particular, MSHA believes that the cost of this rule is reasonable.

The data presented by the commenter, that was also analyzed by MSHA, emphasize the need for the HazCom rule and for better compliance with existing regulations. On the basis of these numerous and continuing chemically related burns alone, it appears that there is a need for more specific information and training given to miners. In addition, we estimated that the long-term health effects of the HazCom rule include a reduction of 11.4 cancer deaths every year. Some of these health benefits would surely accrue to miners in the aggregates industry, in which carcinogens, such as benzene, respirable crystalline silica, and diesel fuel, as well as various solvents are used or produced. We cannot justify the exclusion of a group of miners from the requirements for hazard communication, when all other miners and workers in other industries will be given this protection from chemical injuries and illnesses.

MSHA believes that there is a significant risk of numerous adverse health outcomes for miners who work with hazardous materials (chemicals); these outcomes may be manifested over a long period of time. The commenter has attempted to refute the risk by pointing to the absolute number of chemical burns and poisonings over the past 17 years, using a database with known concerns for under-reporting. The commenter has neglected to consider the number and potency of chemicals used in mines; the possible interactions between chemicals; the duration, number, and frequency of exposures; the large gamut of adverse outcomes and their severity; and the role of the miner himself. These factors indicate that miners, including miners who work in the aggregates industry, are at risk of uncertain and undesirable outcomes when working with hazardous chemicals. HazCom, through implementation of and compliance with its various components, will serve to reduce the factors that contribute to injury and illness.

A miner's risk of injury or illness will be reduced by providing the miner with information and initial training regarding exposures and potential adverse effects related to hazardous chemicals. It is possible to anticipate, recognize, evaluate, and control the exposures once the presence of a hazardous chemical is known. For example, if miners understand that they will be working with batteries containing sulfuric acid, then they may anticipate exposure to this acid. Information may be provided regarding chemical burns and the emergency procedures to be followed if an

inhalation, eye, or skin exposure should occur. As a second example, if miners know that they will be welding with rods made of cadmium or zinc oxide, they can anticipate the generation of toxic welding fumes. These fumes are invisible and provide no warning of their presence (*i.e.*, no burning of the eyes, nose, throat). If miners know this, they may take appropriate precautions and protective measures, such as the use of personal protective equipment or a welding booth with proper ventilation, to keep the fumes out of their breathing zone.

We did not analyze our accident and injury data to determine whether or not an injured miner had been trained. Such analysis would not have been helpful because, even if the miner was trained, there is no record as to whether that training included the health and safety hazards and safe work procedures for working with the hazardous chemical.

With a better understanding of chemical hazards from the HazCom program at a mine, an operator may limit the array of chemicals kept at the mine and may establish criteria to decide which chemicals will be brought onto the property.

OSHA initially estimated that its HCS would reduce chemically related injuries and illnesses by 20%. As noted by the commenters, this was an educated guess at the time OSHA developed HCS. In the GAO report submitted to members of the United States Senate and House of Representatives (1992), a summary of employers' experiences in complying with OSHA's HCS was presented. Seventeen percent (17%) of surveyed employers reported fewer work-related injuries and 16% of these employers reported fewer work-related illnesses. Because of HCS, 29% of these employers stated that they use a less hazardous chemical in the workplace. OSHA's experience and findings indicate that there also should be reductions in injuries and illnesses at mining operations once HazCom is implemented.

In conclusion, there is no reason to exempt a large subset of mines from the HazCom rule. The under-reporting of our accident and injury data and the broader scope of the HazCom standard, when considered in connection with the potency of chemicals used in mining, the duration and frequency of exposure, and the possibility of long term health effects being manifested over time, provide reasons why the aggregates industry should not be exempt from the rule.

E. Reasons for Staggering the Compliance Dates

The final HazCom rule becomes effective 3 months from the date of publication in the **Federal Register**. At mines that employ five or fewer miners, it will become applicable 9 months from the date of publication in the **Federal Register**.

The data in our rulemaking record indicates that approximately 50% of all coal and M/NM mining operations consist of five or fewer employees. The record also indicates that exposure to chemical hazards occurs in every type of mine, including small mines, with miners typically experiencing multiple exposures to different chemical hazards at one point of time, or over a long period of employment.

We have determined that small mines will be able to comply with the HazCom final rule. However, we recognize that mine operations with five or fewer employees, because of their size, have special needs that justify providing them with more time to become familiar with the requirements of the HazCom rule. For example, it is our experience that many of these small mines—

- Are unfamiliar with OSHA's HCS, the basis of HazCom, and may need more time to comply;
- Do not have personnel knowledgeable about chemical hazards, the use of computers to access MSDSs, or the resources to implement the final rule within 3 months;
- Are family-owned, employing only family members; and
- Operate intermittently.

Additionally, MSHA needs time to provide extensive outreach to help the industry comply, particularly these small operations.

By contrast, certain segments of the mining industry have had extensive experience with the OSHA HCS, and therefore, will be able to comply with our standard with minimal effort. For example, some independent contractors who work in both mining and general industry are already familiar with the OSHA HCS requirements, and may be able to comply with both OSHA's HCS and our HazCom standard using a single HazCom program.

While we cannot exempt these small operations from the HazCom standard for reasons stated elsewhere in this preamble, we can delay its application to provide them with more time to prepare for compliance. Accordingly, the final rule's compliance date for operations with five or fewer employees will be 9 months after publication in the **Federal Register**. For operations with six or more employees, the compliance date is 3 months after publication in the **Federal Register**, which is the same as the effective date of the final rule.

MSHA wants to emphasize that we are committed to providing compliance assistance to *all* mine operations, regardless of size. In fact, there are many HazCom aids already available. MSHA has developed an instruction guide, PowerPoint presentations, videos, model HazCom programs, a brochure, and generic MSDSs, and plans extensive compliance assistance. Also, OSHA has developed training materials for its industries, such as a generic MSDS form, a model hazard communication program, and the HCS Compliance Guide. Many are available from OSHA's Web site at *http://www.osha.gov* and can be adapted for use at mining operations. You can use these as models for your own program.

F. Regulatory History

Since it was originally promulgated in 1983, OSHA's HCS has evolved to apply to all industries under OSHA's jurisdiction. Mining was the only industry segment not required to provide employees with access to MSDSs and other information about hazardous chemicals in their work areas.

1. Program Information Bulletin 86–2–M

Several commenters to the interim final rule stated that a final standard addressing hazard communication is unnecessary. To support their position, these commenters referenced MSHA's Program Information Bulletin No. 86–2M (April 7, 1986) (PIB). These commenters claimed that, in the PIB, MSHA stated that a standard addressing hazard communication was not necessary for mining because existing standards addressed the labeling and storage of toxic materials, and warning signs.

The 1986 PIB on hazard communication was issued only to metal and nonmetal MSHA inspectors in response to a jurisdictional issue with OSHA. The purpose of the PIB was to clarify that mining operations under our jurisdiction do not have to comply with the OSHA HCS. In establishing the fact that OSHA lacked jurisdiction under § 4(b)(1) of the Occupational Safety and Health Act (OSH Act) to apply their HCS at mining operations, MSHA personnel were requested by OSHA and the mining industry to attach to the PIB a list of MSHA standards addressing some of the same hazards which the OSHA HCS was intended to address. In developing the PIB, we were not seeking to establish that our existing standards offered the same protection as the

OSHA HCS, but that there was the requisite minimum MSHA coverage necessary to justify continuing MSHA jurisdiction. HazCom supplements existing MSHA safety and health standards by specifically addressing chemical hazards from a different perspective using different methods.

2. Petition for Rulemaking

On November 2, 1987, the United Mine Workers of America (UMWA) and the United Steelworkers of America (USWA) jointly petitioned us to adapt OSHA's HCS in both coal and metal and nonmetal mines and to propose it for the mining industry. They based their petition on the need for miners to be better informed about chemical hazards.

In their petition, the UMWA and USWA argued that miners deserve protection equal to that of other workers. To support their position, the petition cited an incident in which miners at an iron ore mine were experiencing adverse health effects. These miners asked the operator for MSDSs for the flotation chemicals used at the mine to determine the identity of the chemical causing their symptoms. Although the state in which the mine was located had a right-to-know law, this law did not cover mines. Because we did not have a standard to require the operator to provide MSDSs to miners, the operator refused several times to provide the requested MSDSs. The operator finally provided the MSDSs after lengthy negotiations. The local union used the information provided in the MSDSs to discuss safety procedures with the company.

The petition also specifically noted that work at both surface and underground coal and metal and nonmetal mines exposes miners to a variety of hazardous chemicals. For example, the petition stated that explosives contain organic nitrates that produce nitrogen oxides and ammonia when detonated; roof bolting systems contain plastic resins and reactants; solvents used in equipment maintenance are both toxic and flammable; and mill reagents can release hydrogen sulfide, cyanide, or other dangerous chemicals.

3. Preliminary Rulemaking

In response to this petition, we issued an advance notice of proposed rulemaking (ANPRM) on hazard communication on March 30, 1988 (53 FR 10256). In the ANPRM, we indicated that we would use the OSHA HCS as a basis for our standard and requested specific comments on a number of related issues. A number of written comments and testimony at public hearings in response to the ANPRM defined industry and labor concerns. We published a notice of proposed rulemaking on hazard communication for the mining industry on November 2, 1990 (55 FR 46400), held three public hearings in October 1991, and closed the record on January 31, 1992.

Public response to preliminary rulemaking. We received a wide variety of comments on our ANPRM and proposed rule. Commenters included both small and large mining companies; a variety of trade associations, including those representing specific minerals; state mining associations; chemical and equipment manufacturers; national and local labor unions; a member of Congress; and two federal agencies.

4. 1999 Limited Re-opening of the Record

While HazCom was being developed, Congress passed several laws and the President issued several Executive Orders which affected our rulemaking procedures. These statutory mandates and related Executive Orders had required us to evaluate the impact of a regulatory action on small mines; [3] the expenditures of state, local, and tribal governments (Unfunded Mandates); [4] and the health and safety of children.[5] In addition, we requested comments on the information collection and paperwork requirements of certain provisions of the proposed rule, now considered as an information collection burden under the expanded definition of *information* under the Paperwork Reduction Act of 1995.[6] We re-opened the rulemaking record on March 30, 1999 (64 FR 15144) to receive comments on the impact of the proposed rule in accordance with these regulatory mandates and Executive Orders. The record closed on June 1, 1999.

Most MSHA regulations do not require an evaluation of their impact on the environment. Health standards do, however. This was brought to our attention and we took this opportunity to remedy the oversight. We requested comments on the effect of the proposed rule on the environment because the proposed rule had not.[7]

Public Response to Limited Re-opening. We received seven comments, mostly from trade associations and labor organizations, on this limited re-opening of the rulemaking record. Some commenters urged us to re-open the rulemaking record in its entirety because they asserted that the information in the record was outdated. They claimed this action would improve the effectiveness and quality of the HazCom standard because sectors of the mining industry that have incorporated OSHA's HCS can provide us with their experience under that program. A large mining company stated that we need to address in the HazCom standard recent changes in the OSHA HCS regarding electronic access to MSDSs and microfiche maintenance of these documents. Some commenters disputed the need to promulgate a HazCom standard in light of our new miner training regulations applicable to surface aggregate mines. Finally, a major labor organization objected to the delay in promulgating a final standard.

We disagreed with commenters on the need to re-open the rulemaking record in its entirety. Unlike general industry, the mining industry is narrowly composed of two sectors, coal and metal and nonmetal. Through our frequent presence on mine properties, we determined that there are no substantial changes in the mining industry which would require changes in the provisions of the standard. Changes experienced by the mining industry since the publication of the HazCom proposed rule in 1990 did not rise to a level of change in ''core'' circumstances so material in nature as to entail a modification of the standard. Substantive rulemaking issues and regulatory alternatives have not changed since the record closed in 1992 and, consequently, the evidence in the rulemaking record at that time continues to be applicable now.

We understood commenters' desire to provide more information regarding their experience under the OSHA HCS standard. Our rulemaking record, however, contains numerous comments concerning the mining industry's experience with OSHA's HCS. The record also contains numerous background documents, such as the

[3] The Small Business Regulation Enforcement Fairness Act of 1996 (SBREFA) Amendments to the Regulatory Flexibility Act of 1980, Pub. L. No. 96–354, 94 Stat. 864 (1980) (codified as amended at 5 U.S.C. 601–612.

[4] The unfunded Mandates from Act of 1995 (2 U.S.C. 1501 *et seq.*); and Executive Order 13084, Consultation and Coordination with Tribal Governments.

[5] Executive Order 13045, Protection and Children from Environmental Health Risks and Safety Risks.

[6] Pub. L. No. 104–13, 109 Stat. 163 (1995) (codified as amended at 4 U.S.C. §§ 3501–3520). When we published the HazCom proposed rule, the information collection and paperwork requirements were not an information collection burden under the 1980 Paperwork Reduction Act because they were third-party disclosures. Under the Paperwork Reduction Act of 1995, agency rules that require businesses or individuals to maintain information for the benefit of a third-party or the public, rather than the government, are covered by the Act under the definition of ''information.''

[7] The National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 *et seq.*).

report of the hazard communication workgroup of the National Advisory Committee on Occupational Safety and Health, expressing OSHA's experience with its HCS. We have considered the comments and background information, and the final standard reflects the public's recommendations where they do not undermine HazCom's purpose in protecting the safety and health of miners. For example, some commenters indicated their experience regarding OSHA's MSDS requirements and suggested that we include a provision on electronic access to MSDSs; simplify the proposed rule regarding the content of MSDSs; use terms that are consistent with the Mine Act instead of the OSH Act; simplify the requirements regarding inclusion of MSDSs with initial shipment of product; and require retention of MSDSs for a period of less than 30 years.

In response to these comments, the interim final rule provided for electronic access to MSDSs; used terms such as ''miner'' and ''mine operator'' instead of ''employee'' and ''employer'' to be more consistent with the language of the Federal Mine Safety and Health Act of 1977 (Mine Act); streamlined and clarified the provisions on the format and content of MSDSs; and required the operator to keep the MSDS at the mine for as long as the chemical is known to be present at the mine, instead of 30 years as OSHA requires. While MSHA's HazCom standard is generally consistent with OSHA's HCS, we made changes to the interim final rule from the proposed rule in recognition of comments received from the mining industry concerning its experience under OSHA's HCS. These changes also recognize that the affected regulated community is smaller and more homogeneous than the industries regulated by OSHA.

5. Interim Final Rule

Although we disagreed with commenters on the need to re-open the rulemaking record in its entirety, in an effort to be further responsive to the public, we decided to publish an interim final rule to provide an additional opportunity for comment. The interim final rule was published on October 3, 2000, and gave commenters until November 17, 2000, to submit comments on the entire rule, on their experience under the OSHA HCS, and on the new ''plain language'' format of the rule. We were particularly interested in receiving comments addressing any new developments in the mining industry since the proposed rule that we were unaware of. In response to requests from commenters, we also held a public hearing in Washington, DC, on December 14, 2000. The record closed on December 19, 2000.

Public response to interim final rule. We received 22 comments on the interim final rule, and six persons spoke at the December 2000 public hearing. None of the comments received or testimony presented raised new substantive issues. In fact, most of the issues raised by commenters were already addressed in the preambles to the proposed rule and interim final rule.

Several commenters at the public hearing objected to our short comment period and our short notice of the public hearing. These commenters stated that they were denied sufficient time to fully analyze the interim final rule and provide meaningful comment because the public hearing took place 3 days after the notice of the hearing was published in the **Federal Register** on December 11, 2000 (65 FR 77292).

MSHA acknowledges that notice was short, but contends that notice was adequate. At the end of the comment period, we had received two requests for a public hearing. We made arrangements for a public hearing, prepared a notice of the hearing for publication in the **Federal Register**, personally notified all commenters and other interested persons on December 7, 2000, and put our hearing notice on our website on Friday, December 8, 2000.

Several parties (FMC Corporation, General Chemical Group, Inc., OCI of Wyoming, Solvay Minerals, and NAA–NSA) have challenged the interim final rule in the U.S. Circuit Court for the District of Columbia Circuit. The United Mine Workers and the National Mining Association are interveners in the lawsuit. The petitioners have indicated that they will argue that affected parties were not provided an adequate opportunity to participate in the rulemaking, and that the HazCom rule is arbitrary, capricious, and contrary to law because of the following, among other things:

- HazCom will not significantly reduce a risk to miners.
- HazCom is unnecessary because it duplicates other MSHA rules, including the parts 46 and 48 training rules.
- HazCom unlawfully delegates the Secretary's rulemaking responsibilities to ACGIH, alleging it violates the Federal Advisory Committee Act.
- HazCom unlawfully incorporates by reference future actions of non-government entities, such as ACGIH, without prior notice and opportunity for comment.

The matter is in abeyance awaiting issuance of the final rule.

6. 2001 Re-opening of the record

As stated previously, commenters to the interim final rule objected to what they perceived as MSHA's failure to provide adequate notice and opportunity to comment. Over the following months, industry trade associations sent MSHA several letters asserting they had new information and reiterating their request to re-open the record. In response, MSHA re-opened the HazCom record for public comment on August 28, 2001 (66 FR 45167); delayed the effective date of the interim final rule until June 30, 2002; and announced seven public hearings to be held across the country from September 25 through October 10, 2001. The record closed on October 17, 2001.

Public response to 2001 re-opening. In this most recent re-opening of the HazCom record, MSHA received 30 written comments. In addition, 52 individuals presented testimony at the public hearings. All commenters agreed with the principle of informing miners about chemical hazards, but there was wide disagreement on the need for a HazCom rule, the effectiveness of some of the rule's requirements, and the magnitude of the burden on mine operators. The substance of the comments, especially those relating operators' experiences with their own hazard communication programs, convinced us that some additional changes to the interim final rule were needed.

In sum, we are confident that we have considered all comments in the rulemaking record in the development of this final standard. While it conforms to the primary purpose of protecting the safety and health of miners, the final standard reflects the public's recommendations to the extent practical, is performance oriented, and minimizes the compliance burden on operators.

II. Discussion of the Final Rule

In preparing this final rule, we considered the concerns and suggestions of all commenters, while balancing the need of miners to have the information necessary to work in a safe and healthful environment.

Commenters to both the proposed and interim final rules supported widely different ideas about a HazCom rule for the mining industry. Some said we do not need one because existing standards require hazard training and labeling; others said it is vital to allow miners to exercise their right-to-know. Some said the rule would be a great burden; others said that they already have such a program. Some said they want a rule

just like OSHA's; others said we should resist the temptation to duplicate OSHA's HCS. Some wanted a separate standard for the coal mining industry; others recommended that we establish separate standards for mine operators and independent contractors; others wanted a single federal standard. Some urged us to include specific language to ensure that individual states do not promulgate or enforce any requirements related to hazard communication that conflict with the federal standard. Commenters recommended that the final rule be practical, strike a balance between providing too much information and too little, and allow for global harmonization with international standards.

In response to the different needs for hazard communication in the mining industry, and the broad range of comments, the provisions of the final rule are performance oriented and flexible enough that operators, including contractors, can comply using a single program to meet OSHA's HCS and our HazCom standard. We considered adopting the OSHA HCS in its entirety, but some requirements of OSHA's HCS are not relevant to mining. As another consideration, OSHA's HCS is supplemented by other OSHA standards for which we have no parallel. OSHA, for example, has comprehensive standards specifically covering hazardous waste operations, laboratories, and medical records. To the extent practical, the substance of our final rule is the same as that in OSHA's HCS. We added provisions where needed, however, to give miners the same protection as employees in general industry.

A. Subpart A—Purpose, Scope, Applicability, and Initial Miner Training

The proposed rule included a ''scope and application'' section stating where HazCom applied and listing exemptions from coverage. In the interim final rule, we renamed this section ''operators and chemicals covered.'' We moved the exemptions, which were a part of the scope in the proposed rule, to the end of the HazCom interim final rule so that the substantive requirements would be up front where they are more accessible. This placement is unchanged in the final rule. (*See* §§ 47.91 and 47.92.) We will discuss exemptions later in the preamble, consistent with their placement in the final rule.

1. Section 47.1 Purpose of a HazCom Standard; Applicability

A few commenters to the proposed rule suggested that we include a ''purpose and intent'' section in our HazCom final rule, in addition to the ''scope and application'' section. In response, the final rule adds language to specify that the purpose of HazCom is to reduce chemically related injuries and illnesses by ensuring that you—

- Know what chemicals are at your mine;
- Determine which are hazardous and the nature of their hazards;
- Establish a HazCom program; and
- Provide each miner with initial HazCom training.

This section of the final rule also includes the compliance dates for application of the rule. For mines employing five or fewer miners, the rule is applicable 9 months from its date of publication in the **Federal Register**. For mines employing six or more miners, the rule is applicable 3 months from its date of publication.

2. Section 47.2 Operators and Chemicals Covered; Initial Training

Operators and chemicals covered. The scope of the final rule remains unchanged from that of the interim final rule. Paragraph (a) of § 47.2 of the final rule states that the standard ''applies to any operator producing or using a hazardous chemical to which a miner can be exposed under normal conditions of use or in a foreseeable emergency.'' This language is consistent with the purpose of HazCom and OSHA's HCS.

The proposed rule specified that the rule would apply ''to all operators who produce or use hazardous chemicals in their workplace'' and to ''any chemical which is known to be present in the workplace in such a manner that employees are exposed * * *.'' Although the proposed rule seemed to apply only where there was an actual exposure, the proposed rule defined *exposed* as ''subjected, or potentially subjected, to a hazardous chemical * * *.'' The preamble to the proposed rule further explained that this definition included ''current and potential (accidental and possible) exposures.''

In the interim final rule we clarified the language of the proposal by stating that HazCom applies ''to any operator producing or using a hazardous chemical to which a miner can be exposed * * *.'' By modifying the language in the interim final rule, we clarified our intent that you must know what hazardous chemicals are present at your mine and evaluate whether it is possible for miners to be exposed under normal conditions of use or in a foreseeable emergency.

The potential for exposure to a hazardous chemical, such as diesel fuel, motor or hydraulic oils, lubricants, paints, or solvents, occurs at every known mining operation. While considering HazCom, we reviewed data and documents from inspections and investigations, chemical inventories, technical reports, accident and injury data, and sampling data confirming that exposure to chemicals occurs in all types and sizes of mines.

Potential exposure. The final rule retains the same concept of the term ''exposed'' as in the proposed and interim final rules. In HazCom, ''exposed'' means subjected or potentially subjected to a chemical hazard. In the context of potential exposure, we intend that you interpret the term ''foreseeable'' broadly as ''anticipated'' or ''expected'' eventually. A potential exposure to a hazardous chemical is foreseeable if the miner is in the same work area as the chemical; spills and leaks are commonplace. However, we also intend HazCom to be practical. We do not intend that you interpret ''foreseeable'' to include situations that are highly remote or speculative.

NIOSH commented on our HazCom proposed rule and interim final rule stating that the scope should not limit coverage of HazCom only to hazardous chemicals ''under normal conditions of use or in a foreseeable emergency.'' NIOSH stated that HazCom should cover all hazardous chemicals present on mine property, regardless of intended or expected exposures. Specifically, NIOSH stated in comments to the proposed rule that:

> All workers should be informed about the nature of the risks associated with the hazardous materials found in their workplace. ''When working in the presence of a hazardous material, hazards are always present even under work situations most carefully designed to eliminate risk'' (NIOSH 1974a). The informed worker is prepared to minimize the impact of a hazardous materials incident. The uninformed worker is at risk of causing a hazardous materials incident or contributing to adverse health effects.

In response to the interim final rule, NIOSH wrote:

> Hazard communication programs should include all workers at the worksite for all possible exposures including unplanned catastrophic occurrences that often involve hazardous materials and may result in exposure to any persons at the worksite.

We partly agree with NIOSH's comments. But we also agree with those commenters who expressed concern that by addressing remote or trivial hazards, the purpose of HazCom would be defeated and its effectiveness diluted. If miners are flooded with warnings about all chemical hazards, including

those they perceive as remotely possible, they may be more likely to ignore warnings for the more probable hazards. We also believe that it would be unnecessarily burdensome to require you to address every conceivable chemical hazard, regardless of how unlikely that hazard is to materialize.

For example, suppose a caustic chemical is only present in a certain area of your bauxite mill and you have miners in this area working near pipes carrying the caustic. You have other miners who work in a remote area of your operation who never go near the mill or the caustic. Although you could conceive of circumstances where the miner who does not work near the pipes can be exposed, it would not be reasonably foreseeable. On the other hand, you can conceive of circumstances where the miner who works daily near the pipes can be exposed. The caustic can eat through a pipe; a truck can back into a pipe; pressure can cause joints to leak. Exposure is foreseeable under these circumstances.

Almost all miners are exposed to crystalline silica, but the potential for illness is related to their exposure to the respirable fraction of dust. For example, suppose your miners work on a concrete floor and there is silica in the concrete. If no cutting, grinding, or other activities occur on the floor that would release the respirable fraction, the potential for exposure to respirable crystalline silica is remote, and the miners are not potentially exposed to a hazard. If you must remove the floor through grinding, cutting, or crushing, the potential for exposure is foreseeable and the concrete would become a hazardous chemical subject to HazCom. Base your decision to include a chemical in your HazCom program on its hazards and the potential for miner exposure.

The final rule sets boundaries on the chemicals and operators covered by HazCom. It is our judgment that these boundaries provide miners the protections intended by the Mine Act without causing you to expend resources on remote possibilities.

Significance of exposures. One of the most frequent suggestions received on both the proposed and interim final rules was that the rule should apply only where significant exposure to a chemical occurs. These commenters asserted that a significant exposure involved a likelihood of material impairment of health to a miner, such as when a miner was overexposed to a hazardous chemical. Miners are frequently and seriously harmed by chemicals in their work area, but HazCom is not a risk-based health standard for measuring exposures, requiring controls, or providing personal protective equipment. Other standards address the problems of significant risk and the methods of controlling it. HazCom is an information standard intended to diminish risk by ensuring that operators provide miners with a level of knowledge and awareness that allows them to reduce their exposures and prevent harm by recognizing potential hazards and by following safe work practices.

HazCom is based on the premise that chemicals can have inherent characteristics that pose hazards and miners have a right to know what those hazards are and what their employer is doing to protect them. Many chemicals are considered to be hazardous because evidence indicates that they can threaten a person's physical well-being. Determining that a chemical is hazardous is not the same as determining that there is a significant risk of any specific physical or health effect occurring from its use under a particular set of circumstances at the mine.

HazCom is being promulgated to *anticipate* the possibility of harm from chemical exposures and provide information on ways to avoid it. It is not intended to regulate chemical use. It does not prohibit or limit the use of chemicals in the mining industry or prescribe controls to reduce exposures. HazCom's effectiveness is dependent on the operator's and miner's knowledge and awareness of hazards. Like any information standard, it is through hazard identification and awareness that HazCom addresses hazardous chemical exposure and prevents injuries and illnesses.

Initial HazCom training. Paragraph (b) of § 47.2 of the final rule is a new paragraph. It requires operators of mines to initially instruct each current miner about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program within certain time periods.

Subpart F of the HazCom interim final rule contained all of the requirements for miner training which were, for the most part, the same as the proposed rule. The interim final rule required operators to train each miner about the hazardous chemicals in his work area before the miner's first assignment to that area, when the operator introduced a new hazardous chemical into the miner's work area, and when the operator became aware of significant, new information about a chemical's hazards. Although the interim final rule did not specify a format for this training, it stated that the HazCom training must include instruction on the physical and health hazards of chemicals in the work area; the requirements of HazCom; the mine's HazCom program; the location and availability of the written HazCom program; the operations or locations where hazardous chemicals are present in the miner's work area; the methods and observations that can be used to detect the presence or release of a hazardous chemical in the work area; the measures that a miner can take to protect himself or herself from these hazards; and specific procedures in place at the mine to protect miners from hazardous chemical exposure.

The training requirements of both the proposed HazCom standard and the interim final rule have been an issue throughout this rulemaking. A number of commenters to the proposed and interim final rules anticipated administrative problems both in conducting and documenting the training. Some urged us to fully integrate HazCom training with existing requirements. Some suggested that language be included to permit operators to satisfy the HazCom training provisions by incorporating HazCom training requirements into parts 46 and 48. Some suggested that we not promulgate training requirements under HazCom, asking us to amend parts 46 and 48 to specify HazCom contents instead. Other commenters felt that HazCom training duplicated EPA training and requested that we avoid needless duplication. Some commenters recommended that we require qualified or certified trainers to conduct the training. A commenter objected to the burden created by having to hire trainers and personnel to perform chemical identifications.

In the interim final rule we stated that although we have standards for labeling toxic substances under parts 56 and 57, these standards do not contain any training requirements on hazardous chemicals. With regard to the existing training under parts 46 and 48, we stated that these training regulations were insufficient for purposes of HazCom training because they do not specify the training content. Parts 46 and 48 basically require instruction in hazard recognition and the health and safety aspects of new work tasks.

After carefully reviewing all comments, and testimony presented at the HazCom hearings, we have decided to create a unified training approach for hazardous chemicals by eliminating all but the initial training requirements from the final rule and adding

conforming amendments to parts 46 and 48 for subsequent HazCom training.

Accordingly, this final rule eliminates the training requirements enumerated under Subpart F of the interim final rule. We believe that the conforming amendments to 30 CFR parts 46 and 48 will maintain the level of safety presented by the interim final rule. The final rule initially requires mine operators to instruct each miner about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program, under new paragraph (b) of § 47.2. We have also added amendments to the training subjects of existing 30 CFR parts 46 and 48 to address the subject of hazardous chemicals. This means that subsequent training on HazCom topics after the initial HazCom training required under § 47.2(b) will be conducted under parts 46 and 48. We believe that these conforming amendments to parts 46 and 48 are necessary to ensure that training on hazardous chemicals is provided under these parts.

Hazardous waste. The final rule, consistent with the interim final rule, does not exempt EPA-regulated hazardous waste from training. Miners that have this type of hazardous material in their work area need all the information available to protect themselves from chemical hazards and from inadvertent exposure that could cause or contribute to an injury or illness.

There are a number of cement operations under MSHA jurisdiction which EPA licenses to burn hazardous waste. These operations typically use the waste as a supplemental fuel for their kilns. In addition, EPA regulates a number of mining operations that dispose of hazardous solid or liquid wastes on mine property. In the proposed rule, we specifically requested comments on the appropriateness of requiring HazCom training for miners who are exposed to EPA-regulated hazardous wastes.

One commenter supported our proposed hazardous waste training requirements. Another stated that we should use Resource Conservation and Recovery Act (RCRA) information for training purposes and copy OSHA's HCS. One commenter recommended that we not require HazCom training unless a miner is exposed to the hazardous waste. Another commenter stated that HazCom training in addition to EPA training may be redundant.

We believe that HazCom's provisions for hazardous waste will not result in duplication because MSHA standards do not fully address hazardous waste operations. OSHA can exempt hazardous waste from its HCS because they have a separate standard that covers hazardous waste operations. HazCom fills an important gap in protecting the health and safety of miners who may be exposed to hazardous waste. HazCom requires operators to label hazardous waste, if it is not already labeled, and provide miners access to any information about the hazardous waste that addresses its components, their health and safety effects, or how to prevent exposure.

As discussed earlier in this preamble, we addressed the issue of how to handle EPA-regulated hazardous waste at all stages of the rulemaking process. We are confident that the coverage of EPA-regulated hazardous waste in the HazCom rule eliminates potential duplicate training and minimizes burden on mine operators while providing protection for miners. EPA reviewed MSHA's HazCom interim final rule and saw no errors or omissions or other issues of concern to them.

Administration of training and compliance assistance. Some commenters to the proposed and interim final rules recommended that MSHA administer the HazCom training because it could result in a higher level of consistency and quality in the training. One commenter to the interim final rule suggested that MSHA cite ANSI Z490.1 *Criteria for Best Practices in Safety, Health, and Environmental Training,* in the final rule for you to follow.

Although we do not intend to conduct the initial HazCom training for you, we will provide information and assistance to trainers through our Mine Safety and Health Academy, Educational Field Services, and the MSHA district offices, and state grantees. We have developed a number of aids for the mining industry to use in implementing a successful HazCom program. You can visit our Web site at *http://www.msha.gov* to find out what is available. We intend to publish a Compliance Guide, a Toolbox, and other information as warranted, apart from HazCom, to assist the industry in complying with the standard. We encourage you to use the ANSI document as a guide for your initial HazCom training or subsequent HazCom training under 30 CFR parts 46 and 48.

Like MSHA, OSHA has developed training materials for its industries, some of which may be helpful to you in developing your initial HazCom training or subsequent training. The training materials are available from OSHA's Web site at *http://www.osha.gov.* Additionally, over the past 15 years, various organizations have developed informational materials, training aids, and model training programs to assist industry in complying with OSHA's HCS. You should be able to use some of this material in developing and conducting HazCom training.

Content of initial miner training. As explained above, § 47.2(b) of the final rule requires operators to initially instruct each miner about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. Consistent with the proposed and interim final rules, this new provision does not specify the format for this training. The rule allows you to determine the best way to instruct your miners about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. If miners are exposed to a large number of hazardous chemicals, you could conduct the initial HazCom training by categories of hazards and by referring miners to the substance specific information on the labels and MSDSs and the locations or operations within their work areas where such chemicals are used. If miners are exposed to a small number of hazardous chemicals, you could conduct their initial HazCom training specifically on each hazardous chemical.

The interim final rule specified the content of the HazCom training by stating that the HazCom training must include instruction on the physical and health hazards of chemicals in the work area; the requirements of HazCom; the mine's HazCom program; the location and availability of the written HazCom program; the operations or locations where hazardous chemicals are present in the miner's work area; the methods and observations that can be used to detect the presence or release of a hazardous chemical in the work area; the measures that a miner can take to protect himself or herself from these hazards; and specific procedures in place at the mine to protect miners from hazardous chemical exposure. Final § 47.2(b), along with the conforming amendments to existing parts 46 and 48, contains equivalent protection to the interim final rule. We believe that this modification of the HazCom training requirements does not represent a reduction in safety to miners because the specific training elements of the interim final rule are already integrated in other sections of the final rule, final

§ 47.2(b) and the conforming amendments to parts 46 and 48.

Accordingly, consistent with § 47.52(a), (c) and (g) of the interim final rule, final § 47.2(b) requires mine operators initially to instruct each miner about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. Additionally, subsequent HazCom training under parts 46 and 48 will include instruction on the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

For example, miners will continue to have information regarding the requirements of the HazCom standard under paragraph (a) of § 47.32 and § 47.71 of the final rule. Paragraph (a) of § 47.32, *HazCom program contents,* requires mine operators to specify in the written HazCom program how the requirements of the HazCom standard are put into practice at the mine. Section 47.2 requires operators to instruct each miner about the HazCom program. Section 47.71, *Access to HazCom materials,* requires mine operators to provide all miners, upon request, with access to all HazCom materials required by the rule. Consequently, both §§ 47.32 and 47.71 will ensure that information about the HazCom standard is provided to each miner.

With regards to the interim final rule's requirement to train miners on the location and availability of the written HazCom program, the operations and locations where hazardous chemicals are present in the miner's work area, and the specific procedures in place at the mine to protect miners from hazardous chemical exposure, we believe that the final rule, as well as the conforming amendments to parts 46 and 48, include these. Final § 47.2(b), *Operators and chemicals covered; initial training,* requires mine operators to train miners on the protective measures they can take against the physical and health hazards of chemical's in their work area. It also requires mine operators to train miners on the contents of the mine's HazCom program. Section 47.32 of the final rule, *HazCom program content,* requires mine operators to include in the written HazCom program, among other things, a list of hazardous chemicals known to be at the mine. As with the interim final rule, this list may be compiled by individual areas of the mine or the mine as a whole. Access to all HazCom materials, including the HazCom final rule, is provided under § 47.71.

When you train miners on the physical and health hazards of chemicals in the miners' work areas, the training must include the operations and locations where hazardous chemicals are present. In addition, as part of the information provided to each miner regarding protective measures and the content of the HazCom program, you must inform miners about the location and availability of the written HazCom program, as well as the specific procedures in place at the mine to protect them from hazardous chemical exposure. Final §§ 47.2(b), 47.32, and 47.71, together, will ensure that miners are provided with the appropriate information that will provide protection against chemical hazards at the mine.

Instructor qualifications. Some commenters to the proposed and interim final rules recommended that we require you to conduct HazCom training using only qualified or certified trainers. One of these commenters stated that we should require OSHA qualification for HazCom instructors in mining and that we should require your hazard coordinators to maintain their qualifications by attending formal education or training courses. A commenter expressed concern that unqualified mine supervisors may be conducting HazCom training. Another commenter objected to the burden created by having to hire trainers and personnel to perform chemical identifications.

Consistent with the proposed and interim final rules, the final HazCom standard does not specifically require you to use qualified instructors to conduct the initial HazCom training. We expect, however, that you will use the trainers on your staff to train miners about chemical hazards. The hazardous chemicals brought to your mine will have MSDSs and labels. These will provide information for hazard identification and you should not have to hire or train additional persons to conduct the initial HazCom training.

Mine operators must be aware that, even though final § 47.2(b) does not require the use of a qualified instructor for the initial HazCom training, the final HazCom standard amends existing parts 46 and 48 so that subsequent HazCom training is conducted under those training regulations. All subsequent HazCom training, therefore, must be provided in accordance with the applicable training requirements of parts 46 and 48. Existing part 46 requires that the training be conducted by a competent person designated by the mine operator. Existing part 48 requires the use of an MSHA-approved instructor for the administration of part 48 training.

HazCom training records. MSHA and many commenters have a common concern about paperwork requirements and the recordkeeping burden this places on them. Congress requires us to reduce the amount of paperwork you must keep or submit to us. That requirement is balanced against our need to function effectively in meeting the goals of the Agency.

In view of those factors, and to alleviate mine operator's recordkeeping burden, this final rule does not require mine operators to maintain a record of the initial HazCom training required under § 47.2(b). We believe that this modification provides mine operators with relief from their paperwork burden. We also believe that this change does not represent a reduction of miner safety because we will be able to determine through our compliance assistance and inspection activities whether miners received their initial HazCom training.

MSHA inspectors will be providing compliance assistance at every mine. At the times that inspectors visit the mines, the inspectors can easily determine whether or not the miners have been initially trained in accordance with § 47.2. Discovering whether or not such initial training has occurred should be a focus of the compliance assistance which inspectors will be offering. This determination can be easily made by asking the miners if they have received the training outlined in the rule. Miners will be aware of their rights through the outreach programs planned by MSHA. Mine operators will be aware of their responsibilities based on the information which will be provided by MSHA inspectors and MSHA education and training personnel.

Mine operators are reminded that, even though the HazCom final rule does not contain a recordkeeping requirement for initial training, existing training regulations under parts 46 and 48 contain recordkeeping requirements. Subsequent HazCom training conducted under existing parts 46 and 48 must comply with the recordkeeping requirements of those training regulations.

B. Subpart B—Definitions

HazCom is an information standard focused on developing awareness of chemical hazards. Table 47.11 defines the terms needed for understanding the concepts and requirements in the standard. We defined some terms to have a special meaning for this

standard, but tried to stay consistent with the ordinary meaning of the terms.

1. Using MSHA and OSHA terms

The Mine Act defines the terms *miner* and *mine operator* to identify employees and employers on mine properties and we use those terms in the final rule as they were defined in the statute.

Miners/workers/employees. We used the term *employee* in the proposed rule to identify a person ''working in a mine who may be exposed to a hazardous chemical.'' The proposed rule included a sentence to clarify that the standard did not apply to individuals, such as office workers, who encounter hazardous chemicals only in non-routine instances.

Commenters to the proposed rule recommended that we use the term *miner* instead of *employee.* Many commenters pointed out that *miner* is defined in the Mine Act, and that using this term would be consistent with our statute. Because the term *miner,* as defined in the Mine Act, means any individual working in a coal or other mine, including office workers, some suggested that we could add an exemption for office workers in a separate section.

The example of office workers in the proposed rule was an attempt to clarify that HazCom does not apply to individuals exposed to a hazardous chemical in extraordinary, non-routine situations. We intended this statement in the proposed rule to complement the scope and emphasize that individuals exposed to a hazardous chemical under normal conditions of use or in a foreseeable emergency, regardless of their job category, are covered by HazCom.

You must ensure that hazardous chemicals normally used in or around an office are labeled appropriately and that you have an MSDS for them. You also must inform exposed office workers about the physical and health hazards of chemicals in their work area, the protective measures they can take against these hazards, and the contents of the mine's HazCom program.

For example, some toner cartridges for copying machines come labeled and have MSDSs with them because they contain a hazardous chemical. The label and MSDS will comply with OSHA's HCS. Under HazCom, you must make potentially exposed workers aware of the hazards.

In response to comments, we replaced the term *employee* with the term *miner* in the interim final rule. There were a few instances where *employee* was more appropriate because it made the meaning clearer. There were no comments to those revisions and they were unchanged in the final rule.

Operator/independent contractor/employer. We defined *employer* in the proposed rule as a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor. We intended the term to describe independent contractors on-site, as well as downstream or OSHA jurisdiction customers. In response to the general comment that we should rely on definitions familiar to the mining community, we replaced the term *employer* with the term *operator* in the interim final rule. We retained a few instances where *employer* was more appropriate because it made the meaning clearer. There were no comments to those revisions and they are unchanged in the final rule.

In the final rule, consistent with the interim final rule, we use *operator* to mean both the mine operator and independent contractor as defined in the Mine Act. In the preamble, we often use the term *you* instead of *operator.* We use the separate terms *mine operator* and *independent contractor* when we want to differentiate between the mine operator responsible for the whole operation and the contractors and subcontractors who have the responsibilities of an operator for specific aspects of the mining operation.

Customer. We determined that a definition was not necessary for *customer* because we use the term as it is commonly understood to mean the downstream users who purchase your products.

Mine/workplace. We defined *workplace* in the proposed rule to mean a mine, establishment, job site, or project at one geographical location containing one or more work areas. The term *mine* is defined by the Mine Act and, like *miner,* is more familiar to the mining industry. *Mine* means the same thing as *workplace* for purposes of HazCom. Accordingly, we substituted the term *mine* for *workplace* throughout the interim final rule. There were no comments to those revisions and they are unchanged in the final rule.

Other terms. Some commenters to the proposed rule suggested that we add definitions for terms not proposed. Several commenters requested that coal mine be defined. The definition for *mine* in the Mine Act includes coal mines and coal preparation facilities. A number of commenters wanted independent contractor defined. We believe this term is well understood by the mining industry. It is used in § 3 of the Mine Act in the definition of *operator;* 30 CFR part 45–Independent Contractors defines this term and it is used in other MSHA standards; and it has been clarified in case law. Separate definitions for these terms are unnecessary. No additional comments were made to the interim final rule and the meanings are unchanged in the final rule.

2. Material Impairment and Significant Risk

Commenters to the proposed rule suggested revising definitions for *exposed, hazardous chemical,* and *health hazard,* among others, so the terms would include the concepts of material impairment and significant risk. They suggested deleting the phrase ''or potentially subjected'' from the definition of *exposed.* (The definition would then read: ''Being subjected to a hazardous chemical in the course of employment * * *.'') Commenters also objected to the proposed rule's definition of *hazardous chemical* because it addressed ''any chemical, in any quantity, at any time.'' A health hazard, according to a commenter, should be a health hazard only under conditions of intended use.

We did not change the definitions for *exposed, hazardous chemical,* and *health hazard* in the interim final or final rules to include the concepts of material impairment or significant risk. If these changes were made in HazCom, the final rule would have taken a significant departure from its intended purpose. A fuller discussion of material impairment and significant risk is found under Purpose and Scope in this preamble.

3. Section 47.11 Definitions of Terms Used in This Part

A number of the terms defined in HazCom are commonly used by chemists, physicists, and health and safety professionals to identify and describe specific types of physical and health hazards or physical properties of chemicals. We have defined these terms in the clearest way we could, sometimes balancing technical precision with general clarity. For clarity and ease of reference, the final rule also includes the meanings of the abbreviations CPSC, EPA, and OSHA in the table of definitions. We believe this subpart provides you with the information you need to understand what HazCom requires and how to comply with it.

Access. The final rule, like the proposed and interim final rules, defines *access* as the right to examine and copy records. One commenter to the proposed rule wanted this definition to

specify that you must provide access without cost to the miner. Another commenter to the proposal did not want the definition to include the right to copy records. Other commenters to the proposal suggested that we consolidate the access provisions in a single subpart rather than repeat them for each subpart.

HazCom's final rule is organized consistent with the interim final rule and uses the term *access* principally in the subpart ''Making HazCom Information Available''. We believed the creation of this would make the requirements clearer and easier to use as well as respond to those commenters who asked us to consolidate provisions from several sections of the proposed rule. Because of the amount of detailed, technical HazCom material, particularly MSDSs, we believe that the intent to provide information to miners is best served if miners have the right to a copy of the material. The cost for providing free copies is a condition for providing access and not appropriate in a definition.

Article. The proposed rule defined *article* to mean a manufactured item other than a fluid or a particle that—

(a) Is formed to a specific shape or design during manufacture;

(b) Has end-use functions dependent upon its shape or design; and

(c) Under normal conditions of use, releases no more than small quantities (that is, minute or trace amounts) of a hazardous chemical, such as the off-gassing of plastic pipes, and does not pose a physical or health risk to employees.

Numerous commenters to the proposed rule agreed with the definition in the proposed rule, except for paragraph (c). They claimed that paragraph (c) was unclear about how much of a hazardous chemical released from a manufactured item under normal conditions of use would constitute either small, minute, trace, or *de minimis* quantities. They also asked that we clarify that *article* means conveyor belts, repair steel, and other equipment and supplies commonly found at mines. To determine when an article is a hazardous chemical, some commenters suggested that the definition include a *de minimis* provision, while other commenters wanted a significant risk provision. One commenter to the proposed rule wanted the term ''under normal conditions of use'' deleted from the definition because it would limit the scope of the standard.

Another commenter expressed concern that iron ore pellets would be considered a hazardous chemical under HazCom. Iron ore pellets, like bricks, are manufactured articles. Before they are pellets, however, the iron ore is a raw material which contains respirable crystalline silica. Both the respirable dusts of iron ore and silica are inhalation hazards because they can cause lung damage. When they can pose a hazard to exposed workers, these raw materials are covered by HazCom. As raw material, iron ore is exempt from labeling under HazCom while on mine property. The pellets are exempt from HazCom when they are formed into articles, provided that they do not release more than insignificant or trace amounts of a hazardous chemical and do not pose a physical or health hazard.

We agreed with those commenters to the proposal that the definition created confusion. We believe that the confusion arose because the defined term also included the criteria for exemption, which was contrary to the ordinary understanding of the word. An article is first of all a class of material things. An item manufactured to a shape or design that determines its end-use functions will be an article, in the ordinary sense of the word, whether it gives off trace amounts of a hazardous chemical or larger amounts. The exemption of an article, however, is dependent on how the article is used.

To clarify the standard's intent, we moved proposed paragraph (c) from Definitions to Exemptions to indicate that only articles that give off no more than insignificant or trace amounts of a hazardous chemical, and are neither a physical nor a health hazard, are exempt. The definition in the final rule describes manufactured goods, other than a fluid or particle, without regard to the chemical hazard produced. The Exemptions subpart now addresses the distinction between exempt and non-exempt articles. We believe that this change is non-substantive, and clarifies the final rule. The final rule, like the interim final rule, uses the same language as the proposed rule except for the movement of the last provision to Exemptions.

To illustrate the intent of the change, suppose you purchase a tire and use it on a haul truck. While on the truck, the tire may give off a trace amount of a hazardous chemical. Under this use, the tire is an article exempt from HazCom. When the tire is worn out and can no longer be safely used on the truck, you may send it to a mine that uses tires to supplement the fuel for a kiln. While burning, the tire gives off significant amounts of hazardous chemicals. The tire is still an article, but no longer exempt from HazCom. If they are exposed, the miners working at the kiln must be trained about the chemical hazards associated with the burning tire.

Chemical. The final rule, like the proposed and interim final rules, defines *chemical* as any element, chemical compound, or mixture of these. One commenter to the proposed rule assumed that, for the purposes of HazCom, the definition of *chemical* could be interpreted broadly to include the by-products of chemical reactions. We agree. A by-product of chemical reactions is a separate chemical and may have different hazards than the chemicals used to produce it. We intend that you address any by-products as you address other chemicals you produce.

Chemical name. The proposed rule defined *chemical name* as the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rule of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard evaluation. A commenter to the proposed rule recommended that the definition specify Registry of Toxic Effects of Chemical Substances (RTECS) numbers, as well as CAS numbers. Although RTECS numbers are not as widely accepted as CAS numbers as a means of identifying a specific chemical, they are unique and precise and may be used, as well as IUPAC numbers. HazCom's interim final and final rules retain the proposed rules definition for *chemical name.* There were no subsequent comments received concerning the definitions or this discussion in the interim final or final rules.

Common name. In the proposed rule, we defined *common name* as any designation or identification, such as a code name, code number, trade name, brand name, or generic name, used to identify a chemical other than by its chemical name. Commenters generally supported the proposed definition for the term *common name,* which remains the same in the final rule. This definition is consistent with the OSHA HCS.

Consumer product; food; food additive; color additive. We exempted *consumer products, foods, food additives,* and *color additives* in the proposed rule, but we did not define them. The exemptions, however, referred to the definitions of these terms in the Consumer Product Safety Act (CPSA) and the Federal Food, Drug, and Cosmetic Act. Commenters to the proposed rule asked us to clarify the meaning of these terms, although the

concerns appeared to center on consumer products.

We did not define *food, food additive,* or *color additive* in the interim final or final rules because we use these terms as they are commonly understood and we believe the public knows what they mean. We received no comments about the use of these terms in response to the interim final rule.

We defined *consumer product* in the interim final rule, in part, by developing it from the exemption in the proposed rule and referring to the CPSA. The proposed rule would have exempted consumer products as defined in the Consumer Product Safety Act (15 U.S.C. 2051) when they are subject to consumer product safety standards or labeling requirements issued under this Act. The interim final rule required you to consider ''the manufacturer's intent,'' ''the level and duration of exposure,'' and its labeling under the CPSA. Commenters to the interim final rule asked that we provide a definition for *consumer product* that would serve as a practical guide, rather than refer to CPSA. One commenter suggested that ''EPA's consumer products definition [in SARA] is more practical than MSHA's and achieves the result MSHA intended.''

In response to comments, we revised the definition for *consumer product* in the final rule to be easier to understand by keying it to packaging, labeling, and distribution rather than referencing another federal statute. We decided to use the Consumer Products Safety Commission's (CPSC's) concept of consumer product, rather than SARA's, because both HazCom and OSHA's HCS refer to CPSC's definition. The CPSC's definition clarifies the exemption, is compatible with HazCom and OSHA's use of the term, and provides the necessary protections for miners. Even so, we intend that the definition and exemption cover the same chemical products and uses as the proposed and interim final rules and OSHA's HCS. We believe that by defining *consumer product* as being packaged, labeled, and distributed in the same form and concentration as it is sold for use by the general public, the definition is simpler and easier to understand. A full discussion of consumer products can be found in Subpart J, Exemptions, later in this preamble.

Container. As in the proposed and interim final rules, the final rule defines *container* as any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. The definition further states that pipes or piping systems; conveyors; and engines, fuel tanks, or other operating systems or parts on a motor vehicle (such as tires) are not considered to be containers.

One commenter to the proposed rule wanted pipes that contain hazardous chemicals to be considered containers. We consider it impractical to label pipes and piping systems containing hazardous chemicals. In numerous cases, these systems are used for different chemicals at different times, depending upon the needs of the operation. Our existing training standards require you to train miners about the hazardous chemicals to which they may be exposed in their work area. These are the same chemicals that would be transported in pipes and piping systems. In addition, the initial HazCom training requirements of this final rule cover the hazards of chemicals contained in pipes or piping systems in the miners' work areas.

Designated representative. The final rule, like the proposed and interim final rules, defines *designated representative* as any individual or organization to whom a miner gives written authority to exercise that miner's right of access to records. A miner's representative, to contrast the two terms, is any individual or organization representing two or more miners.

Many commenters to the proposed rule wanted to limit the miner's choice of a designated representative to the duly selected collective bargaining representative, a member of a safety and health committee chosen by the miners, or an individual miner selected as the walkaround representative by the miners at the same mine. We feel that if we had adopted any of these suggestions, we would have restricted a miner's options.

Consistent with the proposed and interim final rules, the definition of *designated representative* in the final rule allows the miner to choose anyone as his or her designated representative, including the collective bargaining or miners' representative. We anticipate that in most instances, the designated representative will be one of those, but it could also be a miner's personal physician, attorney, or other person or organization of the miner's choosing.

Employee; employer. The proposed rule defined *employee* as any individual working in a mine who may be exposed to a hazardous chemical. Individuals such as office workers who encounter hazardous chemicals in non-routine instances were not covered. Consistent with the interim final rule, we use the term *miner* in the final rule rather than *employee* and HazCom, therefore, does not include a definition for *employee.*

The proposed rule defined *employer* as a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor. We use the term *operator* in the final rule rather than *employer* and HazCom, therefore, does not include a definition for *employer.* A fuller discussion of OSHA and MSHA terms is found in the preamble just before this section on Definitions.

Exposed. The proposed rule defined *exposed* as being subjected, or potentially subjected, to a hazardous chemical in the course of employment through any route of entry, such as inhalation, ingestion, or skin absorption, during normal operating conditions or in a foreseeable emergency.

A number of commenters to the proposed rule wanted the phrase ''or potentially subjected'' deleted from the definition of *exposed* because it is vague and open to interpretation. Other commenters wanted to modify the definition to read ''reasonably foreseeable emergency,'' and several commenters wanted to delete the entire phrase. Another commenter to the proposed rule wanted the term *exposed* to be defined as being subjected, or potentially subjected, to exposure equal to or above the MSHA limit for a hazardous chemical.

Excluding potential exposure to a hazardous chemical, when the chemical does not have an MSHA limit or when the exposure may be below the limit, would circumvent the intent of HazCom to have miners aware of potential problems and take action to avoid them. In addition, other MSHA standards set requirements for controlling the miner's exposure to hazardous chemicals. The final rule, consistent with the interim final rule, does not incorporate these suggested changes, nor does it retain the phrase ''during normal operating conditions or in a foreseeable emergency'' in the definition of *exposed.* As with the changes in the definition of *article,* this phrase addressed a condition of use and confused the normal understanding of the term *exposed.* The phrase ''potentially subjected'' covers those situations where the threat of exposure to hazardous chemicals exists. We employ the phrase ''during normal operating conditions or in a foreseeable emergency'' with the term *exposed* in § 47.2 to describe when HazCom applies. We intend this definition to cover the same mine conditions as the proposed rule and, therefore, this revision has no reduction in protections for miners.

Foreseeable emergency. The proposed rule defined *foreseeable emergency* as any potential occurrence for which you would normally plan, such as equipment failure, rupture or spill of containers, or failure of control equipment, that could result in an uncontrolled release of a hazardous chemical into the work area. Many commenters to the proposed rule stated that the phrase ''for which operators would normally plan'' is vague and open to interpretation and abuse and should be removed from the definition. Several of these commenters wanted to substitute ''reasonably plan'' for ''normally plan.''

The phrase, ''for which you would normally plan,'' was intended to clarify the scope of ''foreseeable'' emergencies to provide some guidance that HazCom does not apply to remotely possible and speculative emergencies. In response to the commenters, the final rule, unlike the proposed and interim final rules, does not include the phrase ''for which you would normally plan,'' in its definition of *foreseeable emergency.* We believe operators know about normal planning for emergencies because of the mining industry's history of planning to prevent disasters, particularly explosions and cave-ins. We will consider an emergency to be foreseeable if we can reasonably expect you to know that it could occur due to the nature of the mining operation.

Hazard warning. The proposed rule defined *hazard warning* as any word, picture, or symbol appearing on a label or other appropriate form of warning that conveys the specific physical and health hazards of the chemical in the container, including target organ effects. (See the definitions for *physical hazard* and *health hazard* for examples of the hazards that must be communicated.)

One commenter to the proposed rule suggested that appropriate protective measures should be required as part of hazard warnings. Although giving information about protective measures is a vital part of HazCom, we already address this information in the provisions for MSDSs, and initial HazCom training. Additionally, we are also including this subject as a training subject under parts 46 and 48. The purpose of the hazard warning in labeling is to convey critical information immediately. We believe that the most critical information for labeling is the name of the chemical and its hazards.

Consistent with the interim final rule, the final rule defines *hazard warning* as any words, pictures, symbols, or other forms of warning that convey the specific hazards of the chemical. We removed the text specifically referencing target organ effects or containers from the definition for *hazard warning* in the final rule because it was redundant. Labeling requirements in subpart D of HazCom address containers, and the definitions of *health hazard* and *physical hazard* address the effects of hazardous chemicals, including target organs.

Hazardous chemical. To be consistent with changes in the definitions of *health hazard* and *physical hazard,* we changed the definition of *hazardous chemical* in the final rule to mean any chemical that can present a physical hazard or a health hazard. We included the criteria for determining whether a chemical is hazardous in § 47.11, Identifying hazardous chemicals. In the proposed rule, we had defined *hazardous chemical* as any chemical that is a physical hazard or a health hazard.

One commenter to the proposed rule suggested that the definition of *hazardous chemical* convey the concept that a chemical be considered hazardous based on whether it exists in a quantity or is used in a manner that could present a reasonable risk of overexposure to a miner. Several other commenters to the proposed rule suggested that the definition exempt coal and related raw materials and consumer products. Another wanted *hazardous material* to be substituted for *hazardous chemical,* stating that it would be more readily understood. As an example, this commenter stated that asbestos and gasoline are highly hazardous, yet they are not commonly referred to as chemicals.

If we based the application of HazCom on the quantity of a chemical present, it would allow you to ignore chemicals with known hazards if they are in small quantities. Some hazardous chemicals are not evenly dispersed in a mixture of dusts, liquids, or gases, and pockets of high concentration can pose a hazard even if the quantity is low. We believe that it is far more protective, and necessary to prevent injury or illness, to train miners about the presence of the chemical, signs and symptoms of exposure, safe work practices, precautionary measures, and the need to keep engineering controls in proper working order, rather than argue about what level of risk is reasonable or significant and then wait until there is a risk to inform the miners about it.

Exemptions of coal, raw materials, and consumer products from the definition of *hazardous chemical* would, in effect, exempt these substances from HazCom. In conjunction with the definition of *chemical* in this final rule, the definition of *hazardous chemical* adequately addresses our intent that common hazardous substances, such as gasoline, are to be considered hazardous chemicals.

Hazardous substance. Both EPA and CPSC regulate hazardous substances. We borrowed the term *hazardous substance* from those agencies to identify chemicals regulated by them and exempt from HazCom or its labeling provisions. We define the term *hazardous substance* in this final rule specifically to clarify which hazardous substances are exempt from HazCom or HazCom labeling because they are regulated by CPSC under the Federal Hazardous Substance Act (15 U.S.C. 1261 *et seq.*) and which are exempt from labeling because they are regulated by EPA as defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 *et seq.*).

The proposed rule did not define the term *hazardous substance,* but used it in the provisions for exemptions. A number of commenters to the proposed rule felt that *hazardous substance* should be defined because it is used in the rule. We did not define *hazardous substance* in the interim final rule; however, its meaning and use was the same as in the proposed rule and consistent with OSHA's HCS.

Hazardous waste. The final rule uses the same definition of *hazardous waste* as in the proposed and interim final rules. We intend that our use of the term *hazardous waste* be consistent with both OSHA's and EPA's use of this term. HazCom defines *hazardous waste* as any chemical regulated by the Environmental Protection Agency (EPA) as a hazardous waste, as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 *et seq.*).

Many commenters to the proposed rule wanted *hazardous waste* re-defined to include only those chemical wastes which, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may result in death or serious illness or pose a substantial hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. One commenter to the proposed rule requested that HazCom include an operational definition for *hazardous waste.*

We believe that an operational definition of *hazardous waste* specifically for mining operations would cause confusion for you in complying with other federal and state standards. Other wastes from the mining

operation or brought to the mine that are not regulated by EPA also can contain hazardous chemicals. The primary difference between the hazardous waste regulated by EPA from those unregulated by EPA is the amount of information that you can expect from the supplier. Although HazCom exempts EPA-regulated hazardous wastes from labels and MSDSs, the final rule, consistent with the interim final rule, requires you to instruct miners who can be exposed about their hazards. We are especially concerned that you obtain enough information to instruct miners about those wastes that are brought to mine property, the content and hazards of which may be unknown to you.

Health hazard. The term health hazard in the final rule is substantively the same as the proposed and interim final rules. It describes those chemicals that can present a risk of disease or other harmful health effect to an exposed miner. The proposed rule defined *health hazard* as ''[a] chemical for which acute or chronic health effects may occur in exposed employees.'' The proposed rule then listed the types of illness or injury that we consider to be health hazards and also included Appendices A and B to provide more detailed explanations of these hazards.

A few commenters to the proposed rule wanted *health hazard* defined (as in OSHA's HCS) as a chemical for which there is statistically significant evidence of significant risk based on at least one valid study. Another of the proposed rule's commenters stated that much of the information in the definition was overwhelming and that the inclusion of Appendix A and Appendix B as part of the definition was inappropriate and confusing. Some suggested that the final rule reference 30 CFR parts 56, 57, 70, 71, and 75 instead of Appendices A and B.

We agreed with the commenters that the terms were somewhat obscure and drafted the definition in the interim final rule to be clearer. We also deleted the appendices to eliminate that potential source of confusion. In response to comments and for the sake of clarity, we added that there must be statistically significant evidence that the chemical can do harm and described the types of illness and injury in plain language.

In response to comments to the interim final rule, we clarified the definition in two additional ways. First, we deleted the phrase ''psychological and behavioral problems'' from the listing for nervous system disorders. Commenters to the interim final rule had objected to its inclusion, pointing out that operators may be unable to distinguish between psychological disorders and abnormal behavior caused by occupational exposure to a chemical. By deleting those terms, however, we do not mean to suggest that some abnormal behaviors may not be linked to chemical exposures. A number of chemical exposures can result in the appearance of a psychological or behavioral disorder. For this reason, miners need to know when they are working with a chemical that can cause them to act in an apparently abnormal manner and what those symptoms might be. If the MSDS or label lists behavioral or mood changes as a result of exposure to the hazardous chemical, it needs to be addressed in your HazCom program. We deleted this phrase from the rule, but not from the preamble because psychological and behavioral problems, such as mood swings or abnormal behavior, can be a manifestation of central nervous system damage or poisoning.

Our second change adds a category for toxic and highly toxic agents, clarifying that HazCom covers hazardous chemicals that can cause harm not specifically listed in the definition. ''Toxic'' and ''highly toxic'' are technical terms used to describe two levels of danger (virulence).

We believe that the final rule clarifies the intent, meaning, and use of the proposed and interim final rule definitions of *health hazard,* making them more consistent with OSHA's HCS while not reducing protections for miners.

Health professional. We use the term *health professional* in the subpart on Trade Secrets in addressing two situations: an emergency situation when the trade secret information may be needed to save a life, and a non-emergency situation when the information may be needed, but not immediately. The term was undefined in the proposed rule, but, consistent with OSHA, cited examples, referring to a treating physician or nurse. We received comments to the proposal that others, such as emergency medical technicians, may need access to this information in an emergency and should be included.

In the interim final rule, we defined *health professional* as a ''physician, nurse physician's assistant, emergency medical technician, industrial hygienist, toxicologist, epidemiologist, or other person qualified to provide medical or occupational health services.''

One commenter to the interim final rule asked that ''occupational'' not be used restrictively to limit the term *health professional.* Another commenter to the interim final rule asked that health professionals be licensed individuals. This would eliminate industrial hygienists, for example, who may be board certified, as well as some otherwise qualified nurses and technicians.

Some commenters to the proposed and interim final rules asked that we include ''safety professionals'' among those who must be given trade secret information that may otherwise be withheld. They stated that it is necessary to add safety professionals to the definition of *health professional* because many mines do not have industrial hygienists; their safety professionals monitor, review, and make corrective recommendations about the health hazards present at the mine.

In response to comments to the interim final rule, we re-defined *health professional* in the final rule to include a physician, nurse, physician's assistant, emergency medical technician, or other person qualified to provide medical or occupational health services. Rather than listing many professionals which could be misinterpreted as exhaustive, we edited the definition, leaving the ''other person qualified'' to include other individuals, such as those who are qualified by their position or training. Thus, all persons qualified to provide occupational health service are covered. We also discuss this issue under Subpart I, Trade Secrets.

This definition is intentionally flexible to allow you to make decisions that focus first on the needs of the miner. The phrase ''or other person qualified'' allows industrial hygienists, toxicologists, epidemiologists, and safety professionals to obtain trade secret information under the trade secret provisions of this final rule if needed to provide medical or occupational health services to miners.

HazCom does not require that the health professional be licensed. We believe that the definition in the final rule is restrictive enough to protect trade secret information about the chemical composition of a material, but broad enough to give access to those who need it.

We expect that trade secret chemical information may be needed when a miner is being treated as a result of a chemically related injury or illness. Only persons involved in treatment, researchers looking into the causes of injuries or illnesses, or the exposed miners or their designated representatives must be given access to this critical information when it is needed.

Identity; specific chemical identity. The final rule, as did the interim final

rule, retains the proposed definition of *identity* as a chemical's common or chemical name, which must permit cross-references among the required list of hazardous chemicals, the label, and the MSDS. The proposed rule defined *specific chemical identity* as the chemical name, CAS number, or any other designation that precisely identifies the chemical. One commenter suggested that the definition of *specific chemical identity* duplicate that of *identity.*

For purposes of HazCom, we determined that *specific chemical identity* was an unnecessary term because the final rule, consistent with both the proposed and interim final rules, defines the terms *identity, chemical name,* and *common name* which duplicate its definition. The proposed rule had defined *chemical name* to include CAS numbers, *common name* to include other designations, and *identity* to include the chemical name and common name. We do not use or define the term *specific chemical identity* in the final rule because the character of the chemical identity will already be known throughout other definitions and, therefore, there is no reduction of protections for miners.

Immediate use. The term *immediate use* in the proposed rule clarified under what conditions it would be appropriate to use an unlabeled, temporary, portable container. In the proposed rule, *immediate use* meant that the miner who transferred the substance from a labeled container into a temporary, portable, unlabeled container must use it during the same work shift. We removed this term from the Definitions subpart in the interim final rule and, instead, incorporated the proposed definition in the standard. The final rule, the same as the interim final rule, does not include a definition for this term.

Label. The proposed rule defined *label* as ''any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals.'' We define *label* in the final rule in essentially the same way. For the final HazCom rule, consistent with the interim final rule, however, we added the phrase ''to identify its contents and convey other relevant information'' and deleted the phrase ''of hazardous chemicals'' in an effort to make this definition consistent with the common understanding of this term. A label on a container usually identifies its contents, whether or not it contains a hazardous chemical.

Material safety data sheet (MSDS). We defined *material safety data sheet (MSDS)* in the proposed rule as written or printed material that an operator prepares in accordance with HazCom's requirements, or which the manufacturer or supplier prepares under OSHA's HCS for hazardous chemicals brought to the mine. One commenter to the proposed rule urged us to include an operational definition for MSDS rather than reference HazCom's requirements or OSHA's HCS. An operational definition, without reference to the standards, misses the purpose we intend for an MSDS, that is, to be an information fact sheet that conforms to the cited regulatory requirements.

A commenter to the interim final rule suggested we allow other data sheets, or allow the operator to use any source so long as that data sheet conveyed comparable information to what was required.

Although HazCom does not require a specific format, we do encourage you to use an established format for consistency within the mining industry and to be in accord with other industries, your customers. Consistent with the interim final rule, in the final rule, we revised the definition of MSDS without changing its requirements. We also expanded the reference beyond OSHA standards to include other reliable, authoritative sources of chemical information, such as a workplace hazardous material information sheet (WHMIS) and an international chemical safety card (ICSC), and by referencing Table 47.52 describing the contents.

Mixture. The final rule, as did the interim final rule, retains the proposed definition of *mixture* as ''any combination of two or more chemicals which is not the result of a chemical reaction.'' We intend that the definition of mixture be applied broadly to include both solutions of chemicals and combinations of chemical solids. A characteristic of any mixture is that its individual components could be separated by mechanical or physical methods.

One commenter felt that this definition would include those chemical by-products or impurities in trace amounts that are contained in otherwise pure chemicals and that we should clarify the definition. We intend that you treat pure compounds or elements as individual chemicals, rather than as mixtures, even when they contain small amounts of other chemicals as impurities. This treatment is similar to our treatment of trace releases from articles and is consistent with OSHA's HCS.

Operator; miner. As discussed above, and in response to commenters to the proposed rule, the final rule uses the mining terms *operator* and *miner,* as defined in the Mine Act, instead of *employer* and *employee,* as we did in the interim final rule. Section 3 of the Mine Act defines *operator* as—

> * * * any owner, lessee, or other person who operates, controls, or supervises a coal or other mine or any independent contractor performing services or construction at such mine * * *

and *miner* as ''any individual working in a coal or other mine.''

Ordinary consumer use. The final rule defines *ordinary consumer use* as ''[h]ousehold, family, school, recreation, or other personal use or enjoyment, as opposed to business use.'' The interim final rule had defined the term as ''a product or article packaged by the manufacturer or retailer for ordinary household, family school, recreation, or other personal use or enjoyment, as opposed to business use, and the miner's exposure is not more than it would be for an ordinary consumer using the product as the manufacturer intended. The proposed rule did not define the term, but the underlying idea was used to explain the *consumer product* exemption. A consumer product was exempt when ''used in the workplace in the same manner as in normal consumer use and the use results in a duration and frequency of exposure which is not greater than exposures experienced by consumers.''

In response to comments to the proposed and interim final rules, the definition for *ordinary consumer use* in the final rule differs from the interim final rule. Commenters suggested that the definition in the interim final rule was vague and too subjective. For the purpose of HazCom and to make the definition easier to understand, we define the phrase *ordinary consumer use* in the final rule to mean ''household, family, school, or other personal use or enjoyment, as opposed to business use.''

To be considered *ordinary consumer use,* the miner cannot be exposed to the product at more than the same concentration, frequency, and duration of time than an ordinary consumer would. For example, using an organic solvent that is an ingredient in a hand soap in a washroom would be considered ordinary consumer use. Using that same solvent as a detergent in a flotation reagent is not.

Pesticide. The term *pesticide* appears in the final rule, as it did in the interim final rule, to clarify that pesticides are regulated by another federal agency and are exempt from HazCom. We do not define this term.

Physical hazard. The term *physical hazard* is used to describe those chemicals with properties that can present a risk of injury to a miner. The proposal defined *physical hazard* as a ''chemical which is a combustible liquid, a compressed gas, an explosive, flammable, an organic peroxide, an oxidizer, a pyrophoric, unstable (reactive) or water-reactive.'' Each component comprising the definition of *physical hazard* was then defined as a separate term under the definitions. The interim final and final rules define *physical hazard* in the same terms, but include the definition for each component within the definition of *physical hazard.* The significant comments to the definition in the proposed, interim final, and final rules are discussed below in the sections for each component.

(1) *Combustible liquid.* We defined *combustible liquid* in the proposed rule as a liquid with a flashpoint at or above 100°F (100 degrees Fahrenheit) which is 37.8°C (37.8 degrees centigrade). The proposed rule listed the following three classes of combustible liquids:

(a) Class II liquids—those having flashpoints at or above 100°F (37.8°C) and below 140°F (60°C).

(b) Class III A liquids—those having flashpoints at or above 140°F (60°C) and below 200°F (93.4°C).

(c) Class III B liquids—those having flashpoints at or above 200°F (93.4°C).

OSHA's HCS had defined a *combustible liquid* as a liquid having a flashpoint at or above 100°F but below 200°F, except any mixture having components with flashpoints of 200°F or higher, the total volume of which make up 99% or more of the total volume of the mixture. Commenters to the proposed rule stated that it would be preferable to have our definition of *combustible liquid* coincide with OSHA's definition, because many facilities are covered by both rules.

We believe that the proposed definition of *combustible liquid* is compatible with OSHA's definition. We had proposed the list of the various classes of combustible liquids to match the definition in other MSHA standards. In response to proposed rule commenters, however, the interim final rule did not list these classes of combustible liquids. The interim final and the final rules, consistent with OSHA's HCS, define *combustible liquid* as a liquid having a flashpoint at or above 100°F (37.8°C) and below 200°F (93.3°C) or a liquid mixture having components with flashpoints of 200°F (93.3°C) or higher, the total volume of which make up 99% or more of the mixture.

(2) *Compressed gas.* We defined *compressed gas* to mean a contained gas or mixture of gases with an absolute pressure exceeding 40 psi (pounds per square inch) [276 kPa (kiloPascals)] at 70°F (21.1°C) or 104 psi (717 kPa) at 130°F (54.4°C) regardless of pressure at 70°F (21.1°C). In the final rule, we consider a liquid to be a compressed gas when its vapor pressure exceeds 40 psi (276 kPa) at 100°F (37.8°C), as determined by ASTM D–323–82.

The proposed and interim final rules had incorrectly referenced ASTM D–323–72, as did the OSHA HCS. We found that this was in error; ASTM D–323–72 does not exist. OSHA's docket for its HCS contains the ASTM D–323–82 standard. Although we corrected the designation for the ASTM standard to D–323–82 in our final rule, the substance of this definition is consistent with OSHA's HCS and the intent of the proposed and interim final rules.

One commenter to the proposed rule stated that the definition of *compressed gas* includes compressed air in motor vehicle tires and air compressors. Although compressed air meets the definition in HazCom for a compressed gas, an inflated tire is an article and exempt from HazCom. Also, an inflated tire is part of a motor vehicle and, thus, is not a container under HazCom. Neither do we consider compressed air in a tire or compressor to be a hazardous chemical under HazCom. A shop compressor contains compressed, ambient air and, unlike compressed gas cylinders, it is equipped with a safety valve to release excess pressure. We recognize that serious hazards exist when working with inflated tires and compressed air receivers, but we address these hazards in our safety standards. We do not require an MSDS or a label for compressors or compressed air.

(3) *Explosive.* We defined *explosive* in the proposed rule in the same way as it is defined in OSHA's HCS and added a reference to Department of Transportation (DOT) requirements. There were a number of comments that objected to the reference to DOT in the standard. In response to proposed rule commenters, we eliminated this reference in the interim final rule, and because we received no significant comments, left the definition unchanged in the final rule. We rely on the more common definition of *explosive* as a substance that undergoes a rapid chemical change causing a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature. Consistent with the interim final rule, we intend this definition to cover the same substances in the final rule that were covered in the proposed rule and, therefore, there will be no reduction of protections to miners. We believe the term will be better understood by the mining industry.

(4) *Flammable.* We defined *flammable* in the proposed rule as a chemical that is an aerosol, a gas, a Class I liquid, or a solid that would meet specific criteria relating to its capability to ignite, to burn, and to sustain a flame. The proposed rule referenced testing methods in 16 CFR and classifications of explosives in 49 CFR, but did not include a specific publication date. A proposed rule commenter requested that we include the dates of publication for references in the definition of *flammable.* This commenter also stated that unless—

> * * * operational definitions are included in the rule, it is difficult to understand, and becomes a deterrent to compliance. The mine supervisor should be able to look at the definition and determine if an item such as a conveyor belt is flammable.

As with the term explosive, we recognize that the proposed definition was highly technical and that a simpler, more generally understood definition would better serve the industry. Accordingly, and in response to comments, the final rule, like the interim final rule, defines a *flammable* chemical as one that will readily ignite and, when ignited, will burn persistently at ambient temperature and pressure in the normal concentration of oxygen in the air. We intend that this definition include the same chemicals as would have been included under the proposed definition and under OSHA's HCS.

We did not define *flashpoint* in the interim final and the final rules. We believe that qualified persons who already know the meaning of the term will be determining a chemical's flashpoint.

(5) *Organic peroxide.* The proposed and interim final rules defined *organic peroxide* as an ''explosive, shock sensitive compound or an oxide that contains a high proportion of oxygen-superoxide.'' We received no specific comments on this definition. It is unchanged in the final rule except for the addition of the word ''organic'' to clarify the description of the chemical to read ''An explosive, shock sensitive, organic compound or an oxide that contains a high proportion of oxygen-superoxide''. Because it is a clarification, this will not reduce protection for miners. We intend the definition in HazCom to be essentially

the same as in OSHA's HCS. OSHA defined organic peroxide as—

> * * * an organic compound that contains the bivalent—O|O structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

(6) *Oxidizer.* The proposed rule defined *oxidizer* as a chemical other than a blasting agent or explosive as classified in 49 CFR 173.53, 173.88, 173.100 or 173.114(a) that initiates or promotes combustion in other materials, thereby causing fire by itself or through the release of oxygen or other gases. This definition is consistent with the definition for *oxidizer* in OSHA's HCS. A commenter to the proposed rule objected to our referencing 49 CFR in our definition of this term. We simplified the definition to make it more understandable, eliminating the reference from the interim final and final rules. This change is not a substantive one and, therefore, does not reduce miner safety and health protections.

(7) *Pyrophoric.* The final rule, as did the interim final rule, retains the proposed definition of *pyrophoric.* We made minor editorial changes for clarity. This definition is consistent with that in OSHA's HCS.

(8) *Unstable (reactive).* The final rule incorporates the language of the proposed and interim final rules. It defines the term as a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, or temperature. No comments were received concerning the definition of this term. This definition is consistent with OSHA's HCS.

(9) *Water-reactive.* We defined *water-reactive* in the proposed and interim final rules as a chemical that reacts with water to release a gas that is either flammable or a health hazard. The final rule uses this same language. No comments were received concerning the definition of this term. This definition is consistent with OSHA's HCS.

Produce. We defined *produce* in the proposed rule to mean ''manufacture, process, formulate, or repackage.'' This definition, together with the definition for *use,* is intentionally broad to include any situation where a hazardous chemical is present in such a way that a miner may be exposed.

We received a few comments supporting the proposed definition and no comments specifically opposing it. Other comments, however, are applicable to this issue. For example, one commenter to the proposed rule suggested that we exempt certain mine emissions, such as diesel exhaust and welding fumes, from the MSDS requirements of HazCom. This commenter stated that the composition of these produced chemicals can vary so much that not even ''* * * generic MSDSs, created by MSHA as assistance to mine operators, will be very useful.'' Another commenter to the proposed rule writing about the definition of *chemical* also assumed that it included the by-products of mining activities, such as diesel exhausts. This commenter stated that ''constituent ingredients in diesel exhaust—nitrogen, carbon, and sulfur oxides, organic vapor, diesel particulate matter—would have to be the subject of this standard also.''

The final rule, consistent with the interim final rule, defines *produce* to mean ''manufacture, process, formulate, generate, or repackage.'' We added the term ''generate'' to the definition of *produce* in the interim final rule to clarify our intent that HazCom apply to by-products of mining activities. For example, HazCom would apply to diesel emissions, the inadvertent generation of cyanide in a storage tank, welding fumes from construction or repair of machinery, or waste discarded in a tailings pond or solid waste site. As explained under the definition for *chemical,* the by-products of mining activities may be covered in the MSDS for the initial chemical or separately for the hazardous chemical by-product itself. Also, you may develop an MSDS for a process if that is more relevant to the chemical hazard.

For the most part, solid waste sites and tailings ponds are covered by other MSHA, federal, or state standards. These standards address the health and safety hazards to the environment and nearby inhabitants and structures. We know of no other standards that specifically require you to train miners about the physical and health hazards from exposure to these mixtures and protective measures to take.

Raw material. In the proposed rule, we defined *raw material* as a mineral, or combination of minerals, that is extracted from natural deposits by mining or is upgraded through milling. The proposed definition added that the term applied to the ore and valuable minerals extracted, as well as to the worthless material, gangue, or overburden removed during the mining or milling process. One commenter to the proposal agreed that this definition correctly includes the tailings from crushed stone, and sand and gravel operations. Another commenter to the proposal wanted to substitute the word ''material'' for ''mineral'' in the definition of *raw material,* stating that—

> The term ''mineral'' has different uses in different areas of mining and geology that imply different definitions. The term ''material'' should be substituted in this definition as a more generic and less restrictive term for ''mineral.''

The final rule, as did the interim final rule, does not incorporate this suggestion, but retains the proposed definition of *raw material* with minor editorial changes. Our intent is that *raw material* be limited to minerals.

Trade secret. Like the proposed and interim final rules, the final rule defines *trade secret* as any confidential formula, pattern, process, device, information, or compilation of information that is used by the operator to give him or her an opportunity to obtain an advantage over competitors who do not know or use it. This definition is taken from the Restatement of Torts § 757, comment b (1939). HazCom allows you to withhold the *identity* of the chemical declared a trade secret under certain conditions. It requires that you provide the miners with all other pertinent HazCom information, though not process or percentage of mixture information.

One commenter was concerned that *trade secret,* as defined in the proposed rule, would allow you to arbitrarily restrict access. This commenter also recommended that the final rule include Appendix D from OSHA's HCS, which would reprint the entire Restatement of Torts comment, to guide you in applying the trade secret definition. Another commenter to the proposal saw extremely limited utility and could find no reason to include this appendix.

We do not believe that this appendix is necessary. As stated in the preamble to the proposed rule, the Restatement of Torts indicates that there are at least six well accepted factors in establishing a trade secret claim. Those six factors are—

(1) The extent to which the information is known outside of the business;

(2) The extent to which information is known by employees and others involved in the business;

(3) The extent of measures taken by the business to guard the secrecy of the information;

(4) The value of the information to the business and its competitors;

(5) The amount of effort and money expended in developing the information; and

(6) The ease or difficulty with which the information could be properly acquired or duplicated by others.

We believe these principles provide sufficient guidance in determining the legitimacy of a trade secret claim without publishing an appendix. We intend to publish a Compliance Guide, a Toolbox, and other information as warranted, apart from HazCom, to assist the industry with compliance.

Use. We defined *use* in the proposed rule as ''to package, handle, react, or transfer.'' OSHA has defined *use* as ''to package, handle, react, emit, extract, generate as a by-product, or transfer.'' We did not include the terms ''extract, emit, or generate as a by-product'' because we believe they are already covered under the definition for *produce.* The final rule is the same as the proposed and interim final rules in this respect. We intend this definition to be broad enough to include any situation where a hazardous chemical is present in such a way that a miner may be exposed. We received no comments on our definition of *use.*

Work area. We defined *work area* in the proposed rule as a room or defined space in a workplace (now a *mine*) where hazardous chemicals are produced or used and where employees (now *miners*) are present. To make HazCom's definition more consistent with ordinary usage and retain its application to the presence of chemicals, the interim final rule changed the definition of *work area* to mean any place in or about a mine where a miner works and eliminated the language from the proposed rule ''* * * where hazardous chemicals are used or produced.'' The definition is consistent with the intent of the proposed rule, but clarifies the conditions that must be present for a work area and coincides with more common usage of the term. The final rule retains this definition.

Workplace. The proposed rule defined *workplace* as a mine, establishment, job site, or project at one geographical location containing one or more work areas. The term was deleted in the interim final rule of HazCom to use the term *mine* instead of *workplace.* The final rule also did not use the term.

C. Subpart C—Hazard Determination

A hazardous chemical is any chemical whose properties can pose a physical or health hazard. It can be a pure substance (an element or chemical compound), a mixture, or an ingredient in a mixture. A hazardous chemical can be in any physical form: solid, liquid, or gas. The likelihood of harm may be greater under some circumstances than others, but the potential to do harm is inherent in the chemical's properties.

Some commenters to the interim final rule were concerned about what we meant by the availability of the harmful element. An example of how a hazard can be made available is concrete at mines sites. Concrete, a common construction material at mine sites, is made by mixing gravel or crushed stone with sand, cement, and water. The sand and gravel and stone contain silica. When mixing the concrete for a floor, it is a hazardous chemical: dust from the aggregate contains respirable silica; cement can burn abraded skin. When placing the wet mixture, it is a hazardous chemical: the wet cement will burn unprotected skin; the sand and crushed stone are not hazardous components because the silica is unlikely to become respirable when it is wet. The concrete floor, once set, is not a hazardous chemical. Years later, however, when breaking or cutting the floor into small pieces so it can be removed, it is a hazardous chemical again because the silica can once more become respirable. We discuss exposure and its significance under ''purpose and scope'' in this preamble.

HazCom's definition of hazardous chemical in the final rule is consistent with the proposed rule, the interim final rule, and OSHA's HCS. We arranged the criteria for determining whether a chemical is hazardous in Table 47.21 and re-stated the proposed rule's language in a simpler way.

1. Section 47.21 Identifying Hazardous Chemicals

To clarify our intent in the final rule, we made several editorial changes to § 47.21.

- We deleted the sentence ''A hazardous chemical is any chemical that is a physical or health hazard'' from the introduction to Table 47.21.
- We added ''or health'' to the first criteria for determining the hazards of chemicals produced at the mine so it would read ''available evidence concerning its physical or health hazards.''
- We also deleted reference to hazardous waste under ''(a) Chemicals brought to the mine'' in Table 47.21.

Generally, we consider a chemical to be a physical hazard when there is scientifically valid evidence that it is combustible; a compressed gas or liquid; an explosive; a flammable aerosol, gas, liquid, or solid; an organic peroxide; an oxidizer; a pyrophoric (capable of spontaneously igniting); unstable and reactive; or water-reactive. Scientifically valid evidence means that a study was conducted or data obtained in a highly reliable manner that takes into consideration the margin of accuracy and consistency.

We consider a chemical to be a health hazard when there is statistically significant evidence that it can cause acute or chronic health effects. Statistically significant evidence supports a conclusion with a high level of confidence, typically 90% to 95%. This means that there is only a 5% to 10% probability that the observed results are due to chance. Health hazards include chemicals that cause cancer or are irritants, corrosives, or sensitizers. The term also includes chemicals that damage the reproductive system, the liver, the kidneys, the nervous system, the blood or lymphatic system, the digestive system, or the lungs, skin, eyes, or mucous membranes, or are toxic or highly toxic agents.

Most physical hazards of elements and compounds are well known and can be verified in a laboratory through testing. Physical hazards of mixtures can be determined the same way. Health hazards, however, are generally more complex, requiring studies of living systems, and can take much longer. Most health hazards of chemicals are determined through animal studies by extrapolating data from the effects on animals to predict the effects on humans. Even so, many chemicals are identified as hazardous based on the relationship between exposure and known illnesses and injuries. A chemical can be a physical hazard, a health hazard, both, or neither. For example, many organic solvents are both toxic and flammable.

In response to comments to the interim final rule, we modified the definition of *health hazard* in the final rule to clarify our intent. The interim final rule used the phrase ''including psychological or behavioral problems'' to explain nervous system damages. We deleted this phrase from the final HazCom standard after commenters pointed out the difficulty of attributing these conditions to hazardous chemicals. The interim final rule also used the term *irritate* to describe the action of irritants and *corrode* to describe corrosives. We modified these terms in the final rule to make them consistent with OSHA's HCS.

Hazard determination methods. The final HazCom rule, like the proposed and interim final rules, includes two basic ways for determining whether or not a chemical is hazardous: one for chemicals brought to the mine and the other for chemicals produced at the mine. In every instance we reviewed, operators producing chemicals also brought chemicals to their mines. We intend that the hazard determination provisions of HazCom apply to all

hazardous chemicals produced at the mine or brought onto mine property, whether or not they are covered under other MSHA standards.

A number of commenters to the proposed rule wanted the hazard determination requirement in the proposed rule changed to read—

> Operators who ship chemicals shall determine the chemicals' hazards under conditions of intended use based on our standards in 30 CFR parts 56, 57, 71, and 75.

A number of commenters to the proposal wanted operators who received chemicals to determine their hazards based solely on whether the chemical is regulated by us and whether it presents a physical or health hazard under conditions of intended use.

The final rule, like the interim final rule, does not use the word ''ship'' instead of ''produce''; does not add the phrase ''under conditions of intended use''; and does not limit the chemicals covered to those listed in our existing standards. We enforce exposure limits for chemicals listed by the American Conference of Governmental Industrial Hygienists (ACGIH) in its 1972 list of Threshold Limit Values (TLV®) for coal mines and its 1973 list for metal and nonmetal mines. These lists do not address all chemicals known to be present on mine property. The commenters' suggested language to the proposed rule would have significantly changed the intent and scope of HazCom by emphasizing the hazards associated with the manner or process in which chemicals are used by persons off mine property, instead of emphasizing the hazards to miners.

2. Chemicals Brought to the Mine

The final rule is substantively the same as the proposed and interim final rules in its requirements for a chemical brought to a mine. Under the final rule, you must review the chemical's label for any hazard warning and its MSDS for more detailed information. If the label or MSDS indicates a hazard, consider it hazardous. You must then include the chemical on the list of hazardous chemicals at the mine; keep a copy of the MSDS accessible to miners; and train miners about the physical and health hazards, the protective measures they can take against these hazards, and the content of the HazCom program. If you do not want to rely on the chemical manufacturer or supplier, you may evaluate the chemical yourself. If you do, we will require you to demonstrate that you have conducted a thorough evaluation of the available evidence.

The number and types of different hazardous chemicals brought to the mine depends on the size and type of the operation. These chemicals can range from bulk raw materials, such as ammonium nitrate for use in blasting agents, to small quantities of highly hazardous chemicals used in quality control laboratories. Diesel fuel, antifreeze, motor or hydraulic oil, brake fluid, lubricants, adhesives, paints, and solvents are a few of the materials commonly brought to mining operations that would require you to ask the question: Is this a hazardous chemical?

The written HazCom program requires you to document how you determined the hazards of the chemicals at your mine and to make a list of those found to be hazardous. For a chemical brought to the mine, you need to review its label and MSDS. The final rule, consistent with the interim final rule, requires you to make a hazard determination for each chemical at your mine to which miners can be exposed regardless of how the chemical is used.

3. Chemicals Produced at the Mine

The final rule, as in the proposed rule and interim final rule, defines a *chemical* as any element, chemical compound, or mixture of these and requires you to identify what chemicals you produce at your mine. Chemicals produced at your mine include—

- Those that you mine or process to sell, such as coal or crushed stone;
- The mixtures you create, such as flotation reagents or blasting agents;
- The by-products of mining and milling, such as diesel exhaust, hydrogen sulfide, or gases from combustion or blasting; and
- The materials discarded from mining operations, such as tailings.

Every mine product is a chemical, but not all are hazardous for the purposes of HazCom. You must determine if the chemical has any harmful properties that could pose a physical or health hazard. You must determine what the hazards and protective measures are so that you can prepare an appropriate label and MSDS. Again, HazCom does not require you to take additional protective action, as might be required by a risk-based rule. HazCom requires you to inform miners about a chemical's hazards that are based on scientifically valid evidence from either your own testing or the published results of other testing or studies.

For example, if your product is sand and gravel or crushed limestone, respirable crystalline silica is likely to be the only hazardous component, and you are already training your miners about its hazards. Because respirable crystalline silica is so prevalent in mine products, we expect that you will be required to produce an MSDS for your product. You will have to ensure that your label identifies the product as containing silica and that crushing or grinding may produce respirable crystalline silica, which is a human carcinogen.

Sources for identifying hazardous chemicals. The proposed and interim final rules were essentially identical to each other and OSHA's HCS. In the proposed and interim final rules, the primary difference with OSHA's HCS was the use of MSHA's list of substances in place of OSHA's. The final rule requires that, if you produce a chemical, you must determine its physical hazards based on available evidence or testing. You must consider the chemical to be a health hazard if it is listed in any one of the following five recognized authorities or sources:

- Title 29 Code of Federal Regulations (29 CFR) part 1910, subpart Z, *Toxic and Hazardous Substances.*
- Title 30 Code of Federal Regulations (30 CFR) chapter I.
- ACGIH® Worldwide (American Conference of Governmental Industrial Hygienists), *2001 TLV®s and BEI®s,* Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices.
- National Toxicology Program (NTP), Ninth Annual Report on Carcinogens (January 2001).
- International Agency for Research on Cancer (IARC), Monographs and related supplements, Volumes 1 through 77.

In the final rule, we have responded to comments to the interim final rule by removing ACGIH's TLV® list as a reference for determining if a mixture produced at the mine would have been considered carcinogenic. It remains as a source in determining whether a chemical is hazardous. While ACGIH provides valuable, it is not recognized as a special authority on carcinogens in the same way that NTP and IARC are. We believe that NTP and IARC have current and comprehensive lists of carcinogens and that miners would lose no protections by our deletion of ACGIH as a reference for determining carcinogenicity. We also have added OSHA's list of substances to ease the burden of mine operators who have operations in both OSHA and MSHA jurisdiction and who would prefer to use a single source (OSHA) in their HazCom program for all their operations.

In response to comments to the interim final rule, that you should not be held accountable for the future actions of these referenced organizations, we also revised the final

rule so you only need to refer to the chemical lists compiled by ACGIH, NTP, and IARC as of 2001.

Reference to these documents in HazCom does not set exposure limits, does not define criteria for determining the chemical's hazards, and does not otherwise set standards for mine operator behavior. This final rule does not require you to determine whether the concentration of the chemical in the mine environment or whether the exposure of a miner exceeds a limit recommended by one or more of these five sources. If there is a potential for harm and a potential for exposure, the chemical is hazardous for the purposes of HazCom. You must tell your miners about the hazards that are known and give them information relevant to the safe performance of their tasks.

Using ACGIH, NTP, and IARC to determine if a chemical is hazardous. Some commenters to the interim final rule recommended that we rewrite this provision to require that ''operators who produce chemicals must determine the chemicals'' hazards' and not specify the basis for the determination. These commenters felt that this language would make the requirement more performance oriented, would avoid incorporation by reference, and would allow operators to choose the best methods for this assessment based on the best available sources at the time of the assessment.

Referencing these sources in HazCom complies with the requirements of § 101(a)(6)(A) of the Mine Act, which requires the agency, when developing mandatory standards, to consider ''the latest scientific evidence in the field.'' Our references in HazCom are not ''incorporations-by-reference'' because they are merely used as screening and identification aids. You can conduct chemical testing as an alternative.

The American Conference of Governmental Industrial Hygienists (ACGIH), the National Toxicology Program (NTP), and the International Agency for Research on Cancer (IARC) publish authoritative documents that are recognized worldwide for the high quality of their impartial, science-based assessments of chemical hazards. Their committees are composed of experts known and esteemed in their fields. The IARC Monographs and related supplements, the ACGIH TLV®s, and the NTP Annual Report on Carcinogens consider large numbers of studies and take into account the conclusions of other groups who peer review data about a chemical's hazards.

Our 1990 proposed rule and the 2000 interim final rule would have required mine operators to refer to MSHA standards and the latest editions of publications by the ACGIH, NTP, and IARC when deciding if a chemical produced at the mine was to be considered hazardous. For mixtures produced at the mine, we set 1% of a mixture's concentration for health hazards and 0.1% for carcinogenic hazards as the cut-off or trigger points for the mixture's inclusion under HazCom using these same organizations' documents.

In response to comments to the interim final rule, the final rule requires operators to use MSHA and OSHA standards, the 2001 edition of the ACGIH TLV®s; NTP's Ninth Annual Report on Carcinogens, January 2001; and IARC Monographs and related supplements, Volumes 1 through 77. We have also added OSHA standards 29 CFR part 1910, subpart Z, *Toxic and Hazardous Substances* as a reference for initiating a chemical's inclusion in the mine's HazCom program.

Many commenters to the proposed and interim final rules strongly opposed including ACGIH, NTP, or IARC in the hazard determination section of a final rule. These commenters also objected to our use of IARC and NTP publications as authoritative sources for identifying certain chemicals as carcinogens. Some of these commenters felt that these organizations may identify a substance as a possible human carcinogen based upon the results of a single animal study and that animal studies alone should not be relied on to identify human carcinogens. Others felt that these organizations only considered positive studies (those showing an adverse health effect) and not negative studies (those that were inconclusive or did not show a health effect) when determining that a chemical is a carcinogen or a suspected carcinogen.

Some commenters opposed our reliance on an automatic trigger, such as a hazard determination made by one of these organizations, to deem a chemical as hazardous without considering the risk posed in a given situation. One commenter stated that any reference to ACGIH, NTP, or IARC in the rule is inappropriate because these institutions make determinations based on ''strength of evidence analysis'' and defer ''weight of evidence determinations'' to regulatory authorities. This commenter felt that, as in our proposed air quality rule, we should adhere to the guidelines of the Office of Science and Technology Policy (OSTP) because HazCom ultimately would reference our final air quality standard. OSTP guidelines address the use of ''strength of evidence'' and ''weight of evidence'' analysis in quantitative risk assessment.

Most commenters on our use of these publications opposed such use, stating that including references to these would be an incorporation-by-reference without following the proper rulemaking procedures. They stated that ACGIH's, NTP's, and IARC's decision-making processes are deficient because they restrict public or peer input. They further stated that the absence of public comment and external peer review raises significant questions regarding the quality of any science-based decision-making process. These commenters added that our rulemaking, because it goes through an established process, provides the only basis for establishing valid references for hazard determination purposes.

Some commenters also strongly objected to referencing either the latest edition or subsequent monographs or supplements of these sources because such references fail to advise the regulated community of the standard of conduct to which they are expected to conform. They commented further that we may only incorporate-by-reference materials in existence at the time we promulgate a final rule.

Several commenters to the interim final rule asserted that the incorporation by reference of NTP, IARC, and ACGIH constitutes an impermissible delegation of authority and a violation of the Administrative Procedure Act, and relying on these standards organizations constitutes an illegal federal advisory committee. Finally, these commenters claim that our participation in these entities' committees and our subsequent incorporation of their standards constitute a conflict of interest.

We acknowledge that the final rule refers to IARC, ACGIH, and NTP documents. We disagree with those commenters that assert that referencing these sources in the rule constitutes a delegation of authority. As stated in the preamble to the interim final rule, as well as the proposed rule, the inclusion of these sources in the HazCom standard rule aids in the identification of hazardous chemicals.

As stated previously, we wrote HazCom so its substance would be similar to OSHA's HCS. We wanted to provide the same protections to miners that employees under OSHA's jurisdiction have and make enforcement predictable (to the extent possible) for operators who have operations under both OSHA's and MSHA's jurisdiction. OSHA requires that—

> Chemical manufacturers, importers or employers evaluating chemicals shall identify and consider the available scientific evidence concerning such hazards. For health hazards, evidence which is

statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles, is considered to be sufficient to establish a hazardous effect if the results of the study meet the definitions of health hazards in this section.

We believe that the referenced organizations are recognized as authorities on hazardous chemicals and knowledgeable about established scientific principles. Their decision-making committees are composed of noted, credentialed experts in their fields. Documents such as the IARC Monographs and related supplements, the ACGIH TLV®s, and the NTP Annual Report on Carcinogens, do not attempt to quantify the degree of risk. Their findings summarize large numbers of studies and include conclusions made by groups that peer review the data submitted as evidence about a chemical's hazards. We believe that the findings of these groups provide sufficient evidence to warrant informing miners of the hazard, even though in some cases the data may not be sufficient to support further regulatory action, such as establishing specific exposure levels and requiring use of control technology to limit exposure. Using these lists as a screening tool reduces the resources an operator would otherwise have to use to determine if a chemical is hazardous. Including these sources in the HazCom standard does not increase compliance obligations for mine operators.

If the commenters objecting to the use of these references meant to address whether or not the chemicals are known to be hazardous, the chemicals are listed in the five sources (MSHA, OSHA, NTP, IARC, ACGIH) because scientific studies have indicated that they are hazardous. Although mines use a large number and variety of hazardous chemicals, mines produce only a limited number. We expect most hazardous chemicals produced at mines to be listed.

The alternative to using these five sources as a screening tool would be for an operator to conduct a thorough search of available literature to determine if the chemical is hazardous, in addition to finding any statistically significant, scientifically valid studies that report the chemical's hazards. This may involve locating a document that could be outdated or out of print, or operators conducting their own chemical testing. We believe that listing these sources aids many smaller operators, in particular, who otherwise would not know what sources they could rely on to determine if a chemical is truly hazardous.

OSHA's HCS defines a health hazard as—

* * * a chemical for which there is statistically significant evidence based on *at least one study* conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. (Emphasis added)

By using these five sources as a screening tool, we intend to minimize the number of literature searches and, thus, the compliance burden.

As stated previously in the preamble to the interim final rule, we expect most hazardous chemicals produced at mines to be listed in these sources. Other sources not cited in the proposed, interim final, or final rules also can provide valuable information. Other reputable sources of scientific information can be referred to, such as the NIOSH *Registry of Toxic Effects of Chemical Substances,* the NIOSH *Pocket Guide to Chemical Hazards,* or chemical databases on the internet.

We disagree with comments that MSHA personnel participating on ACGIH committees or with other private standards-setting groups (consensus standards) is, inherently, a conflict of interest. The U.S. Office of Management and Budget (OMB) encourages scientists, engineers, and other professionals in federal service to work with such organizations knowing that the opportunities for improved understanding can be achieved by exchanges of information with industry, labor, and representatives of other federal agencies.

In summary, if evidence exists that a chemical is hazardous, the HazCom final rule requires a mine operator to inform potentially exposed miners about these hazards whether they are listed by ACGIH or not. The actions of ACGIH to adopt a different or additional exposure limit do not change the hazards of a chemical. ACGIH actions, therefore, do not create additional compliance obligations under HazCom.

We have other regulations that incorporate-by-reference ACGIH publications as well as those of other national standards setting groups, such as American National Standards Institute (ANSI) and the American Society for Testing and Materials (ASTM). The incorporation of these standards into our regulations has been done in accordance with the standard-setting requirements of § 101 of the Mine Act, the rulemaking requirements of the Administrative Procedures Act, and the procedures established by the **Federal Register**. For example, referencing these sources in HazCom complies with the requirements, of § 101(a)(6)(A) of the Mine Act, which requires the agency, when developing mandatory standards, to consider ''the latest scientific evidence in the field.'' Our references in HazCom are not ''incorporations-by-reference'' because they are simply used as identification aids. A chemical can be hazardous and not be listed in one of these documents. If listed, however, experts have found the chemical to be hazardous and you do not have to make your own determination.

Using ACGIH, NTP, and IARC to determine a chemical's hazards. If the commenters objecting to the use of the references meant to address the nature of the harm, the circumstances under which the chemical can cause harm, or the level of exposure at which harm becomes likely, we recognize that there may be conflicting information in the scientific literature. For example—

- NTP classifies carcinogens as either ''known to be carcinogenic to humans'' or ''reasonably anticipated to be carcinogenic to humans'';
- IARC classifies carcinogens as either ''carcinogenic to humans'', ''probably carcinogenic to humans'', or ''possibly carcinogenic to humans''; and
- NIOSH classifies carcinogens as either a ''potential occupational carcinogen'' or not.

We agree that relying solely on the information from any of these sources may not be sufficient to determine the types of health hazards of a chemical for the purpose of developing an MSDS. That is because, except for identifying certain chemicals as either carcinogens or suspected carcinogens, these sources contain little specific information on the types of health hazards posed or the other information required on the MSDS.

Some commenters to the proposed rule stated that it would be a great burden on the mining community to find out if recent scientific studies show their product to be a carcinogen or other type of chemical hazard. Although determining the hazards of a chemical you produce could be more time consuming, we do not believe that it is overly burdensome, infeasible, or impractical. An entire segment of the publishing industry, the trade press, exists to inform the mining industry about new production equipment, legislative and regulatory affairs, commodity pricing, changes in construction specifications, bid proposals, and scientific studies that can affect the commercial value of mining products. We expect that the media, trade associations, or unions will also provide the mining industry with any significant new information

concerning the hazards of their products.

Table 1: Removed from Proposed Rule. To simplify your access to the information from these sources, we compiled a table of all the chemicals listed in them and included this table in the proposed rule. The table indicated which of the four sources (MSHA, NTP, IARC, ACGIH) would give you more information about a chemical's health hazards and carcinogenicity. Operators could use the proposed table to determine quickly if the chemical they produced was a health hazard rather than having to refer to the sources. We thought this would save resources if the chemical was not hazardous. We intended to spare operators from looking beyond this table to determine whether a chemical posed a health hazard. We had intended to update the table as needed.

Several commenters to the proposed rule agreed that we should allow operators to use Table 1 to determine if the chemicals they produce are hazardous. One of these commenters felt that we should publish this table as an appendix to the rule and that it should state explicitly that operators may use this table to determine whether a chemical is a health hazard rather than having to refer to the four sources. Another of these commenters suggested that we include Chemical Abstract Service (CAS) registry numbers in the table to help operators identify the chemical.

Some commenters to the proposed rule asked that we not include the table in the final rule. One commenter felt that the average person would find this list of hazardous chemicals difficult and impractical to use. Others expressed concern that the list may not indicate all the potentially hazardous materials produced or used at the mine and favored the OSHA HCS's one-study approach.

One commenter objected to the proposed rule's reference to a table in the proposed air quality standard before we published the air quality standards as a final rule. Some commenters supported our intention to reference the final air quality standards in the hazard determination provision. That support, however, was contingent upon our establishing permissible exposure limits (PELs) at levels that prevent material impairment of health or functional capacity. These commenters further stated:

PEL's and carcinogens validated through the rulemaking process will enable operators who ship chemicals to evaluate whether those chemicals present a health hazard under conditions of intended use. When proposed 30 CFR Parts 58 and 72 are validly promulgated, MSHA should amend proposed 30 CFR Part 46.3(a) to incorporate those provisions.

Although the final rule continues to reference NTP, IARC, and ACGIH, it does not include a table of hazardous chemicals. We deleted the list from the interim final and final rules because it would have required continual updating to be relevant and timely for miners and mine operators. Instead, we decided to put a list of chemicals known to be hazardous in the MSHA Toolbox for this final rule. We intend to place both of these references on our website and provide links to other websites, such as NIOSH and university collections of MSDSs. Access to the MSHA web site, internet news services, libraries, and databases will allow you to obtain the most recent and reliable information soon after it becomes available.

4. Mixtures Produced at the Mine

The best way to determine the hazards of a mixture is to test the mixture as a whole. You would then use the results of that testing to make a determination as to whether or not the mixture poses a hazard and the nature of the hazard. We recognize that most operators do not have the facilities and equipment to conduct this testing.

For mixtures not tested as a whole, the final rule establishes the same criteria as the OSHA HCS and as the proposed and interim final rules for determining the hazards of the mixture based on its ingredients. You must use available scientifically valid evidence to determine the mixture's physical hazards and rely on available health hazard information for the mixture's ingredients to determine its health hazards.

- You must conclude that the mixture is a health hazard if at least 1% of the mixture is a chemical that is a health hazard.
- You must conclude that the mixture is a carcinogenic hazard, a special class of health hazard, if at least 0.1% of the mixture is a chemical that is a known or suspected carcinogen.

Determining the hazards of mixtures. Hazardous mixtures are commonly created at mines to capture the valuable components of an ore and produce a mining commodity. In writing HazCom's requirements for mixtures, we needed to ensure that operators would inform miners about the potential hazards of chemicals in mixtures before they reached an unsafe concentration. Setting a cutoff point had to account for a broad band of chemical toxicity from the mildly hazardous to the mortally dangerous. Carcinogens posed such a serious potential harm that they needed to be treated separately. We also recognized that we needed a simple threshold that would help operators to decide when to include a chemical mixture in their HazCom program.

A number of commenters to the proposed rule wanted the final rule to allow you to determine the hazards of mixtures of chemicals in the same way you would determine the hazards of individual chemical compounds or elements, i.e., under conditions of intended use. They believed that mixtures should not be treated differently from other chemicals, although they may present additional health or physical hazards. These commenters stated that you should—

- Test the mixture as a whole;
- If not tested as a whole, determine whether a component of the mixture presents a health hazard under conditions of intended use and if it constitutes a physical hazard; or
- Assume that a component presents a health hazard under conditions of intended use and that the mixture presents the same hazard, and use whatever scientifically valid evidence is available on the components of the mixture to determine the mixture's physical hazards.

Several commenters to the proposed rule objected to the requirement that if a mixture has not been tested as a whole, you must assume that it will pose the same health hazards and carcinogenic hazards as each of its components. Other commenters to the proposed and interim final rules recommended that the health hazards of mixtures be based on either experimental evidence or weight of experience and, if known, dosage and exposure. Others argued that the concentration levels of 1.0% for hazardous components of a mixture, and 0.1% for carcinogenic components, had been chosen arbitrarily and that there are no studies showing relevance to these levels with regard to health hazards.

We believe that a concentration of 1.0% of a hazardous chemical's mixture and 0.1% of a carcinogen's mixture will set a reasonable trigger or cutoff point that will provide enough notice to miners that they will be able to protect themselves while giving clear guidance to operators that they will know when they must include a chemical in their HazCom program.

OSHA had determined that 1.0% of the mixture was a reasonable concentration to include a hazardous chemical in an employer's HCS program. Like OSHA, we found that the commenters who objected to these

levels did not suggest an alternative. We believe that common criteria for hazard determination with other industries is beneficial. Uniform criteria allow for the free flow of hazard information among all industry sectors regardless of which agency promulgates the regulations. This reduces burden. The final rule sets concentration levels of 1.0% for hazardous components of a mixture and 0.1% for carcinogenic components to absolve the operator from having to evaluate and list chemicals present in small quantities, which are not likely to result in substantial exposures to known hazards.

We added language to the final rule to clarify that carcinogenicity is a subset of health hazard. The 1.0% level refers to non-carcinogenic health hazards and the 0.1% level refers to carcinogenic health hazards. This provision is substantively the same as the proposed and interim final rules and OSHA's HCS. As discussed above, ACGIH has been dropped as one of the carcinogenic references.

Trace ingredients. The proposed rule stated that, if you have evidence indicating that a component of the mixture could be released in concentrations that would exceed an established MSHA PEL or ACGIH TLV®, or could present a health risk to miners, you must assume that the mixture presents the same hazard. A number of commenters opposed the proposed rule's reference to the ACGIH TLV®s and suggested that the final rule reference only MSHA health standards. Commenters to the proposed rule expressed concern that the resources spent on determining the potential release of a hazardous trace component of a mixture dilutes the resources available to address real hazards. We contend, however, that if a trace ingredient can be released from the mixture at concentrations that can pose a health risk to miners, such as concentrations exceeding its PEL or TLV®, this trace component is properly considered a hazard.

Another commenter to the proposed rule recommended that the final rule be more performance oriented and suggested that we reword this section to state:

> If the operator has reason to believe that lesser amounts than listed in item (2) could reasonably present a health risk they will be assumed to present the same hazard.

In response to these comments, we used more performance-oriented language in the interim final and final rules. HazCom requires you to assume that a mixture presents the same hazard as a component if you have evidence that the component could be released from the mixture in a concentration that could present a health risk to miners. For example, the MSDS may indicate that a particular trace component reacts with other components, diffuses into the packaging, or evaporates over time. In this example, if the trace component is hazardous, you must inform miners about this information and its implications for them, and comply with the applicable HazCom provisions.

We do not intend that you conduct research for chemicals brought to the mine; however, you must obtain an MSDS for them to determine whether or not a trace component can be released from the mixture in a hazardous concentration. Our intent is that, if you determine the trace ingredient can present a hazard, then you must include this information in your initial HazCom training, as well as in parts 46 and 48 training. Similarly, you must determine potential hazards from trace ingredients in hazardous chemicals you produce, including mixtures and by-products of mining activities. This requirement is consistent with MSHA's HazCom proposed and interim final rules and OSHA's HCS, and provides consistency in the level of protection for miners.

The final rule eliminates unnecessary language but retains generally the same requirement as the proposed and the interim final rules. This provision recognizes that even trace components of a mixture could cause harm if a sufficient quantity is released from the mixture.

Respirable crystalline silica. A number of commenters to the proposed rule expressed concern that IARC has designated respirable crystalline silica as a probable human carcinogen. Several commenters were concerned that the requirements for determining the hazards of mixtures that had not been tested as a whole did not take into account that a chemical is hazardous only when it is encountered in a specific physical state or form. Specifically, they felt that the proposed rule would have required you to determine that any untested mixture that contains 0.1% or greater of respirable crystalline silica is carcinogenic. They pointed out that IARC's Monograph No. 42 and Supplement 7 and NTP's addition of this substance to its list in its 6th Edition address only the respirable crystalline form of silica as a human carcinogen and not other forms of crystalline silica.

We agree that it is the respirable form of crystalline silica that is designated as a human carcinogen in the sources listed in the final rule. Therefore, if the mixture contains 0.1% or greater of crystalline silica, you must determine the percentage that is respirable or capable of being liberated. Any required label and MSDS for products containing concentrations of 0.1% or more of respirable crystalline silica must indicate this potential health hazard. HazCom also requires you to inform miners about the carcinogenic hazard from exposure to respirable crystalline silica.

Physical hazards. Comments on the proposed rule indicated that you may find it difficult to categorize the physical hazards of some mixtures because of the stratification or deterioration that may occur in these mixtures during storage and handling. To ensure that all hazards of a mixture are properly addressed, this commenter felt that we should require you to use persons who are qualified by education, experience, and training to determine the hazards of a mixture with respect to its use in mines. We expect that most of the information necessary to determine the hazards of a mixture are available in MSDSs or other publications. Because you are responsible for making this determination, and often the most qualified, we expect that you will make the determination yourself or select a competent person to do it.

The proposed rule stated that if a chemical is not tested as a whole, you must use ''whatever'' scientifically valid evidence is available to determine the mixture's physical hazard. The word ''whatever'' was removed from the final rule at the request of commenters to the interim final rule. This minor syntactical change did not affect the meaning of the standard and, therefore, does not reduce protection for miners.

5. Hazardous Chemical

One commenter to the proposed rule felt that *chemical* may be interpreted restrictively to mean that only the chemicals you produce require a hazard determination. This commenter felt that we should state clearly that all mining products, including minerals, ore, and miscellaneous materials, require a hazard determination. Another commenter to the proposed rule recommended that we use the term *hazardous material* rather than *hazardous chemical* because operators and miners are more likely to associate that term with minerals, ores, and other materials that occur naturally.

We use the term *hazardous chemical* in HazCom to be consistent with its use in OSHA's HCS. It is used by a wide variety of industries and has been the subject of much clarification in the 15 years since OSHA promulgated its HCS.

We believe that the definition of *chemical* in the proposed, interim final, and final rules is more widely applicable and less open to misinterpretation than the alternatives suggested.

D. Subpart D—HazCom Program

All mines must have a written HazCom program. The written program does not have to be lengthy or complicated, and some operators may be able to rely on existing HazCom programs to comply with the requirements of the final rule. As mining processes change and as new chemicals are brought onto mine property, you must update your written program to reflect these changes.

Commenters to the proposed and interim final rules stated that written programs are an unnecessary paperwork burden, rarely if ever used. They declared that the written program requirement in particular seemed unnecessary if training requirements were retained, since operators will be training miners on their mine's HazCom policies and procedures. These commenters asked that we exempt those mines where hazardous chemicals are neither used nor produced from the requirement to have a written HazCom program.

We do not agree with these commenters. In our experience, we have found that the mining industry is highly dependent on processes and machinery that use, to name a few common examples, explosives, diesel fuel, or gasoline in order to extract mine products from the earth. Maintenance of equipment or facilities, even at the simplest operations, is in an industrial environment.

MSHA intends that the written hazard communication program be your plan for how you will implement HazCom at your mine. The final rule requirements on HazCom program are flexible, allowing you to design your HazCom program taking into account the specific circumstances at your mine.

Mines are dynamic work environments that change their methods to adjust to changing needs. If a mine does not have a hazardous chemical, we believe the miners at that property are better served by requiring the mine operators to review their processes and inventories and know with certainty that chemicals are not present. It is important that operators conduct at least a one-time review of their mines to ensure that no harmful chemicals exist which under normal conditions of use or in foreseeable emergencies can put their miners at risk.

1. Section 47.31 Requirement for a HazCom Program

This section of the final rule is substantively the same as the proposed and interim final rules and is consistent with OSHA's HCS. It requires you to develop, establish, and maintain a written HazCom program. You must ensure that you have an effective method to communicate hazards to miners and other operators at the mine if their miners can be exposed to your hazardous chemicals. You must also retain the written program for as long as a hazardous chemical is known to be at the mine.

The scope of HazCom, § 47.2, clearly states that the final rule applies to all operators with miners who can be exposed to a hazardous chemical ''under normal conditions of use or in a foreseeable emergency.'' The scope applies to all sections of HazCom and all operators at a mine, including independent contractors. Therefore, we did not need to repeat the language of the scope in the requirements for the contents of the written program.

You must make the written program available to miners, their designated representatives, and MSHA and Department of Health and Human Services (HHS) personnel. In the final rule, the provisions on access and copies are in a separate subpart on making HazCom information available. This administrative re-ordering of HazCom's provisions is unchanged from the interim final rule, but different from the proposed rule.

Generic programs. Some commenters to the proposed and interim final rules stated that development of the written HazCom program was beyond the capabilities of most operators and would impose a technological and financial burden. Other commenters to the proposed and interim final rules suggested that we develop a generic written HazCom program for use as an example.

You are responsible for developing a HazCom program for the chemicals that you produce or bring to the mine. Your written program must include all the information that you need—

- To implement the HazCom program;
- To provide hazard information to miners so that they will know what is expected and can participate in supporting the protective measures in place; and
- To ensure that other operators at the mine receive the HazCom information they need.

Although the development and implementation of a HazCom program may pose a technological and financial burden on some small operators, we determined that the final rule is technologically and economically feasible. To relieve the burden for small operators, we have delayed the application of the final rule, planned an extensive outreach effort, and developed a wide variety of compliance aids. As part of our efforts, we will provide examples of a written HazCom program in the MSHA HazCom Toolbox for this rule and place model programs on our website. You can also adapt the model programs on OSHA's website because the two standards are similar, or obtain assistance from organizations that have developed generic guides to meet OSHA's HCS. The availability of generic programs reduces your technical and financial burden.

Some commenters to the interim final rule asked us to clarify that one HazCom program will meet both OSHA's and MSHA's requirements. We wrote the HazCom program requirements to be, at least in part, interchangeable with OSHA's HCS so that programs written to comply with OSHA will also comply with MSHA. We intended that companies with operations under both MSHA and OSHA, such as those with MSHA-inspected quarries and OSHA-inspected asphalt plants, would be able to use a single plan to meet both sets of requirements. We have a few mines, such as those with hazardous waste facilities, where differences between MSHA's HazCom and OSHA's HCS might require that written programs be amended. Even then, however, you should be able to prepare a written program that will satisfy both OSHA and MSHA requirements. We urge you to contact the MSHA District Manager for help in resolving any concerns you may have in this regard.

2. Section 47.32 HazCom Program Contents

Under the final rule, like the proposed and interim final rules, your HazCom program has to describe how you meet the standard's requirements for hazard determination, labels and other forms of warning, MSDSs, and initial miner training. It also must include a list of the hazardous chemicals that you produce or bring to the mine and use the same identity for a chemical on this list, the label, and the MSDS.

Exchanging HazCom information. Where more than one operator works at a mine, your HazCom program also has to describe—

- How you inform these other operators about hazardous chemicals to which their miners can be exposed and any protective measures;

• How you provide other operators with access to MSDSs and other relevant HazCom information; and

• How you identify hazards on labels and other warnings (the system or symbols you use).

Several commenters to the proposed and interim final rules expressed concern about how information would be exchanged between operators. One commenter to the proposed rule wanted the final rule to give the primary operator at the mine the latitude to determine how to exchange information. Another commenter to the proposal wanted MSHA to prescribe how operators exchange information.

The final rule deliberately uses performance-oriented language to give you the flexibility to establish how to exchange information with other operators and tailor your written program. At many mines, independent contractors, service personnel, and production miners are exposed to hazards of chemicals from many sources. For example, when independent contractors bring hazardous chemicals onto mine property, it is their responsibility to provide the primary operator and other operators (such as other independent contractors at the same site) with information about those chemicals. Likewise, it is the responsibility of the primary operator to inform these independent contractors about the chemical hazards at the mine. A systematic and orderly transfer of information ensures that all miners are informed. Specific, detailed requirements could reduce flexibility and become unnecessarily burdensome.

Hazard determination procedures. One commenter to the proposed rule wanted the final rule to require you to describe, in writing, the procedures you use to determine the hazards of the chemicals you evaluate and to maintain these written procedures. This commenter stated that these detailed written procedures would be a valuable source of information for workers, their representatives, and the government. This commenter also stated that such a record is the means to determine if you are following procedures to assess the hazards associated with a chemical's inherent properties and know how you use it. Another commenter to the proposed rule said that we do not need to know the basis of your hazard determination.

Consistent with the proposed and interim final rules, the final rule requires that your HazCom program include how you are putting the provision for hazard determination into practice at your mine. This requirement is performance oriented; it does not specify format or criteria. We expect your description of your hazard determination procedures to be sufficient to allow others to understand how you made the determination.

Hazardous chemical list. The final rule requires you to compile a list of hazardous chemicals and maintain it for as long as a hazardous chemical is known to be at the mine. You are responsible for listing only the hazardous chemicals that you produce or bring to your work areas. The list, or inventory, of hazardous chemicals is a quick reference so that you, miners, other operators working at your mine, and MSHA and NIOSH personnel can see what hazardous chemicals are present. It also must use a chemical identity that permits cross-referencing between the list, a chemical's label, and its MSDS. For example, if a chemical is identified by a trade name on the MSDS or the label, the list should be indexed and the chemical identified using the trade name. This requirement is unchanged from the proposed and interim final rules.

One commenter to the interim final rule expressed concern that a chemical manufacturer may prepare the MSDS with one chemical identity, but a supplier may label the product with another, making you unable to cross-reference them. As in the proposed and interim final rules, the final rule does not hold you responsible for the accuracy of information received from a chemical supplier or manufacturer. You should, however, notify the manufacturer of any problem and ask them to remedy the situation.

Other commenters to the interim final rule asked that we clarify our requirements and give one month to update the HazCom program. The final rule, consistent with the proposed and interim final rules, does not specify a time limit for updating a HazCom program, but because the rule requires you to maintain the list, it implies that you will need to keep the list current.

You can compile the list for the mine as a whole or you can compile lists for individual work areas. For example, if few chemicals are used in one work area, such as a mine's quarry, and many are used in another work area, such as its shop, lists for the individual work areas would avoid confusing the miners in the quarry who would have no exposure to most of the chemicals that would be on a comprehensive list. You are in the best position to judge the most effective and efficient way to maintain this list. In maintaining this list, you must keep it up-to-date, whether for the whole mine or a specific work area.

E. Subpart E—Container Labels and Other Forms of Warning

Labeling containers of hazardous chemicals is a major provision of HazCom. A label is an immediate source of information about a hazardous chemical in the work area, providing the identity of the chemical and a brief summary of the chemical's most serious hazards. Commenters to the proposed rule endorsed the content of the label requirements, asking that they stay consistent with OSHA's. The labeling requirements in the final rule are substantively the same as in the proposed and interim final rules and consistent with OSHA's HCS. Labels that comply with OSHA's HCS will meet HazCom's requirements.

The proposed rule contained the labeling exemptions under the ''Scope and Application'' and again under ''Labels and Other Forms of Warning.'' In response to comments to the proposed rule, we eliminated this repetition. We also put the labeling exemptions in a table, so that they are visually more accessible, and restated the proposed rule's provisions using clearer language. We moved the exemptions to a separate subpart near the end of the rule rather than placing them in the ''Scope'' section at the front of the rule. Except for ''raw materials being mined or processed while on mine property,'' the chemicals listed are exempt from labeling under HazCom because they are covered by the labeling requirements of other federal agencies. These exempt chemicals, therefore, are already labeled when you receive them at the mine. We will discuss these exemptions in detail later in the section called ''Exemptions from Labeling'' (§ 47.92).

The proposed rule and the interim final rule contained provisions addressing a miner's and designated representative's right to examine the labeling information and have a copy without cost. In response to comments to the proposed rule, we consolidated HazCom's provisions on access and cost for copies in a new, separate subpart, Making HazCom Information Available (§ 47.71 through § 47.73), in the interim final rule.

The final rule, like the interim final rule, does not include proposed § 46.5(d). The proposed rule would have required you to ensure that the label for a hazardous chemical complies with the labeling requirements in an MSHA substance specific standard, rather than the labeling requirements in HazCom. We determined that this provision was unnecessary because a substance

specific standard would apply before a general standard like HazCom.

1. Labeling Requirement in General

Among those commenters supporting a HazCom labeling requirement in the proposed rule, many urged us to be consistent with OSHA's HCS. Several of these commenters, especially those with operations in both mining and general industry, said that it would be extremely burdensome if they had to comply with two significantly different requirements. For example, they said that it would be a great burden if you had to re-label incoming containers of hazardous chemicals to meet unique MSHA requirements. Other commenters to the proposed rule stated that they already provide labeling information and MSDSs for their products consistent with OSHA's standard because their customers are asking for them.

The final rule is consistent with the proposed and interim final rules, as well as OSHA's HCS. Labels that comply with OSHA's HCS will meet our labeling requirements because HazCom requires the same information on a label as OSHA's HCS. Likewise, we expect that labels meeting MSHA's HazCom criteria will meet OSHA's requirements for labels under its HCS.

Among those commenters to both the proposed and interim final rules generally opposed to labeling requirements under HazCom, many stated that our existing labeling standards are adequate and HazCom is redundant. Some commenters to the interim final rule asked us to accept labels developed under our existing standards, such as 30 CFR 56/57.20012 labeling of toxic materials, to be in compliance with HazCom.

The HazCom labeling requirements are more comprehensive than existing warning label standards. MSHA's existing labeling standards were developed before 1968 and were for chemicals brought to the mine and put in unlabeled containers. HazCom's requirements for labels are broader in scope and more flexible. HazCom also requires you to make sure that existing hazard warning labels on hazardous chemicals brought to the mine are maintained. For example, a gas can that says ''gasoline'' on it, is acceptable labeling under HazCom for a temporary, portable container.

As in the proposed rule and the interim final rule, this final rule requires you to make sure a chemical identity can be cross-referenced between the chemical inventory, the MSDS, and a label. It also requires that the label be in English and specifies when it must be updated. These are different provisions from the existing requirements. We expect, however, that most operators are already complying with HazCom's labeling requirements because of the labeling requirements under OSHA or CPSC.

Consistent with the proposed rule and the interim final rule, this final rule unifies labeling requirements for hazardous chemicals in HazCom and expands existing requirements to include underground coal mines and clarify requirements for all mines.

2. Section 47.41 Requirement for Container Labels

The final rule, consistent with the proposed and interim final rules, requires that each container of a hazardous chemical be labeled, tagged, or marked with the identity of the hazardous chemical and appropriate hazard warnings. You should only have to deal with three categories of labels: labels on containers of hazardous chemicals brought to the mine; labels on mixing, storage, or transport containers on mine property; and labels on the containers that you use to ship a hazardous chemical that you produce.

A commenter to the interim final rule asked that we remove language saying ''tagged'' or ''marked'' because a label might, as a result, not be meaningful. The commenters concern was that a tag or mark was less specific than a label. The definition of label under HazCom states that it is any written, printed, or graphic material displayed on or affixed to a container to identify its contents and convey other relevant information. Tagged and marked containers must meet the requirements of labels and, therefore, carry the same information as a label.

Existing container labels. HazCom requires you to check the label on a chemical brought to the mine to determine if it is hazardous so you will know whether you need to obtain and keep an MSDS, list the chemical on the list of hazardous chemicals, and train miners about the chemical's hazards. You also must ensure that the labels and other forms of hazard warning are legible. You do not have to re-label these containers unless there is no label, the label is unreadable, or the manufacturer sends a revised label. Likewise, you must not remove or deface the labels on hazardous chemicals brought to the mine unless you immediately mark the container with the chemical's identity and its hazards. You must also ensure that the container remains labeled as long as you use it to contain a hazardous chemical.

Hazardous chemicals brought to the mine normally arrive with labels or labeling information. We expect that the label on the original container of a hazardous chemical provides adequate information about its hazards. The EPA, the Consumer Product Safety Commission (CPSC), OSHA, and other federal agencies have rules addressing the labeling of hazardous chemicals. For this reason products or chemicals subject to their standards are exempt from labeling under HazCom.

Commenters' suggestions about label content and format indicated that they perceived the proposed rule as requiring much more operator labeling than we intended. Some seemed to think that we required operators to evaluate and label containers of hazardous chemicals brought to the mine. One commenter pointed out that manufacturers may not identify new information on the label and MSDS they provide and stressed that operators should not have to update existing labels.

The final rule, consistent with the interim final rule, does not require you to re-label containers of hazardous materials that are labeled in accordance with other federal standards or are otherwise marked or tagged with the required information. You are not responsible for inaccurate information on a label prepared by the chemical's manufacturer or supplier, which you accept in good faith. We do not expect, and HazCom does not require, you to update the hazard warnings on labels you did not prepare. We do expect, however, that as you replace your inventory, you will do so with containers already labeled by the manufacturer with the new information. If the manufacturer sends you a new label with instructions to replace the existing label, you must do so.

Labels on mine products. Commenters to the proposed rule expressed concern that some operators might be unable to prepare a label for their mine's products because they lack the technical knowledge. We expect that you can easily compile the hazard information for the chemicals produced at your mine because our existing standards already require you to train miners about the safety and health aspects of their job. While underground coal mines are not required to label hazardous materials, they do conduct miner training.

A commenter to the proposed rule asked that we clarify whether the requirement to update the label with significant new hazard information within 3 months applied to small quantities of hazardous chemicals in transfer, or temporary portable containers.

Significant new hazard information about a chemical develops infrequently.

Most new information confirms, clarifies, or expands knowledge about the hazards already known. We intend the provision to apply to labels you make for your product or other containers of hazardous chemicals at the mine, excluding temporary portable or transfer containers. If you have to label the container of a hazardous material, it is our intent that you ensure that the label is accurate and update the label when you become aware of significant new hazard information. However, you must tell miners about significant new information when you discover it or a manufacturer notifies you about it.

Maintenance. Some commenters to the proposed rule stated that labels would be difficult to maintain in a mining environment or that they would be difficult for miners to read and understand. Although it may be difficult to maintain labels in some areas of the mining environment, these labeling requirements are realistic and achievable. OSHA's HCS provisions are successfully met at heavy and highway construction sites as well as at tunneling operations, situations that are comparable to mining sites. Many of the containers coming onto mine property will have permanent labels affixed, suitable for use in the mining environment, and effective training will help miners to understand the labeling information.

Label accuracy. Consistent with the interim final rule, final § 47.41 (b), *Requirement for container labels,* requires that for each hazardous chemical produced at the mine, the operator prepare a container label and update this label with any significant, new information about the chemical's hazards within 3 months of becoming aware of this information. Paragraph (c) of the same standard requires the mine operator to replace outdated labels of hazardous chemicals brought to the mine when a revised label is received from the chemical's manufacturer or supplier.

3. Section 47.42 Label Contents

HazCom requires that you label containers of the hazardous chemicals you produce. The label must be prominently displayed, legible, accurate, and in English. It must display appropriate hazard warnings and use a chemical identity that permits cross-referencing between the list of hazardous chemicals, a chemical's label, and its MSDS. The label must also contain the name and address of the operator or another responsible party who can provide additional information about the hazardous chemical.

Although the hazard warnings on the labels should be concise and easy to see, they also must convey the chemical's identity and its physical and health hazards. The label, tag, or other marking that you prepare must communicate enough information to users of your product and other employers so that they can recognize the hazards and make correct decisions about safe procedures and protective equipment. We do not intend the label to be the only or most complete source of information on the hazardous chemical.

One commenter stated:

> We urge you to consider the possible effects of a world in which every conceivable threat is labeled, stickered, highlighted until the senses are saturated and the desired effect of the entire message is lost. We are rapidly creating such a world, and we caution you against needlessly furthering this unnerving trend.

We recognize that it may not be feasible to include every hazard on the chemical's label that is listed in the MSDS. We expect, however, that you will address all chemical hazards in the miner's work area in your initial HazCom training program, as well as your parts 46 and 48 training programs. The selection of hazards to be highlighted on the label will involve some assessment of the weight of the evidence regarding each hazard. This does not mean, however, that only acute hazards are to be covered on the label or that well substantiated hazards can be omitted from the label because they appear on the MSDS.

For those chemicals posing multiple hazards, we expect you to prioritize the hazards and use that as the basis for the warnings. At a minimum, you must specify all serious hazards on the label. For example, if chromium (VI) in a welding fume is carcinogenic, causes liver and kidney damage, and blood abnormalities, as well as respiratory irritation, perforation of the nasal septum, damage to the eyes, sensitization dermatitis, and skin ulcers, the label could say: ''Causes cancer, liver and kidney damage, blood abnormalities, and irritation of the skin, eyes, and mucous membranes.'' The warning about it causing sensitization dermatitis, respiratory irritation, skin ulcers, perforation of the nasal septum, or conjunctivitis could be covered by the less specific phrase, ''irritation of the skin, eyes, and mucous membranes.''

You may have to reconcile inconsistent information in different sources by evaluating the evidence used in making the hazard classification. For example, if the chemical causes severe burns upon contact with skin, eyes, or mucous membranes, you would not also have to say that some evidence reported it to be a skin irritant. You also may need to distinguish between acute and chronic hazards. For example, some chemicals present a hazard only from prolonged exposure to high concentrations. When determining what hazard information to include on a label for your product, you must evaluate the evidence for each hazard listed on the MSDS. The label does not have to include all the hazards, but must show the most serious.

The proposed rule would have required you to provide your name and address or the name and address of a responsible party who could provide additional information about the chemical. To simplify the language of the requirement, we changed the interim final rule's access to information provision to require a label with the name and address of a responsible party. A commenter to the interim final rule asked that this be changed back because persons often change jobs and the MSDS would be inaccurate. We agree. Accordingly, the final rule, consistent with the proposed rule and OSHA's HCS, requires that the name, address, and telephone number of the operator or other responsible party be included in the contents of the label. The provision was moved from ''Making HazCom Information Available'' to ''Container Labels and Other Forms of Warning'' because it seemed more appropriate there.

Hazard warning. The definition of *hazard warning* in this final rule, consistent with the proposed and interim final rules, states that the warning must convey the specific hazard of the chemical. The hazard warning can be any type of message, words, picture, or symbol that provides at least general information regarding the hazards of the chemical in the container such as ''flammable'' or ''human carcinogen''. If applicable, the warning must include the organs affected. For example, if the chemical causes lung damage when inhaled, then ''causes lung damage'' is the appropriate warning. ''Lung damage'' would be the hazard and ''do not inhale'' would be the protective measure. Phrases such as ''caution,'' ''danger,'' or ''harmful if inhaled'' are precautionary statements.

Some commenters to the proposed rule suggested that the labels would need to state the container's contents and provide a general hazard warning, using words like ''combustible,'' ''flammable,'' or ''poison.'' A general statement, however, would not convey enough information to enable miners to adequately protect themselves. Other

commenters to the proposal believed that only a precautionary statement, such as ''Danger!'' would be needed. Some suggested that we require operators to include precautionary statements on the label, in addition to the other information. A few commenters to the proposed rule stated that warning labels should summarize acute and chronic health effects and safety hazards and should provide advice and a phone number in case of emergency. Others recommended that labels include the target organ(s) affected by the chemical.

Consistent with the proposal and interim final rules, the final rule intends that the label include the target organ effects, if such information is available. There are some situations where the specific target organ effect is not known. When this is the case, you can use a more general warning statement. For example, if the only information available is an LC_{50} test result, ''harmful if inhaled'' is appropriate. (An $LC_{50,}$ or the lethal concentration by inhalation for 50% of the animals tested, is the exposure concentration at which half of the animal test subjects died.)

Our existing standards (§§ 56/57.16004; §§ 56/57.20012; § 77.208) require you to label hazardous materials appropriately. In addition to the required information, we encourage you to include other helpful information on the label. For example, the symbols on the label representing precautionary measures or safe work practices, such as ''chemical goggles,'' ''respiratory protection,'' or ''use only in a well ventilated area,'' serve as reminders about the hazard and increase the likelihood that miners will use these measures.

Label format. Many commenters to the proposed rule suggested various format criteria and coding schemes for labels, affirming the benefits of uniformity. In this final rule, as with the proposed and interim final rules, we recognize that there are a variety of different labeling systems to warn persons of chemicals and their hazards. Some systems rely on numeric codes and specific colors to convey the hazards of chemicals. These systems, however, usually convey the degree of risk that a chemical poses and not specific hazard information. You can use these types of systems for labels used at the mine if you communicate the specific physical and health hazards of the chemicals through other parts of the HazCom program, such as MSDSs and training. HazCom's labeling requirements are performance oriented. The rule recognizes that a specific system is not necessary to communicate the chemical's identity and its hazards, and that some mine operators already have an effective labeling system.

The final rule is deliberately flexible to allow for the adoption of an international system for classifying and displaying hazard information, when it becomes available. Commenters to the interim final rule asked that we delay implementation of HazCom because it would be a burden to unify the provisions with anticipated global harmonization requirements. We have held discussions with representatives to this international committee and we were informed that no prediction could be made as to when worldwide labeling standards are expected. Moreover, postponing HazCom requirements would forestall vital information and training requirements that enhance miner protections.

Although the final rule does not require a specific labeling system, we encourage you to adopt a label format that is in accordance with an established standard. In its comments on the proposed rule, the Chemical Manufacturers Association (CMA) suggested that operators use the ''American National Standard for Industrial Chemicals '' Precautionary Labeling'' (ANSI Z129.1–1988) for their labeling system. Uniformity in the format, content, and terminology of MSDSs and labels aids understanding and simplifies their development. It also allows miners and others to find critical information quickly. Consistent labeling requirements between MSHA and OSHA will make communication among industries more effective and will make it easier for them to adopt global hazard communication standards.

Other languages. The final rule, consistent with OSHA's HCS and the proposed and interim final rules, requires that the label be in English. If a significant number of your miners do not read English, or if their English is poor, you could provide the labeling information in another language in addition to English or add symbols to communicate the chemical's hazards. HazCom's purpose is the communication of chemical hazard information. You must make sure that your miners receive the information in a manner that they can understand. For example, if your workforce speaks Spanish, you could add a label in Spanish that gives the chemical's identity and hazard information or provide a translation of the labeling information to the affected miners. If your workforce speaks several different languages, or there are other literacy issues, you could add symbols to the label to communicate the chemical's hazards and train the workforce in the meaning of the symbols.

Carcinogen labeling. As discussed under ''Identifying Hazardous Chemicals,'' the final rule and OSHA's HCS both require that the employer consider a chemical to be hazardous if it is listed in the specified NTP or IARC publications or regulated under agency standards. You must include a carcinogenic warning on the label if one of these sources classifies the hazardous chemical as a probable or known human carcinogen. Other categories, such as potential or suspected, must be listed on the MSDS only.

Many commenters to the proposed rule suggested that we allow operators to determine what should be listed on the label based on an assessment of the weight of the evidence. Several pointed out that both IARC and NTP acknowledge that their classification evaluations are not complete hazard assessments. IARC and NTP use a strength-of-evidence approach that does not take into consideration negative studies for evaluating a chemical's carcinogenic hazard. In regard to the use of ACGIH, one commenter stated:

> ACGIH lists chemicals identified as carcinogens from ''other sources'' without identifying these sources. The ACGIH documentation of TLV's and BEI's lists five sources of information on carcinogens (IARC, MAK, NTP, NIOSH, and TLV). Since these sources often use each other as their reference point rather than come to independent conclusions, we believe that the ''carcinogen'' tag can be inappropriate unless there is conclusive evidence of carcinogenicity. While fuller explanations may be given on an MSDS, we believe that automatic triggers should not be used to determine warnings on labels.

Although some commenters specifically objected to using IARC, NTP, or ACGIH as a trigger for cancer labeling, others supported carcinogen labeling based on the judgment of these organizations, but only for those chemicals identified as known human carcinogens. Another commenter objected to carcinogen labeling for those chemicals listed in IARC Group 2A. Group 2A carcinogens (probably carcinogenic) are known to induce cancer in animals, but the evidence of human carcinogenicity is limited. These commenters believed that requiring carcinogen labeling for potential or probable carcinogens would result in ''over-labeling'' and detract from the focus that should be given to more serious hazards. In addition, one pointed out that ''over-labeling'' could have the adverse marketplace consequence of encouraging shifts to unlabeled products, typically without

an assessment of whether the unlabeled product is, or is not, safer than the labeled product. Several commenters supported including IARC's, NTP's, and ACGIH's carcinogenicity findings on the MSDS, but not on the label. A few commenters, however, recommended that we require labeling for all carcinogens, including those listed as potential or probable.

In considering the comments, we find that IARC and NTP base their cancer classifications on valid scientific evidence. This evidence warrants informing miners of the cancer hazard associated with any chemical on these lists. Miners have a right to know about this hazard information. If one or more of these organizations has associated a potential, probable, or confirmed carcinogenic hazard with a chemical at the mine, you must inform the miners who can be exposed. A fuller discussion about the use of these organizations as sources is in the Hazard Determination section of this preamble.

We intend to interpret HazCom consistent with OSHA's interpretation of its HCS, to the extent applicable. If valid studies include positive evidence of human carcinogenicity, OSHA requires hazard warnings of carcinogenicity on the label. With this intent, the label on your product only has to include a carcinogenic designation for ''known'', ''probable'', or ''reasonably anticipated'' human carcinogens.

We included the carcinogen designation by the ACGIH in the interim final rule intending for you to notify miners about it. NTP and IARC are recognized world authorities on carcinogens and their studies often form at least a part of the basis of ACGIH classifications. Some commenters to the interim final rule pointed out that ACGIH is not a source for OSHA carcinogen labeling. To be consistent with OSHA's HCS and minimize the effect of those discrepancies, the final rule refers only to carcinogen designations by NTP and IARC. Deleting reference in the final rule to the carcinogen designations of ACGIH does not diminish protection for miners because NTP and IARC are respected sources for comprehensive and reliable carcinogen designations.

Silica labeling. IARC is one of the sources listed in HazCom for establishing whether a chemical is a carcinogen. In 1997, IARC classified inhaled (respirable) crystalline silica as Group 1, a confirmed human carcinogen.

A number of commenters to the proposed rule expressed concern that the proposed rule would have required the labeling of silica as a carcinogen. Several argued that labeling silica as a carcinogen was both impractical and unnecessary. One of these commenters stated:

> Silica is, as MSHA recognizes, a natural substance occurring in the great majority of the earth's crust and labeling over one billion tons annually of naturally occurring stone produced by American quarries would clearly be impractical and unnecessary by the standards of good science.

Some commenters to the proposal stressed that the labeling requirement should apply to respirable silica because the size of the silica particle determines whether or not it is a health hazard. One commenter stated:

> OSHA has taken the position in interpreting its HCS that it applies only to crystalline silica available for respiration. * * * Mr. Gerald F. Scannel, Assistant Secretary of Labor for OSHA, stated that kaolin dust products containing less than 0.1% respirable crystalline silica would be exempt from coverage under the provision of paragraph (d) of the [OSHA's] HCS, ''Hazard Determination.''

In addition, this commenter cited a statement by Dr. David Rall of the NTP that, ''Only crystalline silica in respirable form will be added to the list of substances in the [NTP] 6th annual report.''

The final rule does not address the labeling of containers of hazardous chemicals when they leave the mine because OSHA, EPA, CPSC, and other federal agencies already regulate labeling for other industries, consumer use, and commerce. To meet OSHA's HCS labeling requirements for your customers, you will have to label as a carcinogen, containers of any product containing 0.1% or more of respirable crystalline silica. The HazCom final rule exempts the raw material being mined or processed from labeling only while on mine property. For example, if you operate a ground silica (silica flour) mill, you do not have to label containers of the raw material, such as crushers, bins, or hoppers.

Under HazCom's hazard determination criteria, you must consider crystalline silica to be a human carcinogen when it is in respirable form and capable of being released in the work area or when an activity, such as crushing, would create respirable dust. Although you do not have to label it for purposes of HazCom, you must train miners about silica's carcinogenicity.

4. Section 47.43 Label Alternatives

Mines typically process materials in bulk quantities. They keep chemicals, such as cyanide, anhydrous ammonia, ammonium nitrate, or fuel oil, in large retaining ponds, silos, stockpiles, or tanks. The scale of operations can make an ordinary label inappropriate. ''Label alternatives'' allows performance-oriented options for identifying chemical hazards to miners. The label alternatives may be signs, placards, process sheets, batch tickets, operating procedures, or other means appropriate for individual, stationary process containers. The alternative must identify the container to which it applies, communicate the same information as a label, and be readily available throughout the shift to miners in the work area. Because it addresses only mine-site chemicals, the name, address, and telephone number of a responsible party is not required.

HazCom's primary label requirements state that the hazardous chemical's label warn miners about the presence, chemical identity, and specific health and physical hazards of the chemical. Neither the proposed rule, the interim final rule, nor the final rule includes specific criteria for the format of the label. The final rule, consistent with the proposed and interim final rules, requires that the label—

- Be prominently displayed, legible, accurate, and in English;
- Display appropriate hazard warnings; and
- Use a chemical identity that permits cross-referencing between the list of hazardous chemicals, a chemical's label, and its MSDS.

In the case of a trade secret, you must comply with the requirements of §§ 47.81 through 47.87 (trade secrets).

Commenters supplied a wide variety of suggestions for a label format. Several recommended that we require a standardized label format. Some commenters suggested that a coding or rating system might be helpful. Some requested that we permit flexibility in our labeling requirements and allow batch labeling, color coding, standardized containers, or stenciling a generic name on the container. Others did not support the use of a coding or rating system on labels because they thought that miners would find such a system confusing. Some commenters suggested that we require labels to have large bold print with pictorial or color warnings. Another suggested that operators could label containers using markers or paint.

The label requirements in the final rule are performance oriented, flexible, and consistent with OSHA's HCS. Labels made with markers or paint are acceptable as long as they identify the hazardous chemical and its hazards and are maintained in legible condition. Any name may be used to identify the

chemical contents of a container as long as it can be cross-referenced with the MSDS and the hazardous chemical list. You may substitute various types of standard operating procedures, process sheets, batch tickets, blend tickets, and similar written materials for container labels on stationary process equipment. The alternative, however, must identify the container to which it applies, communicate the same information as required on the label, and be readily available throughout each work shift to miners in the work area. You can post signs or placards that convey the hazard information if there are a number of stationary containers within a work area that have similar contents and hazards.

In the final rule, we changed the term ''readily accessible'' to ''readily available'' to clarify how soon you have to provide this labeling information to miners. This language is consistent with other MSHA standards. You are still required to provide miners access to this labeling information under § 47.71, ''Access to HazCom materials.''

5. Section 47.44 Temporary, Portable Containers

Temporary, portable containers are a common convenience on mine properties, particularly for miners servicing equipment from lube trucks. The final rule, consistent with the interim final rule, does not require you to label a portable container if you make sure that the miners using it know the identity of the chemical in the portable container, its hazards, and any protective measures. The final rule, consistent with the interim final rule, requires that the temporary, portable container be left empty ''at the end of the shift.'' We have also added an alternative to the final rule that was not in the interim final rule which permits you to label a temporary, portable container with the hazardous chemical's common name. If you label a temporary, portable container with at least the common name of its contents, you do not have to leave it empty at the end of the shift. We discuss this alternative later in this preamble.

Most commenters supported the proposed portable container exemption, but some claimed that it was too restrictive. These commenters recommended that we not require labeling of portable containers if they are subject to operating procedures that provide a means of alerting miners to their contents. Other commenters recommended that we expand this exemption to include any designee of the miner who performs the transfer. One of these commenters stated that adding the word designee would allow those individuals working with the miner who transferred the hazardous chemical, also to use that chemical. Otherwise, each miner working on the job would need his or her own portable container, perhaps creating a bigger hazard. Another commenter opposed expanding the portable container exemption to include the miner's designee because of concern that the miners would not communicate the hazard information to each other.

Other commenters opposed our proposal to exempt portable containers, believing that it was too lenient and could create a serious hazard. Commenters expressed concern that—

- Unattended, misplaced, or forgotten unlabeled portable containers could present a high risk of exposure to hazardous materials due to inappropriate handling or disposal by other workers;
- Unlabeled portable containers could be potentially dangerous because of the residues left in them;
- If the chemical in the portable container was not completely used by the end of the shift, we should require that the unused portion be returned to a labeled container;
- All containers of hazardous chemicals should be labeled under this law or other applicable laws; and
- This section should be clarified because it seems to imply that you have no responsibility to maintain labeling information if a product is repackaged or transferred to another container at the mine site.

After considering these comments and observing the use of portable containers in mining, we determined that it will not reduce the miner's protection to allow the miner who transfers a hazardous chemical from a labeled to an unlabeled container to use the unlabeled container. One common use of temporary, portable containers is when a miner transfers a chemical, such as brake fluid, from a 55-gallon drum into a small plastic or galvanized container in order to safely access and properly service machinery. We recognize that it would be impractical, or at least inconvenient in some instances, to access many pieces of equipment without the use of these containers. The numbers of fluids on a lube truck would force operators to choose between providing numerous containers (one for each fluid) which might prove impractical on a lube truck, or greatly increase the number of trips a lube person would have to make onto the serviced machine. This Hobson's choice could encourage people to ignore the requirement unless an inspector were present.

In response to commenters concerns, we expanded this exemption in the final rule. This provision is less restrictive than the one in OSHA's HCS and is more appropriate to the narrow range of working conditions in the mining industry. Under HazCom, you can allow other miners to use a hazardous chemical from an unlabeled, temporary, portable container provided you ensure that they know the chemical's identity, its hazards, and the protective measures needed; and that the container is left empty at the end of the shift. You can leave the chemical in the portable container for the next shift if you label the container with at least the common name of the chemical the container will have in it.

F. Subpart F—Material Safety Data Sheet (MSDS)

The MSDS is a detailed information document that serves as the principal source of important information about hazardous chemicals used or produced at the mine. This final rule requires you to have an MSDS for each hazardous chemical to which a miner can be exposed under normal conditions of use or in a foreseeable emergency. Although we revised the format and language of HazCom's MSDS requirements to reduce redundancy and use plain language, the final rule is substantively the same as the proposed and interim final rules and OSHA's HCS.

An MSDS that complies with OSHA's HCS will meet our MSDS requirements because HazCom requires the same information on the MSDS as OSHA's HCS. Likewise, we expect that MSDSs meeting MSHA's criteria will meet OSHA's criteria for MSDSs under its HCS.

In the proposed rule, provisions for determining hazards of single substances and mixtures were repeated under both ''Hazard Determination'' and ''MSDS.'' To eliminate this duplication, the final rule includes these provisions in the hazard determination section only. Also, in response to comments, we consolidated HazCom's provisions on access and cost for copies of MSDSs in a new, separate section on ''Making HazCom Information Available'' (§§ 47.71 through 47.73).

1. Section 47.51 Requirement for an MSDS

The final rule requires you to have an MSDS for each hazardous chemical at the mine. You must prepare an MSDS for any hazardous chemical produced at the mine. If you do not have an MSDS for a chemical brought to the mine and its label indicates that it is hazardous,

the final rule, consistent with the interim final rule, requires you to—

- Obtain one from the manufacturer or supplier,
- Develop one on your own, or
- Obtain one from another source.

In response to comments to the interim final rule, we amended this provision to require that operators have an MSDS ''for each hazardous chemical they produce or use'' rather than ''before using'' the chemical. Commenters said that at companies with centralized purchasing, a chemical may be sent to a mine site, but the MSDS may be sent with the bill to the office address that placed the order. Consistent with the OSHA HCS, we intend to give you time to have the MSDS forwarded to the mine where the chemical is used.

As a common business practice, mine operators introduce a new chemical as part of a process change only after careful planning and thought. In rare instances, you may have to use a new chemical that poses a new hazard before you receive its MSDS. Before a miner can be exposed to a new chemical hazard, you must inform the miner about the chemical's hazards, instruct miners as to how they can recognize the hazard, and how they can protect themselves. We believe that it will take less than 1 week from when the MSDS is received at a central purchasing office before it is in the mine that has the hazardous chemical. This should be enough time to ship and handle the MSDS.

Chemicals brought to the mine. The proposed rule would have allowed you to request, but not require you to obtain, an MSDS prior to using a hazardous chemical. Several commenters to the proposed rule stated that requesting an MSDS was not sufficient and that you should have to obtain the MSDS before using the chemical on mine property. MSHA's provisions on MSDSs are substantially similar to those in OSHA's standard. You must have an MSDS available to miners in their work area for each hazardous chemical to which they may be exposed. OSHA requires MSDSs for hazardous chemicals produced at non-mining operations. For this reason, we expect that most, if not all, MSDSs prepared by chemical manufacturers or suppliers are readily available by fax or from the internet. Consequently, you can ''have'' an MSDS before using the hazardous chemical even if a hard copy is not in the work area.

Another commenter to the proposed rule suggested that we allow you the flexibility to have either an MSDS or appropriate information about the chemical's hazards, safe work procedures, means of control, and first aid and emergency procedures immediately available. We did not respond to this commenter by changing the interim final rule, but did revise the final rule in response to additional comments to the interim final rule. We added International Chemical Safety Cards and Workplace Hazardous Material Information Sheets to the definition of *material safety data sheet.* This change is discussed in more depth in the Definitions section of this preamble and below in this section. Nevertheless, we understood the commenter to the proposed rule to suggest limited, informally gathered information in lieu of an MSDS and this did cause us some concerns. Information kept in place of an MSDS must be from a reliable and authoritative source of chemical information, such as an international chemical safety card (ICSC) or workplace hazardous material information sheet (WHMIS). Substituting the information suggested by the commenter for the MSDS may not be sufficient because the MSDS contains much more information than outlined in the comment. If you have a document available to miners that contains all the information required in § 47.52 (MSDS contents), however, we would consider that to be an MSDS. HazCom does not require a specific MSDS format, but the MSDS must contain all the information required to the extent that it is available.

As mentioned above, in response to comments to the interim final rule, we revised the final rule to provide more flexibility in MSDS requirements. We are allowing you to use alternative sources of MSDSs, including international chemical information, such as Workplace Hazardous Material Information Sheets (WHMIS) and International Chemical Safety Cards (ICSC). The proposed and interim final rules defined material safety data sheet in the limited context of OSHA requirements. The final rule revises the MSDS definition to allow these well recognized sources of chemical information. We determined that WHMIS and ICSC are comparable to MSDSs in communicating critical chemical hazard information. By allowing alternative, equivalent sources of MSDS information, we allow the operator to choose a format that fits the needs of the reader.

Several commenters to the proposed rule stated that we should require MSDSs to be accurate. You are responsible for the accuracy of MSDSs that you prepare for a hazardous chemical produced at your mine. HazCom does not require you to be responsible for the accuracy of an MSDS that you receive with a shipment of a hazardous chemical and accept in good faith. Because OSHA requires that information contained in MSDSs accurately reflect the scientific evidence that formed the basis for determining that the chemical is hazardous, we believe that chemical manufacturers and suppliers develop MSDSs correctly. On the other hand, since you are responsible for communicating accurate health and safety information about the mine and the job to the miner, the MSDS that you maintain must be current and updated when there is a material revision to the contents. For example, an updated version would be required when there is a change in the composition of the chemical. One would not be required for merely an administrative matter, such as a date.

Commenters to the proposed and interim final rules stated that manufacturers do not indicate what information is new on the MSDS and it is impractical and overly burdensome to require operators to update MSDSs they do not prepare. We do not see this as a problem. The MSDS will show the date it was prepared or last changed. If you receive an MSDS that has a later date than the one you have on file, you should keep the one with the most recent date and discard the older. If you receive an MSDS that is obviously inaccurate or which you suspect is inaccurate, or if a category of information is missing, you should bring this to the attention of the party responsible for preparing the MSDS. There should be an address and telephone number on the MSDS.

Some commenters to the proposed and interim final rules stated that requiring MSDSs as part of HazCom would be burdensome to operators and of no real value to miners because of the complexity of information required to be provided on the MSDS. Another commenter to the proposal stated that to keep track of which materials may or may not require MSDSs places an overwhelming burden on operators.

MSDSs are essential in supplying information to the miner, as well as to the mine operator and independent contractor. Information, such as the chemical's properties, for example, may not be found on labels. The MSDS contains the information that we require you to communicate to miners about the hazardous chemicals to which they may be exposed. Although it may be an administrative burden to keep track of MSDSs, obtaining the MSDS from the manufacturer or supplier of the hazardous chemical relieves you of

conducting independent searches for the required information. We expect that MSDSs will be an important resource for you in writing the HazCom program and modifying or developing training courses.

As a result of the OSHA HCS, MSDSs have become widespread in general industry and many operators voluntarily obtain and use them. We suggest that you check the list of all the hazardous chemicals at your mine against the MSDSs that you have collected to discover if there are any MSDSs missing. If the list indicates that you use a hazardous chemical at the mine, but do not have an MSDS for it, you must contact the manufacturer or supplier to obtain the missing MSDS. Alternatively, you may be able to download the MSDS from an internet chemical database.

Chemicals produced at the mine. The final rule requires you to prepare an MSDS for each hazardous chemical produced at the mine and update this MSDS with significant new information within 3 months of becoming aware of it. Significant new information is any that has or is likely to have a major effect that was unknown before and that is important to the health and safety of miners. For example, discovering that a certain chemical causes cancer in addition to having an acute effect on the liver, would be significant. By contrast, the change in the percentage or composition of an inert ingredient is not significant. Through our frequent presence at mines, MSHA intends to inform mine operators about significant new information concerning the hazards of their mine's products. This provision is the same as the proposed rule, OSHA's HCS, and the interim final rule.

Many states have HazCom programs that are identical to OSHA's and require the use and distribution of MSDSs. A few apply to mining operations. Even so, many mine operators are supplying MSDSs with their product as a good business practice, in response to requests from their customers, or to comply with state or local laws.

A few commenters to the proposed rule requested that the final rule remove the reference to ''significant'' and ''new'' information and add the phrase ''scientifically valid'' to prevent the incorporation of questionable information into the MSDS. Another commenter to the proposed rule indicated that his operation updates the MSDS every 3 months. This time period is consistent with provisions in the final, interim final, and proposed rules and OSHA's HCS for including significant new information on the MSDS and label.

We intend that the MSDSs you prepare accurately reflect the available scientific evidence that formed the basis for your determination that the chemical is hazardous (§ 47.21 contains criteria for determining a chemical's hazards). If the chemical presents more than one hazard, you have to address each of them on the MSDS. We encourage you to check regularly for new information on the hazardous chemicals you produce. HazCom only requires you to update your MSDSs (and labels) within 3 months after becoming aware of significant new information, not every 3 months. However, HazCom requires you to tell your miners this significant new information when you provide miner training.

MSDSs for common minerals. In the proposed rule, we requested comments on the usefulness of requiring operators to develop or provide MSDSs for common minerals such as sand and gravel, crushed stone, or coal. These minerals are the hazardous chemicals produced by over 90% of the mines. We also requested comments on whether we should develop MSDSs for common minerals and provide them upon request to all interested parties. A few commenters agreed that we should develop MSDSs for common minerals. Two commenters said that we should not develop them. One of these stated that generic MSDSs would not be useful and that we should not require MSDSs for these common minerals. In reviewing information for generic MSDSs, we determined that mineral deposits had specific characteristics, particularly with respect to the percent of silica they contain. We recognize that you know the geology of your mine and the makeup of your products better than anyone. We believe you will put the appropriate information in the MSDS for your product.

If you determine that a common mineral is hazardous using the criteria in § 47.21, hazard determination, you must comply with the provisions of HazCom to the extent applicable.

2. Section 47.52 MSDS Contents

Some commenters to the interim final rule thought that we intended them to add the MSHA exposure limit to every MSDS they maintained, including those for chemicals brought to the mine. Commenters to the interim final rule also pointed out that most of their downstream customers are in OSHA jurisdiction and are required to have MSDSs with the OSHA limits. In response to these comments, we revised the contents of an MSDS in the final rule to allow OSHA exposure limits as an alternative to MSHA exposure limits. This does not reduce miners' protection because the inclusion of exposure limits on the MSDS is for information purposes only. Neither MSHA nor OSHA enforce exposure limits based on the chemical's MSDS.

In the final rule, as in the proposed and interim final rules, we require that MSDSs be in English, but do not otherwise include a requirement for the format. Although the proposed rule did not specifically require that the MSDS be legible and accurate, we added these terms in the interim final rule and retain them in the final rule to clarify your compliance responsibilities.

Some commenters to the proposed rule suggested that we require MSDSs to be made available in alternative languages. Although the MSDS must be in English, you also may provide it in other languages. Just as you have to communicate job duties and work procedures to those miners who may not read or understand English, you must communicate the required information about a hazardous chemical to them. MSDSs for hazardous chemicals brought to the mine are probably available in Spanish or other languages from the manufacturer or supplier or other sources, such as trade associations and websites. If you employ miners who do not read English but read another language, having an MSDS in the language the miner can read makes it easier for you to communicate the chemical's hazards. At those mines where multiple languages are spoken, you may wish to use symbols to help communicate the nature of the hazard and protective measures, and reinforce the miner's understanding of this information.

Similarly, some commenters to the interim final rule claimed that miners would be unable to understand the MSDS because the language is too technical. As stated earlier, you must balance technical language against miner understanding. For example, you can use simple, clear language when preparing the MSDS: you could use ''lungs'' as a route of entry rather than ''inhalation'' or ''causes nerve damage'' rather than ''neurotoxin.'' Again, this requirement only applies to the MSDSs you prepare for the hazardous chemicals you produce.

Information required in MSDS. HazCom requires that each MSDS include the following information about the chemical:

1. *Identity.* The chemical and common names of the hazardous chemical if it is a single substance and of the hazardous ingredients if it is a mixture. The identity used must permit cross-referencing between the list of

hazardous chemicals at the mine (§ 47.32), a chemical's label (§ 47.42), and its MSDS (§ 47.52).

2. *Properties.* The chemical's physical and chemical characteristics as appropriate, such as boiling point, melting point, vapor pressure, evaporation rate, solubility in water, appearance (e.g., crystalline form, liquid, clear, color, etc.), odor, flash point, and flammability limits.

3. *Physical hazards.* The chemical's potential for fire, explosion, and reactivity.

4. *Health hazards.* The chemical's potential to cause an illness or injury, such as its acute and chronic health effects, signs and symptoms of exposure, any medical conditions that are generally recognized as being aggravated by exposure to the chemical, the primary routes of entry (for example, the lungs, the stomach, the skin or eyes). Carcinogens are a special class of health hazard that we address separately.

5. *Carcinogenicity.* The chemical's carcinogenic classification, if any, such as whether the chemical is listed as ''known to be a human carcinogen'' or ''reasonably anticipated to be a human carcinogen'' (NTP 1996) as specified in § 47.21 ''Identifying hazardous chemicals''.

6. *Exposure limits.* In response to comments to the interim final rule, we have amended the language of this requirement in the final rule to allow the alternative of an OSHA or MSHA exposure limit. Commenters pointed out to us that the MSDSs will be sent to downstream customers who are typically in OSHA jurisdictions. In an effort to conform with OSHA's HCS and reduce this unanticipated burden, we are allowing you to use the OSHA limit or the MSHA limit or both. This option preserves safety and health for miners, but offers more flexibility for you.

HazCom only requires one exposure limit, the MSHA or OSHA limit, if there is one, unless the preparer of the MSDS recommends others. Consistent with the proposed and interim final rules, and based on the judgment of the person preparing the MSDS, we also require that the MSDS include any other exposure limit used or recommended by its preparer, such as its ACGIH TLV'' or NIOSH recommended exposure limit (REL). This means that your MSDS is in compliance with HazCom if it contains an MSHA or OSHA exposure limit, if there is one, and any other exposure limits included by the preparer of the MSDS. It is possible then, if there is no MSHA or OSHA exposure limit, and the preparer of the MSDS does not include an alternative, that you could write ''not applicable'' in the exposure limit space on the MSDS and still be in compliance.

7. *Safe use.* Any generally applicable precautions for safe handling and use that are known to you or the responsible party preparing the MSDS, such as appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, procedures for clean-up of spills and leaks, and special disposal requirements.

8. *Control measures.* Generally applicable control measures, such as ventilation, process controls, restricted access, protective clothing, respirators, and goggles.

9. *Emergency information.* Emergency procedures, such as special instructions for firefighters; first-aid procedures; and the name, address, and telephone number of the operator, or that of a responsible party who can provide additional information about the hazardous chemical and appropriate emergency procedures.

The proposed rule would have required a name, address and telephone number of the operator or a responsible party preparing the MSDS who can provide additional information on the hazardous chemical and appropriate emergency procedures. The interim final rule required only the name and telephone number of a person who can provide additional information on the hazardous chemical and appropriate emergency procedures. A commenter to the interim final rule asked that this again reflect the proposed rule's requirement because persons often change jobs and if the person listed on the MSDS was no longer at the mine, the MSDS would be inaccurate even though the substantive information was correct. We agree. Accordingly, the final rule, consistent with the proposed rule and OSHA's HCS, requires that the MSDS include the name of the operator or other responsible party who can provide additional information on the hazardous chemical and appropriate emergency procedures.

We did not include the proposed phrase ''preparing the MSDS'' in the final rule because it would limit your options unnecessarily. If the person who prepared the MSDS left, the MSDS would be inaccurate even though the person listed could provide additional information on the hazardous chemical and appropriate emergency procedures.

10. *Date prepared.* The date of preparation of the MSDS or the last change to it.

The categories of MSDS information in the final rule are substantively the same as the proposed rule, the interim final rule, and OSHA's HCS. The difference, as noted above, is that HazCom gives you the option to list either the OSHA or MSHA exposure limit or both for the chemical.

Numerous commenters to the proposed rule asked that additional information be required on the MSDS, such as (1) Department of Transportation (DOT) requirements, (2) IARC and NTP conclusions, (3) CAS numbers, (4) NIOSH Recommended Exposure Limits, (5) Hazardous Material Information System (HMIS) hazard code information, (6) upper and lower explosive levels, and (7) how products are covered by other agencies' programs, such as EPA requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act of 1976 (RCRA), and Superfund Amendments and Reauthorization Act of 1986 (SARA). We do not include additional requirements for the content of the MSDS in the final rule. The OSHA requirements are well known, and adding to the contents could obscure crucial information needed for miner protection.

Standardized format. Consistent with the interim final and the proposed rules, the final rule does not prescribe a specific format for the MSDS. Both HazCom and OSHA's HCS allow the preparer to determine the format, provided that it addresses all the required categories.

Numerous commenters to the proposed rule requested that we require a standardized format for MSDSs. Several of these commenters stated that they wanted us to adopt OSHA's MSDS form (OSHA–174), and others recommended ANSI Z400–1 *Guide for Preparing Material Safety Data Sheets.* Another commenter to the proposed rule recommended that we require operators who prepare MSDSs to present the same information in the same manner for the same hazardous chemical. One commenter to the proposed rule was concerned that you would have to prepare duplicate MSDSs: One for OSHA and one for us.

There are numerous sources for MSDSs in addition to the manufacturer or supplier: university databases, chemical information services, trade association or union collections. We established minimum requirements for information that must be on the MSDS. Each MSDS must contain the same minimum categories of information.

If you cannot find the appropriate information to complete a specified category or if the category is not applicable to the chemical involved, you must indicate on the MSDS that no

applicable information was found. For example, if the chemical does not have an exposure limit or is not classified as a carcinogen, mark these spaces ''not applicable.'' The MSDS must not contain blanks, even if you choose to use a form with categories beyond those required, because blanks may be misinterpreted. This requirement is the same as in the proposed rule, OSHA's HCS, and the interim final rule. HazCom allows you the flexibility to develop an MSDS in any format you wish, as long as it contains all required information. We encourage you to use a standardized format and suggest OSHA's non-mandatory MSDS form (OSHA–174) or ANSI Z400–1 as a guide.

Alternatives. The final HazCom rule, as the proposed and interim final rules, allows you to use a single MSDS for a class or family of chemicals with similar hazards or for mixtures with similar hazards and contents, such as organic solvents or lubricants in which the ingredients are the same but their percentages vary from mixture to mixture. The few commenters on this provision agreed with the proposed rule.

Also, the final HazCom rule, as the proposed and interim final rules, allows you to use a single MSDS to address the hazards of a process rather than individual hazardous chemicals when it is more appropriate. For example, the chemical composition of a flotation reagent changes as it evolves through the processing of a mineral. A few commenters to the proposed rule objected to this option, but we decided to retain it for the following reasons:

- We saw this option as relating to format, not scope.
- It is not a requirement, but rather an option intended to maximize flexibility and to acknowledge the practical limitations of dealing with chemicals.
- For the purposes of HazCom, ''hazards of a process'' refer to the physical and health hazards of chemicals in the process. If you choose to prepare an MSDS for a process, you have to include all the chemical hazards created during the process and any likely to be created if there is a malfunction or accident, even if the hazardous chemical is a short-lived intermediate. In accordance with § 47.51(d) you do not have to prepare an MSDS for an intermediate chemical if its hazards are addressed on the MSDS of the source chemical.

3. Section 47.53 Alternative for Hazardous Waste

A number of mine operators have EPA permits to burn hazardous waste in their kilns or to dispose of liquid or solid hazardous waste. If you have hazardous waste at your mine, the final rule requires you to provide exposed miners and designated representatives with ready access to any materials you have that can help them know about the hazardous waste. Suppliers typically send a manifest with the hazardous waste. Some may send an MSDS. If no MSDS is available, however, you must give the miner access to any information about the hazardous waste which—

- Indicates its identity or that of its components;
- Describes its physical and health hazards; or
- Specifies the appropriate protective measures.

Our proposed rule would have exempted EPA-regulated hazardous waste from HazCom's labeling and MSDS requirements. It still would have required you to determine the nature of the waste's hazards and instruct miners about them. Proposed § 46.3 ''Hazard determination'' stated:

> (b) Operators who receive chemicals shall determine their hazards based on the chemicals' material safety data sheets and container labels, except that the procedures in paragraph (a) of this section shall be followed for hazardous waste received by operators when a material safety data sheet cannot be obtained.

Paragraph (a) contained the criteria for determining the hazards of chemicals produced at the mine.

OSHA's HCS includes an exemption for hazardous waste regulated by EPA under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended (42 U.S.C. 6901 *et seq.*). Although OSHA's HCS excludes coverage of hazardous waste regulated by EPA, OSHA has other specific standards directed to hazardous waste operations (29 CFR 1910.120). OSHA was required to issue these standards by § 162, Title 1 of the Superfund Amendments and Reauthorization Act of 1986 (SARA), as amended (29 U.S.C. 655 note). We do not have similar standards regarding hazardous waste operations.

EPA standards require training of personnel at a hazardous waste facility, but this training appears to be directed primarily at limiting environmental impact. EPA standards also require an analysis of the hazardous waste as part of the process for obtaining a permit to burn or dispose of it. EPA does not require that this analysis specify the chemicals' hazards to workers or that the employer make this analysis available to employees.

Some commenters to the proposed rule expressed concern that exempting EPA-regulated hazardous waste from HazCom would omit a segment of the mining population that is exposed to hazardous waste on a routine basis. These commenters believed that MSDSs should be available to miners exposed to hazardous waste, including miners working at facilities where hazardous waste is processed or used as a fuel.

We revised the language in the interim final rule to clarify that, although you do not have to prepare an MSDS for hazardous waste, you must give miners access to the MSDS if you have one. In addition, as an alternative to an MSDS, the interim final rule required that you provide miners with access to all available information that identified the components of the hazardous waste, its hazards, or protective measures.

Commenters to the interim final rule expressed confusion about whether or not HazCom required an MSDS for hazardous waste. Neither the interim final rule nor the final rule requires the operator to prepare or obtain an MSDS for hazardous waste. We revised the language in the final rule to clarify that you have to provide miners with access to all available information specified in § 47.53, ''Alternative for hazardous waste.'' The final rule, as did the interim final rule, does not require any specific format for this information. An MSDS or a shipping manifest will contain some of this information. This means that if you have an MSDS for the hazardous waste, you must give miners access to it.

Commenters to the proposed rule and the interim final rule requested clarification about the wastes covered by this section. Some commenters asked that we exempt wastes that are discarded from the mining process or those collected for recycling.

This alternative specifically addresses EPA-regulated hazardous wastes. We do not exempt mine wastes from HazCom unless they are regulated by EPA. If you collect waste chemicals from your mining operation, you should know what these wastes contain and the hazards of the ingredients. If the hazardous chemical waste produced at your mine is regulated by EPA, you do not have to produce an MSDS under HazCom. You can use the information that you develop to comply with EPA regulations as an alternative to the MSDS. Operations that receive EPA-regulated hazardous wastes for disposal or to use as a supplemental fuel should receive a manifest with each shipment. The manifest should contain much of the information found on an MSDS, often in greater detail, and you can use

this manifest as an alternative to the MSDS.

4. Section 47.54 Availability of an MSDS

In response to comments to the proposed rule about the difficulty of keeping paper copies in a harsh mining environment, we revised the interim final rule to clarify in § 47.51 and § 47.54 our intention to allow internet access or a commercial database as a way to comply with the requirement that you have an MSDS for each hazardous chemical.

We revised the final rule to allow MSDSs to be kept at an alternative location. This change in language is intended to allow you to access MSDSs from an internet or commercial database. It requires that you provide miners with access to MSDSs while they are in their work area. You can keep MSDSs at an alternative location, such as a central location, if you ensure that they are readily available to miners in an emergency. The proposed rule had allowed you to keep MSDSs at a central location when it was not practical to maintain the MSDSs in the work area, if the miners had access to them at some time during their work shift, and if you ensured that miners could obtain the required information in an emergency.

Numerous commenters to the proposed rule requested that the MSDSs be kept in a central location when mining conditions were not favorable for keeping these documents in the work area. A few of theses commenters said that we should not specify how MSDSs are to be made available to miners, only that they should be available. Several commenters to the proposed and interim final rules asked that access to MSDSs be available through electronic means, such as computers.

The purpose of requiring MSDSs in the work area where the chemical is stored, handled, or used is so that miners have quick access to critical information in emergency situations. The final rule provides flexibility for you to determine the best way to meet this requirement. We recognize that independent contractors especially need this flexibility because they work at different types of mines, typically multiple employer sites. Independent contractors, therefore, must coordinate the accessibility of MSDSs to other operators and miners, as well as their own employees.

If you wish to comply by retrieving MSDSs electronically from an internet site or a commercial database of chemicals, you must still meet the requirement that MSDSs be readily available to miners. The computer does not have to be connected full time to the internet site. However, we still expect you to make MSDSs available to miners in accordance with the requirements of § 47.54(b). Miners must know how to use the computer or someone who knows how to access the MSDS electronically must be available anytime miners are exposed. For example, you have a lead mechanic and regular mechanic who perform maintenance work at night. If you are providing access to MSDSs electronically, these miners must be able and know how to retrieve an MSDS from the computer whenever they need or want one. This means that you may not lock the computer away from their use unless you give them a key. Otherwise, the MSDS is not readily available and you are denying them access to the MSDSs.

We are aware that the failure to have a current MSDS represents a significant portion of OSHA's HCS violations. By clarifying that HazCom allows the use of internet access to MSDSs, and by establishing links on MSHA's home page, we hope to improve the accuracy and availability of information for miners. We believe we will also reduce paperwork violations by allowing operators to retrieve information from a computer.

The final rule allows you to maintain paper copies of the MSDSs or to keep copies on a computer or computer disk. You may also use fax or other data transmission or any other method that provides access. If you keep MSDSs in the mine office, you must tell the miners where they are and how to access them. Access means that the office must remain open while miners are working or you must make provisions for them to immediately unlock the office if needed. If the MSDS information is kept on a computer, it may be necessary to make provision for backup electrical power in the event of an emergency.

Commenters to the interim final rule asked that we clarify our intent in regard to keeping an MSDS on a computer. HazCom does not require that the MSDS be stored on the individual computer's hard drive. It is acceptable to access the MSDS from a CD–ROM or through an on-line internet database if the MSDS is readily available to miners in an emergency.

If you intend to comply with this provision by using MSDSs from an internet database or chemical manufacturer's website, you must ensure your source is available when it is needed. You should bear in mind that access to an MSDS on the internet depends on many businesses and facilities beyond your control: an electricity provider, electric transmission and generating companies, a telephone company, a long distance provider, an internet provider, and whoever is the source of the MSDS. If you have difficulty accessing the internet because the internet provider's lines are often busy, for example, you may need to change to a provider who is more accessible.

5. Section 47.55 Retaining an MSDS

The final rule requires that you keep the MSDS for as long as the chemical is at the mine and notify miners at least 3 months prior to disposing of the MSDS. The proposed rule did not specify how you were to notify the miner about the intent to dispose of these MSDSs. You would have had the flexibility to use any method that notified each miner who may have been exposed. We intended that you be able to use methods such as a safety meeting announcement, a notice in a company newsletter, or by notifying and posting the MSDS on a bulletin board for 3 months.

Commenters to the interim final rule asked us to clarify that you do not have to notify miners before replacing an outdated MSDS with an updated version. A primary purpose of HazCom is to ensure that miners have access to information about the chemicals in their work areas. As an alternative to this notification, however, you can maintain the old MSDS indefinitely and mark on it the interval of dates and the locations where the chemical was used.

The intent of the proposed rule's requirement to notify miners prior to disposing of an MSDS was to ensure a miner had the opportunity to request a copy. The miner could then retain this information for future reference and you would not need to maintain the MSDS for an extended period of time.

Several commenters to the proposed rule suggested that the 3-month retention period was not sufficient because the chronic effect of a hazardous chemical may take years to manifest itself. Some recommended that we be consistent with OSHA and require a 30-year retention period. One suggested a retention period of 20 years. A few agreed with the proposed 3-month retention period and others felt that there should be no retention requirement at all. One suggested that these notices be posted. Comments to the interim final rule were similar.

We considered a 30-year retention period to be consistent with OSHA requirements. The OSHA retention period for MSDSs derives from that agency's generic rule on recordkeeping, (29 CFR 1904), which was not

developed specifically for hazard communication purposes. As an alternative to retaining the MSDS for 30 years, OSHA's recordkeeping rule allowed employers to keep a record of the identity of the chemical, where it was used, and when it was used.

Because of the nature of the mining industry, mines open and close frequently and there is a large turnover in miners each year. The records from closed mines would be impractical, if not impossible, to retain if the mine operator does not continue in business and there is no succeeding operator. Also, it would be impractical, if not impossible, to find the miners who may have been exposed to the chemical if the miner were no longer employed at the mine.

A requirement to retain MSDSs for a lengthy period of time could result in the accumulation of a great number of MSDSs. A manufacturer may change the formulation of a chemical as processes or new technologies improve, requiring a revision to its MSDS. We expect operators to keep the current MSDSs for the chemicals they use. Maintaining many MSDSs for a single brand name that has changed composition a number of times could lead to confusion and potentially cause greater harm than not having the old MSDSs available in case a miner develops a disease 10, 20, or 30 years after exposure. Some mines use a large number and variety of chemicals briefly, depending on which product is cheapest or which the distributor is carrying at a specific time. Mines may also try a variety of chemicals for brief intervals to find a desired effect.

For the above reasons, we believe the 30-year retention period would be excessively burdensome for the mining industry. We also believe, however, that it would not be a great burden for you to notify miners 3 months before disposing of an MSDS.

The final rule, consistent with the interim final rule, requires that you maintain the MSDS at the work area or an alternate location as long as the hazardous chemical is at the mine, and notify miners at least 3 months before you dispose of an MSDS. We require you to provide copies of MSDSs to miners because they have a right to specific information about their chemical exposures. We determined that this access provision is adequate to ensure that a miner could obtain a copy of the MSDS if the miner wants one.

We believe miners request copies of MSDSs because they are concerned about a chemical's effect on their health. If a miner has a health concern, he or she usually requests a copy immediately rather than later. The effects of some chemicals, however, have a long latency period between the exposure and the onset of a disease. Miners can get a copy at any time the chemical is at the mine, but may not think to get a copy until you notify them that you intend to dispose of it. As stated previously, you may use any effective method to notify the miners, such as a verbal announcement in a safety meeting, a personal written notice, an all-employee newsletter, or a notice posted on the mine bulletin board.

G. Conforming Amendments: HazCom Training Requirements Under 30 CFR Parts 46 and 48

In response to public comments submitted both in writing and at the public hearings, MSHA is removing the training requirements from the HazCom standard in 30 CFR part 47, except for initial training of currently employed miners. We are also making conforming amendments to 30 CFR parts 46 and 48 to accommodate HazCom training. These changes are a logical outgrowth of the interim final rule because commenters urged MSHA to integrate HazCom training with existing training standards in parts 46 and 48. In response to commenters' concerns, the final rule fully integrates HazCom training provisions into parts 46 and 48.

In the interim final rule, MSHA disagreed with the recommendation that all HazCom training requirements should be incorporated under parts 46 and 48. However, we now believe that the emphasis on hazardous chemicals can be incorporated into your training program. We have added specific language to existing parts 46 and 48 to make clear that these subjects will be a part of the mine's training program.

These conforming amendments clarify MSHA's intent that HazCom training will take place under parts 46 and 48 after the initial HazCom training is conducted. The conforming amendments to parts 46 and 48 make clear that for initial training, new miner training, newly employed experienced miner training, annual refresher training, and whenever a new task is assigned, miners will now have a unified approach to provide a better training focus on working with hazardous chemicals. We developed the interim final rule requirements to be fully compatible with existing training standards. The amendments to parts 46 and 48 provide integration of the interim final rule requirements with existing training standards. In addition, it is MSHA's intent to allow mine operators to use relevant training conducted in compliance with other MSHA, federal, or state regulations to meet the HazCom training requirement of this part. You can also use relevant training conducted in compliance with this part to meet the comparable requirements of other parts of this chapter. This means that relevant training provided to miners under other MSHA standards, such as parts 46 and 48, OSHA, EPA, DOT, and state requirements, can be credited toward HazCom training.

1. HazCom Training Under 30 CFR Part 46

Under the conforming amendments to existing part 46, mine operators must provide each new miner and newly hired experienced miner with instruction on the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

Mine operators must provide any miner who is reassigned to a new task, in which he or she has no previous work experience, with training in the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures the miner can take against these hazards, and the contents of the mine's HazCom program. Additionally, the conforming amendments to part 46 recommend that mine operators include information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program as part of the topics covered under the miners' annual refresher training.

Under the conforming amendments to annual refresher training in § 46.8(b), miners will receive instruction on changes at the mine which could adversely affect the miners' health or safety. It is under this section that miners will get information on potential exposures to chemicals which are not in their immediate work area, but which could potentially impact them while at the mine.

New miner training and newly employed experienced miner training. Under existing § 46.5, new miners are to receive 24 hours of new miner training, with a minimum of 4 hours of training in specific areas which, with the addition of these conforming

amendments, now will include information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program, before they begin work. They also must have instruction in additional subjects specified in the regulation no later than 60 days after beginning employment; and the balance of new miner training no later than 90 days after beginning employment.

For newly hired experienced miners, the conforming amendment to § 46.6 requires instruction in the same subjects required for new miners specified above, before they begin work. Existing part 46 also requires that they must have instruction in one additional subject specified in the regulation no later than 60 days after beginning work.

New task training. Existing § 46.7 requires training for every miner before the miner is reassigned to a task for which he or she has no previous experience. Training must also be given when a miner's task has changed. Existing part 46 already requires that the training must cover the health and safety aspects and safe work procedures of such tasks. The conforming amendment to § 46.7 requires information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. This training will ensure that miners are adequately trained about new chemical hazards when they are assigned new tasks.

In addition, if a miner's task requires him to use a chemical and the chemical is changed by the mine operator to a chemical that poses a new chemical hazard, the miner must get information about those new hazards through task training. Task is defined under existing § 46.2(n) as ''a work assignment or component of a job that requires specific job knowledge or experience.'' In this instance, even though the miner's work assignment has remained the same, a component of his job that requires new job knowledge or experience has changed by the introduction of a new chemical hazard in his work area. The introduction of this new chemical hazard would require new ''job knowledge'' on the miner's part on how to safely use this chemical. We believe that this new information must be provided to the miner under the conforming amendment to § 46.7 as part of the miner's training in the health and safety aspects related to the assigned task, which include the safe operating procedures of such task. This interpretation is consistent with the purpose of part 46 task training, which is to provide miners with fundamental health and safety information regarding all aspects of their work assignments, so that they can perform their job duties safely.

MSHA wants to emphasize that if the introduction of a new chemical does not involve the introduction of a new hazard, mine operators do not have to conduct new task training and, consequently, no paperwork requirement is triggered. Thus, the conforming amendments to part 46 are not requiring any different training beyond that which is already required under § 46.7. New task training is only required when a new chemical hazard is introduced into a miner's work area, and not each instance when a new chemical is introduced into a miner's work area. Introducing a new hazard is not the same as introducing a new hazardous chemical. For example, if the mine operator is replacing a solvent with a new solvent that presents the same hazards as the old one, the mine operator is not required to conduct new task training. By contrast, if the new solvent poses a new hazard, the mine operator must conduct new task training to provide affected miners with new ''job knowledge'' regarding their work assignment and comply with the pertinent recordkeeping requirements of part 46. The mine operator also must include the new solvent in the list of hazardous chemicals and keep a copy of the MSDS available.

MSHA believes that this interpretation regarding task training is appropriate, and is also consistent with the training provision of the proposed and interim final rules regarding the introduction of a new chemical hazard into the miner's work area. We acknowledge that the traditional focus of the definition of ''task'' under part 46 has been on new work assignments. With these paragraphs, however, we are making clear our intent that task training must be conducted when a new chemical hazard is introduced into a miner's work area. We believe that this interpretation will achieve a safer workplace, and does not result in an increase in the administration of task training to miners, because mine operators may be less likely to replace chemicals with chemicals that are more hazardous.

Annual refresher training. Under existing § 46.8(b) annual refresher training, miners were already required to have refresher training that includes instruction on changes at the mine that could adversely affect the miner's health or safety. MSHA believes that this paragraph would include training about new chemical hazards introduced at the mine. In addition, the conforming amendment to § 46.8 recommends subjects to include information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

Part 46 and the interim final rule training elements. As noted below, all of the training elements which were contained in the interim final rule are appropriately provided to miners based on the type of training the miner receives during his course of employment at a mine.

All of the training elements which were contained in the interim final rule are covered by the language of the conforming amendments to part 46, or are covered by existing provisions of part 46. For example, new miners and newly hired experienced miners will continue to have information regarding the requirements of the HazCom standard under §§ 46.5(b)(4) and 46.6(b)(4), respectively, because mine operators were already required to train each miner on the mandatory health and safety standards pertinent to their tasks. The provision of this information will ensure that miners receive information about the location and availability of the HazCom program. The conforming amendments to these training provisions require mine operators to provide each miner with information about the physical and health hazards of chemicals in the miner's work area and the protective measures the miner can take against these hazards. The protective measures that a miner can take against these hazards must also include how a miner can detect the presence or release of a hazardous chemical in the work area because such detection is the natural first step that a miner would take to protect himself from any developing hazard. Finally, the mine operator must inform each miner about the contents of the HazCom program. These requirements are consistent with the training requirements that were specified in the interim final rule.

Training about the content of the HazCom program (the specifics of the program are enumerated under § 47.32) requires that mine operators identify how HazCom is put into practice at the mine through the use of hazard determination, labels and other forms of warning, MSDSs, and miner training. It also requires a list or other record of the identity of all hazardous chemicals known to be at the mine, and must be compiled for the whole mine or by

individual work areas. It is through this training that miners will be notified of the locations where hazardous chemicals are present.

In addition, when a miner is reassigned to a new task in which he or she has no previous work experience, the conforming amendment to § 46.7(a) provides that the miner must receive training in the health and safety aspects of the tasks to be assigned, including the safe work procedures of such task, information about the physical and health hazards of the chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. These requirements are all consistent with the training requirements that were addressed in the interim final rule.

Finally, the conforming amendment addressing annual refresher training under § 46.8(c) recommends that mine operators provide information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

Training plans. Mine operators are reminded that training plans that include the minimum information specified in existing part 46 are considered approved by us and are not required to be submitted to us for formal review, unless you, the miners, or miners' representatives requests it.

To minimize the paperwork burden and assist mine operators with compliance with the HazCom requirements, we will provide assistance and guidance to all mine operators with training plan modifications. Our HazCom compliance guide will further explain the required training plan modifications and will include a model training plan addendum which mine operators can attach to their existing training plan. Mine operators can use this model addendum when revising their training plans. Also, mine operators who submitted their training plan to us for approval can attach this model addendum to their MSHA approved training plan, eliminating the need to resubmit. Mine operators are reminded that, under existing part 46 requirements, they must provide the miners' representative, if any, with a copy of the approved plan within one week after approval. Mines with no designated miners' representative must post a copy of the plan at the mine, or provide a copy to each miner within one week after approval.

Records of training. Under existing part 46 requirements, you are required to certify that a miner has received required training and retain a copy of each miner's training records and certificates for the duration of the miner's employment, except that you must keep certificates of annual refresher training for at least 2 years. You must keep training records and certificates for miners who have terminated their employment with you for at least 60 days after the employment ends. You may use our existing form for the certification (MSHA Form 5000–23) or maintain the certificate in another format. If you choose to use Form 5000–23, you should be aware that the form was not designed for use under part 46 and you need to ensure that you include on the form all the required information. Under part 46, you also are required to maintain a copy of the current training plan at the mine or have the capability to produce it upon request within one business day. You may keep training records and certificates at the mine site or at a different location, but must provide copies of the records to us and to miners and their representatives upon request.

Instructor qualifications. Under existing part 46 requirements, instructors do not need to be approved by us. Instead, training must be provided by a competent person, defined as someone with sufficient ability, training, knowledge, or experience in a specific area, who is also able to communicate the subject of the training and evaluate the effectiveness of the training provided.

Compatibility with other training. Existing part 46 allows you, where appropriate, to substitute equivalent training required by OSHA or other federal or state agencies to satisfy your training obligations under part 46. It is MSHA's intent to allow mine operators to use relevant training conducted in compliance with other MSHA, federal, or state regulations to meet the new HazCom training requirements of part 46. This means that relevant training provided to miners under other MSHA standards, such as parts 46 and 48, OSHA, EPA, DOT, and state requirements, can be credited toward HazCom training.

2. HazCom Training Under 30 CFR Part 48

As with part 46, the conforming amendments to existing part 48 require mine operators to provide new miners and experienced miners with instruction in the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. Training of miners assigned to a task in which they had no previous experience must include instruction in the health and safety aspects related to the assigned tasks, including the safe operating procedures of such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

Training of new miners. Under existing §§ 48.5 and 48.25, new underground miners are to receive 40 hours and new surface miners are to receive 24 hours of new miner training in specific areas, with approximately 8 hours of training given at the mine site. Under the new conforming amendments to §§ 48.5 and 48.25, the training now includes instruction in the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. This training must be provided before such miner is assigned to work duties.

Experienced miner training. Experienced miners must complete training in the areas specified under existing §§ 48.6 and 48.26. Under the new conforming amendments, the training must include instruction in the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program, before beginning work duties. Each experienced miner returning to mining following an absence of 5 years or more, must receive at least 8 hours of training.

Training of miners assigned to a task in which they have had no previous experience. Under existing §§ 48.7 and 48.27, miners assigned to new work tasks as specified in the regulation, must receive the required training before the new tasks are performed. The minimum subjects to be covered in this training program are specified under the regulation. In accordance with the

conforming amendments to existing part 48, this training program must now include instruction in the health and safety aspects related to the assigned tasks, including the safe operating procedures of such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

These conforming amendments to part 48 will ensure that miners are adequately trained about new chemical hazards as part of their task training when they are assigned new tasks. In addition, if a miner's task requires him to use a chemical and the chemical is changed by the mine operator to a chemical that included a new chemical hazard, the miner must get information about those new hazards through task training.

Task is defined under existing §§ 48.3(f) and 48.22(f) as ''a work assignment that includes duties of a job that occur on a regular basis and which requires physical abilities and job knowledge.'' In this instance, even though the miner's work assignment has remained the same, the introduction of a new chemical hazard in the miner's work area would require new ''job knowledge'' on the miner's part on how to safely use this chemical. We believe that this new information must be provided to the miner under the conforming amendments to §§ 48.7 and 48.27 as part of the miner's training in the health and safety aspects related to the assigned task, which include the safe work procedures of such task. This interpretation is consistent with the purpose of part 48 task training, which is to provide miners with fundamental health and safety information regarding all aspects of their work assignments so that they can perform their job duties safely.

MSHA wants to emphasize that if the introduction of a new chemical does not involve the introduction of a new hazard, mine operators do not have to conduct new task training and, consequently, no paperwork requirement is triggered. Thus, the conforming amendments to part 48 are not requiring any different training beyond that which is already required under §§ 48.7 and 48.27. New task training is only required when a new chemical hazard is introduced into a miner's work area, and not each instance when a new chemical is introduced into a miner's work area. Introducing a new hazard is not the same as introducing a new hazardous chemical. For example, if the mine operator is replacing a solvent with a new solvent that presents the same hazards as the old one, the mine operator is not required to conduct new task training. By contrast, if the new solvent poses a new hazard, the mine operator must conduct new task training to provide affected miners with new ''job knowledge'' regarding their work assignment and comply with the pertinent recordkeeping requirements of part 48. The mine operator also must include the new solvent in the list of hazardous chemicals and keep a copy of the MSDS available.

MSHA believes that this interpretation regarding task training is appropriate, and is also consistent with the training provision of the proposed and interim final rules regarding the introduction of a new chemical hazard into the miner's work area. We acknowledge that the traditional focus of the definition of ''task'' under part 48 has been on new job duties or work assignments. With these paragraphs, however, we are making clear our intent that task training must be conducted when a new chemical hazard is introduced into a miner's work area. We believe that this interpretation will achieve a safer workplace, and does not result in an increase in the administration of task training to miners, because mine operators may be less likely to replace chemicals with chemicals that are more hazardous.

Annual refresher training. Existing §§ 48.8(b)(1) and 48.28(b)(1) already require that the annual refresher training course include the requirements of mandatory health and safety standards which are related to the miner's tasks. Under §§ 48.8(b) and 48.28(b), miners were already required to have refresher training that includes instruction on the mandatory health and safety standard requirements which are related to the miner's tasks and on the health provisions of the Mine Act, as well as an explanation of the warning labels. We believe that instruction about significant new information would be included in the above provisions as part of the training on the mandatory health and safety standard requirements related to the miner's tasks and the warning labels. Under §§ 48.8 and 48.28, the conforming amendments recommend subjects to include information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

Additionally, the conforming amendments to §§ 48.8 and 48.28 for annual refresher training recommend that training on health and safety standards relevant to mining operations at the mine be included. Significant, new information about the hazard of a chemical in a miner's work area would be covered by this recommendation.

Part 48 and the interim final rule training elements. All of the training elements which were contained in the interim final rule are covered by the language of the conforming amendments to part 48, or are covered by existing provisions of part 48. For example, new miners will be trained and have information regarding the requirements of the HazCom standard under §§ 48.5(b)(13) and 48.25(b)(13) because the miner is already required to have instruction in the health and safety aspects of the tasks to be assigned and the mandatory health and safety standards pertinent to such tasks. Also, when an experienced miner is trained pursuant to §§ 48.6(b)(11) and 48.26(b)(11), the course must include instruction in the health and safety aspects of the tasks assigned and the safe work procedures of the tasks. The conforming amendments to these training provisions require mine operators to provide each miner with information about the physical and health hazards of chemicals in the miner's work area and the protective measures the miner can take against these hazards. The protective measures that a miner can take against these hazards must also include how a miner can detect the presence or release of a hazardous chemical in the work area because such detection is the natural first step that a miner would take to protect himself from any developing hazard. Finally, the mine operator must inform each miner about the contents of the HazCom program. These requirements are consistent with the training requirements that were specified in the interim final rule.

Training about the content of the HazCom program (the specifics of the program are specified under § 47.32) requires that mine operators identify how HazCom is put into practice at the mine through the use of hazard determination, labels and other forms of warning, MSDSs, and miner training. It also requires a list or other record of the identity of all hazardous chemicals known to be at the mine, and must be compiled for the whole mine or by individual work areas. It is through this training that miners will be notified of the locations where hazardous chemicals are present.

In addition, when a miner is reassigned to a task in which he or she has no previous work experience, the conforming amendments to §§ 48.7(a)(1) and (c) and 48.27(a)(1) and (c) provide

that the training must include instruction in the health and safety aspects and the safe work procedures related to the assigned tasks, including information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. These requirements are all consistent with the training requirements that were addressed in the interim final rule.

The conforming amendments addressing annual refresher training under §§ 48.8(c) and 48.28(c) recommend that mine operators provide information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. Existing §§ 48.8(a)(1) and 48.28(a)(1) already require that the course include mandatory health and safety standard requirements which are related to the miner's tasks. These provisions will provide information regarding the requirements of the HazCom standard during annual refresher training because mine operators were already required to train each miner on the mandatory health and safety standards pertinent to their tasks. The provision of this information will ensure that miners receive information about the location and availability of the HazCom program. Finally, under part 48, existing §§ 48.5(b)(7), 48.6(b)(10), 48.8(b)(11), 48.25(b)(7), 48.26(b)(10), and 48.28(b)(8) already require mine operators to explain warning labels to miners.

Training plans. Mine operators are reminded that under existing part 48 regulations, they must submit to us for approval their plans for training new miners, training experienced miners, training miners for new tasks, annual refresher training, and hazard training for miners.

To minimize the paperwork burden and assist mine operators with compliance with the HazCom requirements, we will provide assistance and guidance with training plan modifications to all mine operators. Our HazCom compliance guide will further explain the required training plan modifications and will include a model training plan addendum. Mine operators can attach this model addendum to their existing training plan or use it when revising their training plans. Also, mine operators who submitted their training plan to us for approval can attach this model addendum to their MSHA approved training plan, eliminating the need to resubmit. Mine operators are reminded that, under existing part 48 requirements, they must post a copy of revisions to the training plan on the mine's bulletin board.

Records of training. Under existing part 48, you are required to record and certify on MSHA Form 5000–23 that a miner has received required training. A copy of the training certificate must be given to the miner at the completion of the training. The training certificates for each miner must be available at the mine for inspection by us and for examination by the miners, the miner's representative, and State inspection agencies. When a miner leaves your employment, he is entitled to a copy of his training certificates. Copies of training certificates for currently employed miners must be kept at the mine for 2 years, or for 60 days after termination of employment.

Compatibility with other training. It is MSHA's intent to allow mine operators to use relevant training conducted in compliance with other MSHA, federal, or state regulations to meet the new HazCom training requirements of part 48. This means that relevant training provided to miners under other MSHA standards, such as parts 46 and 48, OSHA, EPA, DOT, and state requirements, can be credited toward HazCom training.

Instructor qualifications. Under existing part 48 requirements, instructors must be approved by us. The regulations specify the requirements instructors must meet to receive MSHA approval.

H. Subpart H—Making HazCom Information Available

The proposed and interim final rules defined *access* as the right to examine and copy records. The final rule uses this same language. In providing access, the proposed rule required you to make written HazCom information available, but the requirements were repeated under each major provision. In response to comments to the proposed rule that HazCom, as published in 1990, was difficult to understand, we consolidated these requirements in a single place in the interim final rule and, subsequently, in the final rule. We included language in the labeling and MSDS sections to emphasize the need to have this critical information readily available.

Hazard determination and awareness, labels and MSDSs, and training provide miners with essential information about hazardous chemicals. Each of these components of the HazCom program complements the others. They, along with the requirements for a written program and access to the HazCom materials, are necessary for the effective communication of chemical hazard information to miners and operators.

Chemical information can be complex and lead to confusion. When you give miners access to your written HazCom materials, you will have taken an important step toward eliminating the mystery, clarifying any misinformation and erroneous concepts, and defusing worker concerns about these chemicals. If miners are not given access to the information, they can grow suspicious about what you tell them and may disregard the information entirely, thus reducing the effectiveness of the HazCom program. If you give miners access—allowing them to examine the material, copy it, and review it when they have time—they are more likely to share in the goals of the program, follow safe and healthful work procedures, and seek early medical help in case of exposure.

1. Section 47.71 Access to HazCom Materials

The proposed rule required you to give miners and their designated representatives access to written HazCom materials: the written HazCom program, the list of hazardous chemicals, labeling information, MSDSs, and training records. The proposed rule also explicitly required that you give representatives of the Secretaries of Labor and Health and Human Services access to HazCom materials.

This provision in the final rule is substantially the same as it was in the proposed rule, and unchanged from the interim final rule, except for training records. It is consistent with OSHA's HCS and provides the miner valuable information about the chemical hazards at their mine. Providing access means that if the miner requests a copy of material associated with the HazCom program, you must give the miner a copy of the relevant material. If you prefer, you can give the miner the records and the use of a copy machine so that he or she can make a copy. If you have an internet website, you could put the MSDSs on the website for access by your miners and customers, thus reducing the number of requests for paper copies.

Some commenters to the proposed rule asked that we not require operators to copy records for miners, citing an administrative burden. Others commenting on the proposed rule suggested miners put their requests for access in writing to ''verify and effectively communicate actual requests for copies.'' Commenters also pointed out that § 103(a) of the Mine Act already

gives representatives of the Secretaries of Labor and Health and Human Services access to HazCom materials.

Commenters to the interim final rule asked us to clarify miner's access to HazCom information and records. They expressed concern that some training materials, like videotapes or booklets, would be costly to duplicate and may violate copyright laws if they must make copies. As was our intent in the interim final rule, the final rule does not require that you provide miners copies of training materials. You must allow miners to examine that information, however, and to have access to all HazCom materials required by the final rule, such as the chemical inventory, MSDSs, and your product's labeling information.

As in the proposed standard, the final access provisions require operators to provide a copy of the records for the miner to examine or to retain a copy. In the interest of flexibility, the final rule, like the interim final rule, does not specify the time period in which you have to provide copies. Because you are required to keep all these HazCom materials available at the mine, including those available by computer, you should be able to provide them to miners, designated representatives, and federal officials on the same day or, at most, within 24 hours of receiving the request. We believe this timely availability of materials to miners will provide the same protection as the proposed rule because it will be available when requested.

While we agree that a written request would ''verify'' and ''effectively communicate * * * an actual request,'' there are numerous ways to achieve this goal other than having the miner put the request in writing. Requiring a written request is unnecessary because better alternatives are available. For example, you can have miners sign a receipt for the copies or initial a log. Requiring written requests could delay miners' access to essential HazCom materials. Therefore, the final rule does not require requests for copies of HazCom materials to be in writing.

Although it is not stated, you must provide access to representatives of the Secretaries of Labor (*e.g.,* MSHA inspectors) and Health and Human Services (*e.g.,* NIOSH investigators). The final rule does not explicitly include this provision because it is mandated under the Mine Act.

2. Section 47.72 Cost for Copies

The final rule, as in the proposed and interim final rules, requires you to provide one copy of written HazCom material without cost to the miner. This includes a single copy of any revisions or updates. Some commenters to the proposed rule were concerned that operators would have to provide copies at no cost to the miner. They stated that this was not reasonable and recommended that we require you to provide one copy, but not additional copies of the same document, at no cost. For this reason, if the miner or designated representative requests another copy of material you have already given them, the final rule allows you to charge for subsequent copies of the same material. These administrative fees must be reasonable and they must be the same for everyone. You may not refuse to provide these additional copies. These provisions will ensure that miners have access to information about hazardous chemicals without placing an undue burden on you.

3. Section 47.73 Providing Labels and MSDSs to Customers

If you produce a hazardous chemical, HazCom requires you to provide the labeling information and the MSDS to customers when they request them. If you have an internet website, you could put the labeling information and MSDSs on the website for access by your miners and customers, thus reducing the number of requests for paper copies. You also have the option of sending copies by e-mail or facsimile (fax). The final rule is the same as the interim final rule. There were no significant new comments received from the public on the interim final rule.

The proposed rule would have required you to provide a copy of the labeling information with the initial shipment of a hazardous chemical to another employer. You could have included this labeling information with the chemical's shipping papers rather than attach it to each container. If you became aware of any significant new information concerning the hazards of the chemical, you would have had to incorporate this new information, as appropriate, into a new label within 3 months and provide it with the next shipment of the chemical to that employer. In addition to the identity of the hazardous chemical and appropriate hazard warnings, the proposed rule also would have required you to provide that employer with your name and address or the name and address of a responsible party who could provide additional information about the hazardous chemical. The proposed rule did not specifically address customers who were not employers, such as an individual homeowner buying a load of stone for her driveway.

Some commenters to the proposed rule said that HazCom should require this labeling information on all containers shipped from the mine. They stated that it would be easier to label each shipment to avoid the extra recordkeeping associated with tracking which shipments to employers must contain labeling information. Others questioned our authority to require you to provide labels on products leaving mine property. Several commenters wanted us to cover hazardous chemicals shipped from a mine in a way that was consistent with the OSHA HCS.

MSHA has authority under the Mine Act to require operators to comply with the provisions of this standard, including providing labeling information to commercial carriers and contractors while they are on mine property. The final rule, as did the interim final rule, requires you to make the label information and MSDSs for your products available upon request. If you want to label each container or send the MSDS with each shipment, that is your choice. Our experience indicates that many mine products are already labeled and MSDSs are sent in a manner consistent with OSHA's HCS. Market forces and the requirements of other agencies serve to ensure that you label your product appropriately for downstream users. You are responsible for the accuracy of the information on any label you prepare.

Several commenters to the proposed rule stated that 3 months is too long and that you should inform miners immediately of significant new hazard information. These commenters suggested 5 days, 30 days, and 45 days as adequate time for you to incorporate the new information into a new label. We disagree that 3 months is too long for operators to incorporate new information into a new label. We believe that 3 months is a reasonable amount of time for the design and production of a new label and the final rule retains this requirement in § 47.41(b).

I. Subpart I—Trade Secrets

The ''Trade Secrets'' subpart balances two important interests: The miner's interest in obtaining information on hazardous chemicals and your proprietary interest in protecting your business. In general, we believe miner safety and health is best served by full disclosure of a chemical's identity. We recognize, however, the need to protect trade secrets. Once a trade secret is disclosed, its value may be lost. Under the Subpart I—Trade Secrets:

- You may always protect information about trade secret processes and percentages of mixture.

• You may protect trade secret chemical identities except in emergency and specified non-emergency situations.

• You must always disclose the properties, the safe use, and the safety and health effects of trade secret chemicals.

Our proposed rule was, in essence, a restatement of the existing OSHA trade secret provision. The OSHA rule has worked for other industries for years, has withstood the test of experience, and can ensure that trade secrets will not be disclosed beyond what is necessary to protect miners. The comments we received on this subpart were generally supportive. The interim final and final rules, while revised stylistically, retain the substance of the proposed rule and the OSHA rule.

We understand that most operators are probably not concerned with trade secrets. One commenter to the proposed rule said that the Trade Secrets subpart had limited utility for the coal industry. Another commenter to the proposed rule said the provision was unnecessary for crushed stone. Both of these commenters wanted us to delete the trade secret provisions.

We disagree with those commenters. To the operators who create unique processing compounds, trade secret protection may be vitally important. One commenter thought that we were downplaying that importance by anticipating limited interest in the provision. On the contrary, we recognize the value of trade secrets where they exist. Although the subpart may appear elaborate, it provides a proven framework to accommodate both the interests of protecting trade secrets and miners' health and safety. We have considered all comments submitted to the ANPRM, the proposed rule, and interim final rule. We determined that the Subpart I–Trade Secrets will effectively provide for the investigation and settlement of disputes.

The final rule is the same as the interim final rule. There were no significant new comments received from the public on the interim final rule and, subsequently, no changes were made in the language of the rule except for stylistic changes.

1. Section 47.81 Provisions for Withholding Trade Secrets

Once a particular chemical has been classified as a trade secret, HazCom allows you to withhold the chemical name and other specific identification of the hazardous chemical from the written HazCom program, label, and MSDS, provided that—

• You identify the trade secret chemical in a way that it can be referenced without disclosing the secret;

• You disclose the properties and effects of the chemical in the MSDS;

• You indicate in the MSDS that the chemical's identity is being withheld as a trade secret; and

• You make the chemical's identity available to MSHA, health professionals, miners, and designated representatives following other provisions in this subpart.

HazCom does not require you to disclose process or percentage of mixture information. The final rule, consistent with the interim final rule, incorporates the language of the proposed rule with a few editorial changes.

A commenter to the interim final rule was concerned that exempting percentage of mixture and process information from disclosure would be a loophole in the rule's protection. This exemption is taken from the OSHA rule. Even if a trade secret is involved in an exposure, the affected miners are entitled to know the properties and effects, alternative name, protections and treatments associated with the trade secret. When required, you must also disclose the specific chemical identity of the trade secret. We believe this gives miners all the necessary information that they would practically need for prevention or treatment of harmful exposures from a trade secret chemical.

2. Section 47.82 Disclosure of Trade Secret Information to MSHA

This section requires you to disclose to us, upon request, any information required by this subpart. If you are going to make a trade secret claim, you must do so no later than when you provide the information to us so that we can determine the validity of the claim and provide the necessary protection. This provision in the final rule is essentially the same as the proposed and interim final rules with a few non-substantive editorial changes. There were no comments on giving trade secret information to MSHA.

3. Section 47.83 Disclosure in a Medical Emergency

Upon request, you must immediately disclose the identity of a trade secret chemical to a health professional in a medical emergency. You are required to make this disclosure when the professional is treating the miner and determines that—

• A medical emergency exists, and

• The specific chemical identity is necessary to provide emergency or first aid treatment.

The proposed rule required you to identify the trade secret chemical to a treating ''physician or nurse'' in the event of an emergency. One commenter to the proposed rule suggested that we revise the provision to read ''physicians' assistants and other health-care professionals who provide treatment'' instead of ''physician or nurse'' so that HazCom includes other health-care professionals involved in treatment and patient care. This subject is also addressed in Subpart B—Definitions of this preamble under health professional.

You must provide the chemical's identity to the treating health professional immediately in an emergency. After the emergency, however, HazCom allows you to require that the health professional provide you with a written statement of need, as well as enter into a confidentiality agreement to protect against the unauthorized disclosure of trade secret information. In general, the statement of need verifies that the health professional will be using the trade secret information only for the needs permitted by HazCom. The confidentiality agreement ensures that the health professional will not make any unauthorized disclosures of the trade secret.

Under § 47.84, non-emergency disclosure, we state that you may be subject to a citation. One commenter to the proposed rule recommended that similar language be added for unwarrantable failures if disclosure is denied in an emergency. We did not adopt this recommendation. The § 47.84 citation provision is part of a procedure for reviewing denials of disclosures and balancing interests, which applies only to non-emergency situations. In any event, a violation of the emergency disclosure standard would, like other violations of mandatory standards, be subject to Mine Act enforcement.

A commenter to the interim final rule questioned whether the request for a trade secret under the rule could be made by fax or e-mail in lieu of a letter. The rule does not specify the form of the request in an emergency; the request may be made orally. In a non-emergency situation, the request must be in writing. Fax and e-mail are acceptable forms of a written request for purposes of the rule.

4. Section 47.84 Non-Emergency Disclosure

Commenters to the proposed rule generally agreed with the proposed provisions for non-emergency disclosure of trade secret chemical identity. These provisions remain substantively unchanged in the interim and final rules. In a non-emergency

situation, you must disclose the trade secret information to a health professional providing medical or other occupational health services to a miner if they give you a written statement of need requesting the information. Under this section, miners and designated representatives also have the same access. The statement of need must address the reasons specified in the rule, and explain why other available information will not suffice. In addition, the requester has to enter into a confidentiality agreement.

A commenter to the interim final rule asked how many occupational health needs must be specified in the written request. The request must contain at least one of the needs listed in § 47.84(b). Another commenter to the interim final rule said that process and percentage of mixture information should have to be disclosed in a non-emergency situation. We disagree. Although some health effects may differ depending on the percentage of mixtures, these health effects are supposed to be listed on the MSDS, even if the chemical's identity is not.

5. Section 47.85 Confidentiality Agreement and Remedies

The confidentiality agreement may restrict the use of the trade secret chemical identity to the health purposes indicated in the statement of need, and may provide for legal remedies in the event of a breach of confidentiality. You may not require a penalty bond in the confidentiality agreement; however, you may pursue other non-contractual remedies to the extent permitted by law.

The proposed rule would have required that you allow the health professional, miner, or designated representative to disclose the trade secret chemical identity to MSHA if they decide there is a need. This is the same as the interim final and final rules. The proposed rule would also have required that they let you know before or at the time they make the disclosure. This requirement is not mandatory in the final rule, the same as the interim final rule, because we determined that we could not enforce it. Accordingly, we are leaving it to the parties entering the confidentiality agreement. This provision only applies to disclosure of the trade secret chemical identity. In any event, miners and miners' representatives have the right under the Mine Act to confidentially report an imminent danger or health and safety violation to MSHA and explain how a trade secret chemical may be involved.

One commenter to the interim final rule asked whether confidentiality agreements can be legally required in light of the decision in *United Steelworkers of America* v. *Auchter,* 763 F. 2d 728 (3d Cir. 1985). The court in that case expressly acknowledged the usefulness and validity of confidentiality agreements in protecting trade secrets.

6. Section 47.86 Denial of a Written Request for Disclosure

You may deny a written request for disclosure of trade secret information in non-emergency situations. Your denial must—

- Be in writing, which includes e-mail and facsimile (fax) communication;
- Be given to the person requesting the information within 30 days of the request;
- Include evidence that the chemical's identity is a trade secret;
- State why the request is being denied; and
- Explain how alternative information will satisfy the medical or occupational health need identified in the request.

Commenters to the interim final rule agreed with the proposed provisions for denying a request for non-emergency disclosure of trade secret information and we included these provisions in the final rule. The section is unchanged from the interim final rule.

7. Section 47.87 Review of Denial

If you deny a request for trade secret information, the person or organization making the request can refer the denial to us for review. In order for the request to be reviewed, it must include a copy of the request for disclosure, the confidentiality agreement, and your written denial. This provision is essentially unchanged in the proposed, interim final, and final rules. We will consider the appropriateness of the denial based on the evidence you submit to support your claim that the chemical's identity is a trade secret, the medical or occupational health need for the information, and the proposed means to protect confidentiality.

If we determine that you wrongfully denied the request for disclosure, you will be subject to a citation. If you can demonstrate to us that the execution of a confidentiality agreement would not protect you against the potential harm of an unauthorized disclosure of the trade secret information, we may set conditions to ensure that medical services are provided without undue risk of harm to you.

Finally, if you contest a citation for failure to disclose trade secret information, the Federal Mine Safety and Health Review Commission will review the citation.

Commenters to the proposed rule generally agreed with the proposed provisions for reviewing a denial and we included these provisions in the interim final rule.

One commenter to the interim final rule, however, questioned our ability to provide conditions in addition to those that would be provided under a confidentiality agreement to protect the trade secret. While we anticipate that a confidentiality agreement would normally suffice, the provision allows that in any event adequate protections can be fashioned to meet the circumstances of the case so that affected miners, their representatives, or health professionals have access to critical trade secret information. This provision is essentially the same as the OSHA rule.

J. Subpart J—Exemptions

The final rule, consistent with the interim final rule, has two categories of exemptions under HazCom. The exemptions from the HazCom standard and the exemptions from labeling. With some differences that are noted in the discussion, the final and interim final rules are essentially the same. They were constructed in a way different from the proposed rule, but we believe they convey the same meaning and, therefore, the same application of HazCom as that intended by the proposed rule.

The proposed rule included both the exemptions from the rule and the exemptions from labeling in the section on ''scope.'' It then repeated the labeling exemptions under ''labeling.'' Commenters to the proposed rule remarked that this repetition was unnecessary. In the final rule, consistent with the interim final rule, we placed each set of exemptions in a table in a separate Exemptions subpart near the end of the rule. This change in format brings the compliance requirements closer together at the beginning of the rule while, at the same time, eliminating repetition and making the exemptions more noticeable.

The following table summarizes those chemicals exempt from HazCom or HazCom labeling because they are regulated under other federal statutes or regulations.

Chemical	Statute	Responsible agency
Chemical substance (exempt from labeling)	Toxic Substances Control Act (15 U.S.C. 2601 *et seq.*).	EPA.
Consumer product (exempt from rule and labeling)	Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*).	CPSC.
Hazardous substance (exempt from rule and labeling).	Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*).	CPSC.
Hazardous substance (exempt from labeling)	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 *et seq.*).	EPA.
Hazardous waste (exempt from labeling)	Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended (42 U.S.C. 6901 *et seq.*).	EPA.
Any food, food or color additive, drug, cosmetic, or medical or veterinary device or product, including materials intended for use as ingredients in such products (e.g. flavors and fragrances) (exempt from rule and labeling).	Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*) or Virus-Serum-Toxin Act of 1913 (21 U.S.C. 151 *et seq.*).	Food and Drug Administration or Department of Agriculture.
Alcoholic beverages (exempt from rule and labeling)	Federal Alcohol Administration Act (27 U.S.C. 201 *et seq.*).	Bureau of Alcohol, Tobacco, and Firearms (BATF).
Pesticide (exempt from labeling)	Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 *et seq.*).	EPA.
Pesticides (seed treated with) (exempt from labeling)	Federal Seed Act (7 U.S.C. 1551 *et seq.*)	Department of Agriculture.

1. Section 47.91 Exemptions From the HazCom Standard

The final rule exempts the following materials from the full scope of the standard. These exemptions are substantively the same as in the proposed and interim final rules.

Articles. The final rule exempts *articles* from HazCom under normal conditions of use if they release no more than insignificant amounts of a hazardous chemical and if they pose no physical or health risk to miners. This exemption has the same substantive application as the proposed rule, though constructed differently, and is unchanged from the interim final rule.

The exemption in the proposed rule appeared to exempt *articles* without any conditions or limits to the exemption. The definition of *article,* rather than the exemption, contained the operative conditions. The proposal's definition described *article* as a manufactured item, other than a fluid or particle, that is formed to a specific shape or design during manufacture and has end-use functions dependent upon its shape or design. For example, even though polyaromatic hydrocarbons are hazardous chemicals, their presence in a plastic bucket or seat cushions or ventilation curtains is exempt from HazCom because the bucket, seat cushions, and ventilation curtains are articles. Polyaromatic hydrocarbons in diesel exhaust or adhesives, however, are covered by HazCom. Even though chromium is a hazardous chemical capable of causing poisoning, chromium in a steel bar or chisel would be exempt from HazCom, regardless of its percent composition, because the bar and the tool are articles.

The definition also included paragraph (c), which stated that an article is exempt if, under normal conditions of use, it releases no more than trace amounts of a hazardous chemical and presents no physical or health hazard. For example, chromium in a welding rod is not exempt. Even though the welding rod is formed to a specific shape or design during manufacture and has end-use functions dependent upon its shape or design, the rod releases more than trace amounts of the hazardous chemical under normal conditions of use.

Commenters to the proposed rule generally agreed with the exemption of ''articles'' and with its definition in the HazCom proposed rule. Some of the proposed rule commenters suggested that we eliminate paragraph (c) of the definition. Paragraph (c) said an article, under normal conditions of use, does not release enough of a hazardous chemical to pose a physical or health hazard. These commenters to the proposed rule maintained that paragraph (c) was unnecessary and contrary to the thrust of the exemption for articles. Other commenters to the proposed rule suggested, however, that the definition must address risk for this exemption to be effective. To determine when an article is a hazardous chemical, some commenters to the proposed rule suggested that the definition include a *de minimis* provision establishing a low threshold concentration below which the rule would not apply. Other commenters to the proposed rule wanted a significant risk provision. Several commenters to the proposed rule recommended that we link this provision to the Mine Act by stating that an article is exempt if it ''does not release a quantity of a hazardous chemical that poses a risk of material impairment of health or functional capacity to miners.'' Another commenter to the proposed rule suggested that HazCom clearly state our intent to exempt trivial risks. This commenter cited a court decision on OSHA's HCS which interpreted this exemption to mean that ''any amount of release that could conceivably cause damage eliminates exemption as an 'article'.''

Commenters to the proposed rule also questioned what we meant by the terms ''minute'' or ''trace'' as applied to releases of chemicals from an article and by the phrase ''normal conditions of use.'' These commenters stated that we must clarify this provision for the HazCom final rule to be effective. One stated that—

> * * * If exposures are negligible, labeling products as hazardous causes needless concern to workers. If warnings are provided for all measurable releases of chemicals, regardless of risk, workers will be unable to distinguish between meaningful/significant and trivial risks and the standard will be severely diluted.

We agree with commenters' concerns that paragraph (c) of the proposed definition of article is unclear about how much of a hazardous chemical released from a manufactured item under normal conditions of use would constitute either small, minute, trace, or *de minimis* quantities. In many cases, it may be both time consuming and difficult to accurately determine whether an item is an article or a hazardous chemical. For example, one commenter to the proposed rule stated

that ''[u]sing present day analytical chemical technology, extremely low levels of chemicals can be detected everywhere.''

To clarify our intent, in the interim final rule we separated the criteria for exemption from the definition for *article.* We also used the term ''insignificant amount'' instead of ''very small quantity'' and ''minute or trace amounts.'' By using these terms, we intend to shift the emphasis from the quantity of a hazardous chemical release to the significance of the release as it relates to risk. We believe that these language changes do not change the substantive intent of this exemption. There were no substantive comments on this exemption in the interim final rule and it remains unchanged in the final rule.

Biological hazards. The final rule exempts all biological hazards, such as poisonous plants, insects, micro-organisms, from HazCom. This exemption is unchanged from the interim final rule, and though the construction of the standard is different from the proposed rule, it is substantively unchanged.

We proposed to exempt biological hazards from the HazCom standard, following OSHA's HCS. We received a few comments supporting this exemption. Some commenters to the proposed rule objected to our exemption of biological hazards because there are dangers at the mine associated with these substances, and information concerning their hazards should be communicated to miners. We agree with the commenters, however, biological hazards are beyond the scope of this rulemaking.

Fungus, molds, and poison ivy are found virtually everywhere in our environment. If there is a hazardous chemical present in addition to the biological hazard, however, it would be subject to the requirements of HazCom. For example, a bottle containing a biological sample in a hazardous solvent would have to be labeled for the hazardous solvent.

Consumer products. The final rule, consistent with the proposed and interim final rules, exempts *consumer products* from HazCom if the miner uses the product for the purpose the manufacturer intended and the use does not expose the miner more often and for longer periods of time than ordinary consumer use would. There is also a discussion of *consumer products* under the Definitions section of this preamble (§ 47.11).

We proposed to exempt consumer products and hazardous substances from the full scope of HazCom when operators or miners use them at the mine in the same manner as an ordinary consumer (normal consumer use). The proposed rule would have exempted consumer products as defined in the Consumer Product Safety Act (15 U.S.C. 2051) and hazardous substances as defined in the Federal Hazardous Substance Act (15 U.S.C. 1261), when they are subject to consumer product safety standards or labeling requirements issued under these Acts. The Federal Hazardous Substances Act (FHSA), administered by the Consumer Product Safety Commission (CPSC), regulates hazardous substances in interstate commerce. The CPSC specifically exempts pesticides subject to the Federal Insecticide, Fungicide, and Rodenticide Act, and foods, drugs, and cosmetics subject to the Federal Food, Drug, and Cosmetic Act, from the term ''hazardous substance'' under FHSA. In the proposed rule, we also specifically requested comments on the need to exclude from coverage any consumer product excluded by Congress from the definition of hazardous chemical under § 311(e)(3) of the Superfund Amendments and Reauthorization Act (SARA) of 1986, Pub. L. 99–499.

Commenters to the proposed and interim final rules suggested that we define the term *consumer product* using a working definition for exempt materials rather than referencing statutes that mean nothing to most operators. One commenter stated that the EPA's consumer product exemption under SARA represents a more reasonable approach than that in the proposed rule and urged us to incorporate SARA's definition of consumer product. SARA does not define consumer product. It defines a *hazardous chemical* and excludes—

> * * * any substance to the extent it is used for personal, family or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public.

This commenter reasoned that keying the consumer product exemption to consumer packaging and concentration would achieve the same result as the proposed exemption, but without requiring you to demonstrate that your miners use the consumer product as an ordinary consumer.

Another commenter indicated that many mining uses of consumer products may result in exposure that was not contemplated by the manufacturer packaging the product for consumer use. Some commenters questioned how individuals using consumer products in an unintended manner would affect our exemption of consumer products from HazCom. Another recommended that we delete the requirement that you must demonstrate that the consumer product is being used in the same manner as in normal consumer use. The commenter further stated that there is no evidence to demonstrate that significant risks are present where such materials are used in a manner or amount not consistent with normal consumer use.

Commenters objected to the term ''normal consumer use'' in the proposed rule and recommended that we delete it from the final rule. Another commenter stated that requiring an additional determination, as to whether the product is used at the mine in the same manner as in normal consumer use, places an exceptional burden on you and recommended that we exempt all consumer products from HazCom regardless of how they are used. One commenter stated that consumer products should be included in the final rule because mines use the materials more frequently and in larger quantities than do private homes. Another stated that comparing the use of a consumer product by a miner with its use by a normal consumer is neither practical nor possible, because the duration and frequency of use are highly variable. Comments to the interim final rule were basically the same as those to the proposed rule.

We recognize that there are situations where a miner's exposure is significantly greater than that of an ordinary consumer and that, under these circumstances, consumer products or hazardous substances which are safe for contemplated consumer use may pose unique hazards at the mine. For this reason, we limit the exemption in such cases to labeling. You must comply with the other requirements of HazCom, such as those concerning an MSDS and training, to inform miners about the hazardous chemical. This is consistent with OSHA's HCS.

For a consumer product to be exempt at your mine, you must be able to show that miners use it in their work areas the same way (*i.e.* the same concentration, duration, and frequency of exposure) as a normal consumer would use it. How the chemical is used determines if it is exempt. If the chemical is not hazardous, or if there is no potential for exposure, HazCom does not apply.

We received a number of comments in the public hearings to the interim final rule about the concern of operators that their judgment about applying the exemption for consumer products might differ from an inspector's judgment and result in a citation. After considering all comments and various options for small

mines, we determined that all options for exempting consumer products require an exercise of judgment. In response to commenters concerns, we simplified the definition of consumer product in the final rule to tie it to concentration, packaging, and labeling.

A guide for determining if a consumer product is exempt from HazCom, however, is to look at how the chemical is used at the mine. For example, a consumer may own two or three cars and change brake pads and rotors once a year. The consumer uses brake cleaner, scrubbing parts, and being exposed to the cleaner for about 1 hour during each brake job. A small mine may need to do brake work (using the cleaner to clean brake parts) monthly. If a particular miner acts as a mechanic, doing all the brake work at the mine, the miner's exposure is more than that of normal consumer use and the brake cleaner is not exempt. It must be included in your HazCom program. If an individual miner only changes brakes (uses the brake cleaner) two or three times a year, that is within the range of ordinary consumer use and it is exempt from the program.

Here's another example: suppose you assign a miner to paint a hazard warning on an explosives magazine using a can of spray paint that contains hazardous chemicals. That use would be one time and of short duration, typical of an ordinary consumer's use of the product. If the miner's job is painting and he or she is required to use the spray paint frequently, the exposure would be greater than ''normal consumer use'' and the paint must be included in the HazCom program.

Many mines buy consumer products to use in their daily operations. The consumer products exemption does not depend on whether you buy the product wholesale or retail. For example, a 5-gallon container of paint from a retailer may not have an MSDS. If you purchased this paint from an industrial supplier, it would be labeled to comply with HazCom and the supplier would probably provide an MSDS.

We expect you to determine if the use of a consumer product on mine property is as the manufacturer intended, and if the exposures is of longer duration or more frequent than ordinary consumer use. Although a complete exemption may be easier to comply with and enforce than a partial one, the issue of concern to us is whether miners have sufficient information to use the hazardous chemical safely.

In response to comments on the proposed rule, and reiterated in comments to the interim final rule, we simplified the definition of *consumer product* in the final rule to tie it to concentration, packaging, and labeling.

Items for personal consumption. The final rule exempts ''items for personal consumption'' from HazCom when those items are labeled and packaged for retail sale and intended for personal consumption or use. The application of this standard is unchanged from both the interim final and proposed rules although the language and structure of the exemption are much simpler. Because the requirements are substantially the same in the proposed, interim final, and final rules, the final rule does not reduce miner protections.

We proposed to exempt foods, drinks, drugs, cosmetics, and tobacco or tobacco products from HazCom when they were intended for personal consumption or use by miners while on mine property. Commenters to the proposed rule generally supported these exemptions. The proposed rule did not exempt distilled spirits. One commenter to the proposed rule recommended that HazCom exempt them, consistent with OSHA's exemption. Other commenters to that rule recommended that this exemption also include the condition that the product be packaged for retail sale and for use by the general public. A few commenters recommended that we not exempt any hazardous chemical. There were no comments on this issue to the interim final rule.

The proposed rule did not specifically exempt alcoholic beverages sold, used, or prepared in a retail establishment, because we thought these exemptions did not apply to mining. Our existing standards for metal and nonmetal mines (§§ 56.20001 and 57.20001) prohibit intoxicating beverages in and around mines. Because we do not have standards for coal mines which specifically address intoxicating beverages, we included an exemption for alcoholic beverages in the interim final rule to be consistent in both mining sectors and to avoid confusion. The final rule is unchanged from the interim final rule.

The final rule exempts foods, drinks, including alcoholic beverages, drugs, cosmetics, tobacco, and tobacco products intended for personal consumption or use by miners while on mine property. For example, HazCom does not cover items such as aspirin in a first aid kit or food served at a mine cafeteria or vending machine.

Nuisance particulates. We proposed to exempt nuisance particulates that do not pose a covered health or physical hazard from the full scope of HazCom. However, the final rule, the same as the interim final rule, does not exempt nuisance particulates from the provisions of HazCom.

Many commenters to the proposed rule supported the exemption of nuisance particulates and nonspecific mine dust. Commenters to the proposed rule stated that nuisance particulates do not present any known irreversible health effects and that there are no standards in existence to use as a baseline. Several commenters to the proposed rule stated that inclusion of nuisance particulates in HazCom could reduce the effectiveness of a HazCom program by transmitting too much information to employees and diluting the focus on more serious or less recognized chemical hazards.

A number of commenters to the proposed rule objected to the exemption of nuisance particulates and nonspecific mine dust from HazCom. These commenters stated that many particles thought to be nuisances are found later to be important health hazards and that if the hazard exists at the mine, regardless of the amount, it should be subject to the provisions of HazCom. One commenter stated that nuisance particulates are not excluded by OSHA and we should not exclude them. This commenter stated further that it would be useful to have MSDSs for nuisance particulates to provide miners with reliable information. Another commenter recommended that we omit the nuisance particulate exemption from the standard because there is no proper classification of these substances.

The final rule, consistent with the interim final rule, does not include an exemption for nuisance particulates because we believe there is no need for a specific exemption. If a nuisance particulate poses no health or safety hazard to miners, other than mechanical irritation, then it is not a hazardous chemical and not covered by HazCom. If a nuisance particulate causes chemical irritation, contains >0.1% respirable crystalline silica, or poses another health or safety hazard to miners, it is a hazardous chemical, not a nuisance particulate, and would be covered by HazCom. For this reason, a separate exemption for nuisance particulates is unnecessary. The particulates would be included or not included in the HazCom program based on whether they pose a health or safety hazard to miners.

Commenters to the interim final rule strongly objected to our decision not to exempt nuisance particulates from HazCom. We disagree for several reasons. First, there is no comprehensive list of nuisance dusts. They are not the same as ''not otherwise classified'' mine dusts. Second, we

explained in the preamble to the interim final rule that we do not consider simple mechanical irritation as a health or physical hazard. Finally, some dusts, formerly classified as nuisance particulates, contain >0.1% of respirable crystalline silica which IARC and NTP classify as a carcinogen.

The final rule does not include a specific exemption for nuisance particulates. MSHA clearly states in the preamble to the interim final rule and here that any dusts not presenting a health or physical hazard, including those that only cause physical or mechanical irritation, are already exempt from HazCom by definition of a *physical hazard* and *health hazard.* Also, as stated in the preamble to the interim final rule and this preamble, we intend that ''irritant'' means the same as OSHA's HCS. HCS Appendix A defines ''irritant'' as:

> A chemical, which is not corrosive but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for four hours exposure or by other appropriate techniques, it results in an empirical score of five or more. A chemical is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.

Radiation. The final rule exempts all ionizing and non-ionizing radiation, such as alpha, gamma, microwave and x-ray from HazCom. The exemption is unchanged from the interim final rule, and though constructed differently, it has the same substantive application as the proposed rule.

We proposed to exclude ionizing or non-ionizing radiation from HazCom, consistent with OSHA's HCS. We also incorporated this exemption in the interim final rule and retain it in the final rule.

Some commenters to the proposed rule suggested that we not exempt radiation from HazCom because, if radiation is a potential hazard in the work area, this should be communicated to miners. Commenters to the interim final rule also expressed concern that miners be told about radiation hazards. Another commenter to the proposed rule suggested an exemption for non-product-specific physical hazards, such as noise, vibration, and hot environments, associated with the mining environment.

Radiation is covered under other federal requirements and we have standards for metal and nonmetal mines that require hazard notification for radiation, including the posting of hazard warning signs. A chemical with radioactive properties that also presents other types of health and physical hazards is not exempt from HazCom. We do not consider non-chemical-specific physical hazards (such as heat stress, ergonomic hazards, or hearing loss) relevant to this rulemaking because HazCom is meant to address chemical hazards.

Wood and wood products, including lumber. Our proposed rule would have exempted wood and wood products, including lumber if they did not release or otherwise result in exposure to a hazardous chemical under normal conditions of use. The final rule provides an example that wood is not exempt if it is treated with a hazardous chemical or if it will be subsequently cut or sanded. This exemption is the same as in the interim final and final rules, and though constructed different from the proposed rule, has the same substantive application.

Wood products, such as lumber, plywood, and paper, are easily recognizable in the work area and pose a risk of fire that is obvious and well known to the miners working with them. Wood dust is not generally a wood ''product'' but is created as a by-product during sawing, sanding, and shaping of wood. We believe that it is necessary for you to inform miners about the hazards of wood dust and chemically-treated wood and precautionary measures to minimize or prevent exposure. In response to comments to the proposed rule, however, the interim final and final rules exempted wood and wood products from the labeling requirements if, for some reason, they were not exempt from the entire standard. Commenters to the interim final rule did not address this exemption.

2. Hazardous Waste

Consistent with the proposed and interim final rule, the final rule does not exempt *hazardous waste.* Hazardous waste, therefore, is not an entry in Table 47.91.

Some commenters to both the proposed and interim final rules urged us to exclude hazardous waste because it was covered by the Environmental Protection Agency (EPA). EPA's regulations are intended as environmental safeguards for the protection of the public rather than the health and safety of miners on mine property who come in direct contact with mining hazards on a daily basis. The final rule does not exempt hazardous waste regulated by the EPA under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act.

Hazardous waste would have been exempt from the labeling and MSDS requirements under the proposed rule. We did not propose to exempt EPA-regulated hazardous waste from the other requirements of HazCom. If a hazardous waste had been brought to the mine without an MSDS and you could not obtain one, the proposed rule would have required you to determine its hazards using the same methods as if it had been produced at the mine. You would either have had to test it or have used any valid, available, scientific information to determine its nature.

Because the proposed rule would have required you to have information on the hazards of this waste, and because there is no specific format for the MSDS, it follows that a compilation of such information could be considered an MSDS. For this reason, we did not specifically exempt EPA-regulated hazardous waste from the MSDS requirements in the final rule. Rather, we address this waste separately in § 47.53, Alternative for hazardous waste. You must make sure that miners have access to the best information you can find about the waste's chemical hazards.

Under EPA standards, a waste analysis is required as part of the permit to burn or dispose of hazardous waste. However, EPA does not require the waste analysis to specify the chemicals' hazards or provide that it be made available to employees.

In most cases, the shipping manifest or EPA permit required to accompany the waste will provide detailed information about the character of the chemical. Even if the ingredients are listed generically, you should request that the supplier provide you with hazard information.

MSHA indicated in the preamble to the proposed rule, that OSHA also excluded hazardous waste regulated by EPA from coverage under its rule. MSHA requested comments on the appropriateness of exempting other hazardous waste not regulated by EPA from the labeling and MSDS requirements of the proposed rule.

We received numerous comments on this proposed exemption of hazardous waste from label and MSDS requirements. Some commenters supported the proposed hazardous waste exemption in general, agreeing with our rationale. Commenters suggested that we make the following specific revisions to our proposed hazardous waste exemption:

- Exempt wastes not regulated by EPA, particularly those reused on-site or sent off-site for recycling, such as waste oil, antifreeze, and solvents.

• Exempt process-related waste, such as tailings, mine waste, and other hazardous waste generated by the mine, because they are already regulated by us and EPA and the inclusion of these materials in HazCom labeling and training requirements could lead to serious conflicts with other standards.

• Define *hazardous waste* to include garbage, refuse, sludge, and other discarded materials including solid, liquid, semisolid, or contained gaseous material resulting from mining because you should inform potentially exposed miners about the hazards associated with scrap and discarded material at the mine.

• Extend our exemption to include hazardous waste regulated under state programs pursuant to the requirements of RCRA.

Several commenters to the proposed rule suggested that we treat hazardous waste exposures as OSHA does, by not requiring HazCom training for those miners who are exposed to EPA-regulated hazardous waste. One commenter specifically suggested that we follow OSHA's requirements for hazardous waste operations in 29 CFR 1910.120(e) by requiring training only for specific hazardous waste operations and not for all types of hazardous waste handling.

Since our proposed rule was published, an increasing number of mining operations have obtained permits to burn hazardous wastes in their kilns. Some bury waste in a landfill or dispose of their own wastes from the mining process. There are 55 mining operations burning hazardous waste and waste products with an average of 16 miners per site. Wastes burned include biological wastes, pesticides, herbicides, waste oil, heavy metals, and tires. Some, but not all, of these hazardous wastes are regulated by EPA. A few operations have EPA issued permits that allow them to burn hundreds of kinds of hazardous wastes, up to 260 different kinds. Many are burning thousands of gallons of waste products a year in their kilns. Two operations handle more than 15 million gallons per year and 12 operations handle more than 1 million gallons per year. Most handle either liquid or solid wastes; some can accommodate both. Some of these wastes would meet HazCom's definition of a health or physical hazard or both.

NIOSH stated that hazardous waste not regulated by the EPA or other existing statutes should not be exempt from HazCom because to do so would be contrary to the intent of HazCom. The rulemaking record indicates the need for miners working with hazardous waste to be informed of its hazards either as a mixture or its individual components. We have determined that, for HazCom to be effective, it must include all hazardous chemicals to which miners may be exposed and, therefore, the final rule, like the interim final rule, does not specifically exempt hazardous waste regulated by the EPA. If they are hazardous, other waste chemicals are subject to the same HazCom requirements as every other hazardous chemical on site.

Commenters to the interim final rule asked us to reconsider our decision not to exempt hazardous waste. They argued that OSHA exempts hazardous waste, leaving it to EPA to regulate. After a careful review of all comments received on this issue, we have determined that it is necessary to cover hazardous waste under our standard. Although OSHA excludes coverage of hazardous waste regulated by EPA, OSHA has other specific standards directed to hazardous waste operations. (29 CFR 1910.120). OSHA was required to issue these standards by § 162, title 1 of the Superfund Amendments and Reauthorization Act of 1986 (SARA). We do not have similar statutory requirements or standards regarding hazardous waste operations and believe that we would be denying protection to miners handling hazardous waste if we were to exempt it from coverage. Accordingly, the final rule does not exempt hazardous waste from coverage.

Under the final rule, you must provide each potentially exposed miner with access to MSDS information about the hazardous waste to the extent that it is available. You must make any information available to the miner or designated representative which identifies its hazardous chemical components, describes its physical or health hazards, or specifies appropriate protective measures. Some of this information is available from the EPA permit, your analysis of the waste, or the supplier of the waste material. If the supplier of the hazardous waste prepares any document for compliance with EPA or OSHA standards that contains the same types of information as required for the label and MSDS, we expect you to obtain a copy of these documents and to provide miners with access to them.

Commenters to the interim final rule mistakenly thought that we defined *hazardous waste* to include ''garbage, sludge, and other discarded materials.'' MSHA does not intend to include any material as *hazardous waste* other than that regulated by EPA.

3. Section 47.92 Exemptions From Labeling

The final rule exempts ''chemical substances'', ''hazardous substances'', ''consumer products'', and ''pesticides'' when they are kept in their manufacturer's or supplier's original packaging and the packaging is done under other federal labeling requirements. Although the exemption is constructed differently from the interim final rule, the application under the final rule, as discussed below is the same. The interim final rule named the federal authorities under which the packing had to be done. The final rule simply refers to appropriate other agencies. This does not reduce miner protections because the final rule is substantively the same as the proposed and interim final rules.

We proposed to exempt from HazCom's labeling requirements those hazardous substances regulated and labeled under the authority and standards of other federal agencies. Commenters objected to the proposed rule's referencing the laws and standards of other organizations and agencies, considering their inclusion to amount to ''incorporation-by-reference.'' They stated that the rule does not include these documents, that they are not useful in understanding HazCom, and that our rules will become dependent on out-of-date material or require rulemaking to keep them current. The proposed rule had referenced the Consumer Product Safety Act; the Federal Hazardous Substances Act; the Federal Food, Drug, and Cosmetic Act; the Federal Insecticide, Fungicide, and Rodenticide Act; the Solid Waste Disposal Act; and the Resource Conservation and Recovery Act. Commenters to the proposed and interim final rules suggested that we replace these references with simple operational definitions that would be understood by the miner.

Like the proposed rule, the interim final rule included these references to clarify which toxic materials, hazardous substances, hazardous wastes, and consumer products are exempt from HazCom labeling. We consider these references as informational because they inform you of the limits of your responsibility rather than imposing an obligation. In response to comment on the interim final rule, the final rules includes an operational definition for most exemptions. For others, to the extent practical, the final rule simplifies the references by not including legal citations. Use of these references to specify exemptions from HazCom means that another federal agency

requires labeling of the hazardous chemical. A simple operational definition would be that you do not have to further label a hazardous chemical brought onto mine property if it already has a label indicating its identity and appropriate hazard warnings.

We expect that most hazardous chemicals regulated by another federal agency are labeled by the manufacturer with information about their identity, hazards, precautions for normal use and emergencies, and phone numbers for additional information. To avoid duplicate federal standards, we will accept pre-existing hazard labels that comply with the labeling requirements of another federal statute or standard for compliance with HazCom. We believe that this change in the final rule does not impose an additional burden on you because existing labels on containers of hazardous waste brought onto mine property that meet the comparable requirements of other federal or state regulations fulfill the labeling requirements of this final rule.

Also, MSHA will accept the labeling of mine products that comply with another comparable state or federal requirements. For example, if a hazardous substance or waste is produced at the mine, and it is covered by the standards of another federal agency, you must label it first in accordance with those standards. Consistent with the purpose of HazCom, if the hazardous chemical is not labeled in accordance with another federal statute or standard, you must label it in accordance with the requirements in § 47.32 (label contents) of HazCom.

Raw material. We proposed to exempt the raw material mined or milled from the labeling requirements of HazCom while on mine property. Many commenters strongly supported the proposed raw material exemption. Some of these commenters recognized the impracticality of affixing and maintaining labels on every ore car or on each bin or hopper containing the mined material and believed that such labels would be of little benefit. One commenter stated that they currently labeled bins of their raw material but found that the labels were difficult to read due to the dust covering them. Other commenters believed that, generally, operators inform miners about the hazards of the raw material being mined and this information could be considered common knowledge.

Another commenter to the proposed rule stated that while they did not disagree with a labeling exemption for the raw material mined—

> * * * the final rule should re-state the operator's duty to train and inform miners about the hazards inherent in the mineral being mined and by-products of the mining process such as crystalline silica, radon progeny, *etc.*

This commenter stated further that you should at least make an MSDS on these substances available and warn miners in a variety of ways. Among those commenters supporting the raw material exemption, one recommended that we clarify that a container of a raw material that has undergone a chemical reaction with other constituents, and thus is not a mixture, would not have to be labeled even if a hazardous chemical may have been added to it during processing at the mine.

This commenter further stated that—

> [w]hile the process container where the hazardous chemical is added may need to be labeled (at least where the process does not result in an instantaneous chemical reaction), the container subsequently holding the commodity produced for sale by the operator would not constitute a ''mixture'' and should not be labeled.

A few commenters disagreed with our proposed raw material exemption and requested that HazCom require labeling of all containers of hazardous raw material. One of these commenters expressed concern about the legibility and adhesion of labels, yet was confident that you could develop workable solutions. Other commenters stated that unlabeled containers of hazardous chemicals must be labeled under our existing labeling standards.

Commenters to the interim final rule asked that we also exempt mine wastes from labeling. They stated that the reasons labeling will not work for mine waste, such as tailings, are the same as the reasons given for exempting raw materials. Signs along the perimeter of tailings ponds or along drainage ditches are especially burdensome because the content of the ponds and ditches can change frequently.

The final rule exempts containers of raw materials from labeling while they are on mine property because we expect that miners are familiar with the hazards of the material being mined. Under HazCom, ponds and ditches are not considered containers for the purpose of labeling. HazCom requires, however, that you train miners about the hazardous chemicals to which they may be exposed and the location of hazardous chemicals in their work areas. Also, other MSHA standards require signs or barricades to warn miners about hazards that are not obvious.

Another commenter to the interim final rule asked us to clarify that raw materials altered through chemical reaction during processing, thus not a mixture, are still exempt from labeling. If you add a hazardous chemical to a container of raw material to form a mixture, you must label the container for the hazardous ingredient. If you add a chemical to a container of raw material to form a new compound which is no longer the raw material and which meets the criteria in the hazard determination section of HazCom (§ 47.21), then you must label the container for the newly created hazardous chemical.

Pesticides, food, and consumer products. The proposed rule included exemptions from labeling for pesticides; food, food additives, and color additives; and consumer products which are required to be labeled under standards issued by other federal agencies. The final rule is generally consistent with the proposed and interim final rules and with OSHA's HCS. The applicable definitions of the substances addressed in these exemptions are those provided by the governing statutes and standards.

Although there were some commenters to the proposed rule who addressed these exemptions, few had specific comments. Among those who did comment, many supported our exemption of consumer products. Several suggested that we not require coal mine operators to include consumer products in HazCom programs because this would result in meaningless storage of countless MSDSs. Another believed that we should clarify that you have a responsibility to maintain the labels that come on these hazardous materials.

Commenters to the proposed rule agreed with our intent to have a provision similar to OSHA's HCS, stating that separate rules for consumer products would be redundant and serve no purpose. Another commenter suggested that we also exempt, as per OSHA's standard, drugs, cosmetics, medical or veterinary devices, and materials intended for use as ingredients in such products (e.g., flavors and fragrances). In regard to our proposed consumer product exemption, one commenter stated:

> * * * consumer products already possess adequate labels with hazard identification and safe use instructions. Since no one knows the hazards of a product better than its manufacturer, the safest possible use of the product is in accordance with the manufacturer's recommendations * * *. Using products according to manufacturer's recommendations would result in exposures

that are very small (this is minute or trace amounts) and would not pose a physical or health risk to miners.

We received a few comments to the proposed rule objecting to the exemption of consumer products from HazCom's labeling requirements. Others suggested that consumer product labels provided by manufacturers may not provide adequate warning, given the use of these products at the mine. One of these commenters stated:

> * * * consumer products with warnings on adequate ventilation or that require the use of personal protective equipment cannot be presumed safe for use in the underground mining environment. Further, many mining uses of consumer products may result in exposures that were not contemplated by the manufacturer packaging the product for consumer use. * * * Many consumer products are potential fuel sources for fires (*e.g.,* aerosol solvents or paints). Further, exposure to these volatile solvents may adversely affect the seals and insulators on permissible equipment or adversely alter the explosive characteristics of the atmosphere in underground coal mines.

Commenters to the interim final rule expressed concern that there is nothing in the rule to require an operator to tell miners about the hazards of consumer products; and that miners may think that a consumer product is safe when it is not.

In response to the concerns expressed by commenters, the final rule states specifically that consumer products are exempt from labeling when they are labeled under the standards of another federal agency, such as the Consumer Product Safety Commission (CPSC). When the consumer product is not exempt from HazCom, but exempt from labeling, all other provisions, such as training and MSDSs, would still apply. Consumer products are exempt from HazCom where you can demonstrate that they are used at the mine in the same manner as in normal consumer use. Because consumer products are labeled under the authority of another federal agency, and these labels generally provide for the listings of chemical identities and hazard warnings, hazard information is available to miners and there is no need for additional labeling standards.

One commenter to the proposed rule suggested that we provide operators with a list of exempt products commonly found on mine property. We have determined that a list of exempt products commonly found on mine property is neither simple nor appropriate. These products are only exempt when used in the same way as they would normally be used by a consumer. A list could lead you to believe these were exempt under all circumstances. Some exempt items could be overlooked and some that are exempt from labeling may not be exempt from other provisions of HazCom. Even for exempt products, for example, you may not deface or remove labels from containers of hazardous chemicals brought onto mine property. If they are repackaged or transferred at the mine, you must communicate such labeling information to the miner and, if necessary, label the new container.

The final rule, consistent with the proposed and interim final rules, also includes an exemption from HazCom's labeling requirements for pesticides labeled under standards issued by other federal agencies. As long as the pesticide is kept in the original container with its label intact and legible, it is exempt from the labeling provisions of this rule. We believe that this partial exemption informs and protects the miner and does not place an undue burden on you. We intend that all pesticides be labeled with their identity, hazards, and precautions for safe use. We believe that existing labels on containers of pesticides brought onto mine property that meet the labeling requirements of other federal or state standards will fulfill the labeling requirements of HazCom.

The purpose of pesticide labeling is mainly the protection of workers exposed to the pesticide either while handling it or through inadvertent contact with something that has been treated with it. In the case of the other substances, the purpose of the labels is more general consumer protection. The final rule does not include a specific labeling exemption for foods, food additives, and color additives used for personal consumption because they are exempt from the full scope of HazCom.

There were no substantive comments to the interim final rule concerning labeling exemptions for pesticides or items for personal consumption.

Other suggested exemptions. Many commenters to the proposed rule specifically recommended that we exempt *de minimis* exposures to, or *de minimis* amounts or concentrations of, hazardous chemicals from the labeling requirements. Most of the commenters believed that labeling should focus on serious risks rather than on those that are trivial. Some suggested that we use 5% silica in the mined ore as a *de minimis* threshold below which labeling would not be required. One recommended 1% silica, rather than 5%, for a *de minimis* threshold. Another recommended basing a *de minimis* threshold on a chemical's TLV® or PEL. This commenter suggested that employers would simply need to assess whether a hazardous chemical is present in the work area at a level meeting or exceeding its PEL or TLV®. Further, this commenter stated that if the chemical did not have a PEL or TLV®, no *de minimis* threshold would apply.

We determined that a *de minimis* threshold for silica is inappropriate because silica is the most common element in the earth's crust. All mining operations disturb the earth's crust. It is safe to say that miners are potentially exposed to silica from mining operations. This is not the same as saying that they are definitely exposed or overexposed. We discuss this issue more fully in the next section of this preamble (4. Other Exemptions Discussed in Proposed Rule).

Commenters to the proposed rule also recommended that we exempt treated wood products from any labeling requirements because labeling every timber in a mine would create an excessive burden on operators with no increase in protection to the miner. MSHA agreed and the interim final rule included a labeling exemption for treated wood. There were no comments to the interim final rule that addressed the labeling exemption for wood products.

The final rule is substantively the same as the interim final rule except it clarifies that wood and wood products are exempt from HazCom's labeling requirements. Wood and wood products, including lumber, that do not present a health or physical hazard are exempt from the full scope of HazCom as an ''article.''

4. Other Exemptions Discussed in Proposed Rule

In the preamble to the proposed rule, we requested comments on a variety of options for the scope of the HazCom standard. These alternatives covered exemptions for the size of the mine, the commodity extracted, the work area, or the amount of hazardous substance. Comments to the interim final rule reiterated the perspectives expressed in comments to the proposed rule. For the most part, consistent with the interim final rule, we did not include these exemptions in the final rule for the reasons discussed in the following paragraphs. This discussion is the same as in the interim final rule. We retained this discussion in the preamble to the final rule for the sake of completeness.

Small mines. The rulemaking record contains a number of comments suggesting that we exempt small mines from HazCom. Commenters stated that HazCom would create additional

expenses and recommended that we modify the final rule to exempt small operations, especially those with a workforce of 10 or fewer.

We do not exempt small mines from overall compliance with HazCom because chemical hazards are present at all mines, regardless of size, and miners at small operations have the right to know if they are exposed to hazardous chemicals. To address the needs of small mines, however, as well as the variability in the mining industry, the final rule allows you to design the HazCom program for the conditions at your mine. In addition, MSHA has delayed the compliance date of the final rule for small mines employing five or fewer miners. To further assist you, and especially small mine operators, we will prepare generic HazCom programs. Many of these aids are available now and the remainder will be available soon. You can contact the National Mine Health and Safety Academy at 304–256–3257 or visit our Web site at *http://www.msha.gov* to find out what is available. Also, OSHA has developed training materials for its industries, such as a generic MSDS form, a model hazard communication program, and the HCS Compliance Guide. Many are available from OSHA's Web site at *http://www.osha.gov* and can be adapted for use at mining operations. You can use these as models for your own program.

Common minerals. We considered an exemption from HazCom for certain common minerals (such as coal, sand and gravel aggregates, crushed stone aggregates, and clay) and those minerals containing less than 5% silica and no other hazardous chemicals. In the preamble to the HazCom proposed rule, we requested comments on—

- The appropriateness of exempting certain minerals;
- The appropriate criteria for making a determination for exemption;
- The degree to which miners are aware of the hazards of these minerals;
- The level of silica in such minerals necessary before the mineral would be considered hazardous;
- How these minerals are used and handled by downstream employers; and
- How we could best publicize and provide hazard information on these substances to you and miners.

A number of commenters addressed the scope of the common minerals exemption. Some expressed support for the exemption and stated that natural rocks and minerals should not be classified as chemicals for the purpose of an MSDS or other HazCom requirements. Others stated that the exemption for minerals containing less than 5% silica is warranted because these minerals do not constitute a hazard, and the exemption would preclude duplicate regulatory requirements and unnecessary expenditures. One commenter stated that such an exemption is especially appropriate for minerals designated as carcinogenic merely because they contain greater than 0.1% silica. Another commenter stated that labeling common minerals is unnecessary because part 48 (and part 46) requires miners to be trained to recognize the hazards of the product being mined.

Commenters also suggested that we exempt specific minerals from HazCom. For example, one commenter stated that we should exempt coal and limestone. In addition, with regard to exempting coal, other commenters stated that the hazards of respirable coal mine dust are strictly controlled through extensive sampling and monitoring programs. Other commenters recommended that we modify the standard to exempt dimension stone quarries and iron ore pellets. One commenter urged us to specify which minerals are of concern to us and suggested an exemption for silica flour or certain industrial sands based upon their purity and particle size.

Several commenters objected to our proposed exemption of common minerals. One stated that most mining products are used by OSHA-regulated facilities and, as such, OSHA already requires that these facilities keep MSDS forms up-to-date for customers, label containers, and fill out the appropriate transport forms. Another commenter expressed concern that, if operators are responsible for preparing the MSDSs and labels, the common minerals exemption could lead to violations of the OSHA HCS for downstream general industry customers. Others objected to the common minerals exemption because it would send conflicting signals to miners; it is inconsistent with OSHA triggers and MSDS requirements; and it fails to provide health protection for miners in the sand and gravel, stone, clay, and shell dredging operations. One commenter stated that these minerals still present sufficient hazards to require MSDSs and training and HazCom should cover them, even though they are common or silica is present in small proportion to the total material.

Some commenters suggested that we exempt or provide limited coverage to mining industry sectors with a low degree of risk. One suggested specifically that we exempt the brick industry from HazCom because the risk posed to miners in the brick industry is lower than that experienced in other mining operations due to the way the industry handles the clay and shale. According to this commenter, there is no reason to regulate clay and shale, the brick industry's principal raw materials, because HazCom relates to free silica and most clay and shale have 5% or less free silica. In addition, this commenter indicated that MSDSs are unnecessary because exposure to silica is a primary part of the training programs administered by brick manufacturers.

We do not agree that the overall degree of risk encountered by miners in a given industry segment is a viable argument for totally exempting an entire mine or commodity from coverage under HazCom. A major concern is that miners are exposed to chemicals without knowing their hazards and, thus, they may not follow the proper procedures for handling or using these chemicals. The extent of risk is not a determining factor in deciding whether or not you have to communicate information on hazardous chemicals. Miners have the right to know that they are being exposed to a potential hazard. As long as the potential for exposure exists in the work area and the chemical is hazardous, HazCom applies.

For these reasons, the final rule does not exempt minerals containing 5% silica or less or other hazardous chemicals or certain common minerals, such as coal, clay, and dimension stone. Depending on the airborne concentration of the dust and other circumstances regarding exposure, respirable crystalline silica in these minerals or respirable coal mine dust may cause pneumoconiosis or cancer. The final rule is consistent on this point with OSHA's HCS.

Nonfuel mining. One commenter recommended that we exempt the nonfuel mining industry from HazCom. This commenter questioned whether we have demonstrated that such a broad-based standard is necessary for the nonfuel mining industry, given that HazCom would duplicate our existing training and labeling standards.

Based on the findings of the NIOSH National Occupational Health Survey of Mining (NOHSM) and our experience in the mining industry, we concluded that a HazCom rule applicable to coal, metal, and nonmetal mines is appropriate because all mines use hazardous chemicals, and there are a number of hazardous chemicals common to all types of mines, including non-fuel mines. Fuel oil, solvents, and paint are just three examples of hazardous chemicals used at non-fuel mines. Non-fuel mines report the most chemical burn injuries to MSHA. HazCom is broadly written and performance oriented in recognition of the diversity among mining operations and

independent contractors. Our intent is that all miners, including those working in the nonfuel mining industry, have access to information about the chemical hazards to which they are exposed at the mine. This decision is consistent with the mandate of the Mine Act to protect all miners to the extent feasible.

De minimis requirements. In the HazCom proposed rule, we solicited comments on whether we should establish *de minimis* criteria for hazardous chemical exposure in general. *De minimis* or trivial risks are those below the threshold of regulatory concern.

A few commenters stated that, for HazCom to be effective, the final rule must contain an exemption for *de minimis* chemical exposures. These commenters urged us to specify minimum quantities for the substances covered by the standard. Commenters suggested that we exclude exposures that are less than one-half of any applicable PEL or ACGIH TLV®, or where the health risk is not significant. Some felt that HazCom should address only those chemicals that exceed a PEL or ACGIH TLV®. One commenter stated that a meaningful *de minimis* provision could be provided—

- By clarifying the definition of article similar to that found in the mixture definition;
- By defining a significant health risk; and
- By stating a reasonable and consistent interpretation of the terms ''minute'' or ''trace.''

A few commenters recommended that we exclude trivial exposures to avoid unnecessary and misleading labeling and the creation of the functional equivalent of a ''Delaney Clause.'' (**Note:** The Delaney Clause is an amendment to the Food, Drug, and Cosmetic Act (21 U.S.C. 348). It requires the Food and Drug Administration to prohibit the use of any food additive that is carcinogenic without regard to the quantitative level of risk.)

Commenters wanted us to set a *de minimis* concentration below which you would not have to consider whether a substance is hazardous. There are highly toxic substances, however, which can cause adverse health effects from the absorption or inhalation of tiny amounts. HazCom is intended to address all hazardous chemicals at mines. The range of hazards and concentrations are too diverse to address through a single measurement. A *de minimis* exemption, therefore, would not provide sufficient protection to miners and would not address the true issue of concern, informing miners of potential hazards.

Likewise, requiring information disclosure only in situations where exposure might exceed a PEL or ACGIH TLV® is not consistent with the purpose of the rule. Exposure limits address a limited number of the hazardous chemicals encountered at the mine. Also, PELs are used to control inhalation exposures. Because the definition of exposure in HazCom includes absorption through the stomach or skin, in addition to the lungs, the exposure limits might be unrelated to the total exposure experienced by a miner. In certain circumstances, the most significant route of exposure may be through the stomach or skin. We have received reports of injuries and illnesses among miners as a result of skin contact with cyanide solutions, cement and trona dusts, and mercury, and as a result of ingesting lead.

Laboratories. The proposed rule requested comments on whether laboratories should be exempt from HazCom, primarily because OSHA's HCS (29 CFR 1910.1200(b)(3)) partially exempted laboratories. OSHA, however, regulates laboratories under both its HCS (29 CFR 1910.1200) and its laboratory standard (29 CFR 1910.1450). The laboratory standard supplements the HCS.

The OSHA HCS requires labels, MSDSs, training, and access. The heart of the OSHA laboratory standard is the Chemical Hygiene Plan. The Plan, which contains elements similar to HazCom's written program, must be reviewed annually. It also requires detailed descriptions of personal protective equipment, standard operating procedures, and engineering controls. Whatever OSHA does not cover under its HCS, it covers in its laboratory standard. The OSHA laboratory standard requires training; access to the plan and all known reference material; labels and MSDSs; hazard determination for chemicals produced, including by-products; hazard determination, labels, and MSDSs for chemicals produced for users outside the lab itself; and records of exposure monitoring and medical exams.

Unlike OSHA, we do not have specific standards addressing hazardous chemicals in laboratories. At this time, we do not plan to develop a separate standard to address laboratory hazards.

Several commenters urged us to exempt laboratories. One commenter stated that small laboratories are exempt from OSHA's standards. Another commenter stated that both OSHA's HCS and EPA's SARA exempt laboratories of any size when under the direct supervision of a technically qualified individual. Some commenters supported the application of training requirements to laboratories on mining property unless the lab has trained chemists. Others recommended that we exempt laboratory use of chemicals from HazCom because such use is unique and our training standards already cover laboratory hazards.

Most commenters, however, supported our coverage of laboratories within HazCom. Some commenters found our approach reasonable because covering mine laboratories would preclude the need for us to develop a separate standard to address laboratory hazards, as was done by OSHA.

We agree that laboratories in mining should be subject to the full scope of the standard with no specific exemptions. Laboratories found in the mining industry differ in several respects from those common to general industry, such as research facilities. Although there may be a few large-scale laboratories in the mining industry supervised by trained chemists, our experience indicates that most mine laboratories are small-scale operations devoted to quality control or process control, with relatively few trained chemists.

Compared to research facilities or laboratories in the chemical manufacturing industry, quality control laboratories in the mining industry use relatively few chemicals and analytical methods. Most of these mine laboratory workers receive on-the-job training. This training can be inadequate in addressing the hazards of the chemicals to which the laboratory workers are exposed. MSHA data, reported under the requirements of 30 CFR part 50, cite illnesses or injuries in laboratories caused by improper mixing of chemicals, mercury spills, use of inadequate or inappropriate personal protective equipment, use of improper procedures, and improper use of controls or inadequate ventilation.

The final rule does not exempt laboratories on mine property, but gives you the latitude to create a HazCom program based upon the hazards identified. We recognize that these programs may differ from work area to work area because of the different chemicals used. Therefore, we expect the HazCom program to vary depending on the circumstances at the mine. To exclude miners working in laboratories from HazCom would not be in keeping with our mandate to prevent mine-related occupational injuries and illnesses. After reviewing the comments and the rulemaking record, and based

on the presence of hazardous chemicals in the laboratories, we have concluded that it is necessary to include mine laboratories under the scope of the final rule.

K. Appendices

The proposed rule contained three appendices:

Appendix A, Health Hazard Definitions, was a mandatory section providing additional details for the proposed rule's definitions.

Appendix B, Information Sources, was a comprehensive advisory list of sources to evaluate the physical hazards of chemicals and their specific health effects.

Appendix C, Guidelines for Operator Compliance, provided additional advisory guidance for complying with the HazCom standard.

The final rule does not include these appendices. Much of this information, which you can use as a guide, will be included in a HazCom Compliance Guide and Toolbox.

III. Legal Authority and Feasibility

A. HazCom as a § 101(a)(6)(A) Standard

The primary purpose of the Federal Mine Safety and Health Act of 1977 (Mine Act) is to ensure safe and healthful working conditions for the Nation's miners. One means established by Congress to achieve this goal is the authority vested in the Secretary of Labor (Secretary) to set mandatory safety and health standards. Authority for issuance of the HazCom final rule is found in §§ 101(a) and 115 of the Mine Act.

Some commenters to the proposed and interim final rules stated that the HazCom standard is not the type of standard Congress intended to fall within the scope of § 101(a)(6)(A) of the Mine Act. They alleged that the legislative history of that section indicates that Congress intended the provision to authorize standards that would address specific limits for individual or classes of hazardous chemicals. In their opinion, because HazCom does not establish permissible exposure limits for the chemicals covered, the standard can only be promulgated under § 101(a)(7). We disagree with these commenters.

One of the findings made by Congress supporting the enactment of the Mine Act is the urgent need to provide *more effective means and measures* for improving the working conditions and *practices* in the Nation's mines to prevent death and serious physical harm to the miners. As stated previously, one of the means established by Congress to effectuate this statutory mandate is through the development of mandatory health and safety standards under § 101(a)(6)(A) of the Mine Act.

Section 101(a)(6)(A) applies to all mandatory standards involving *toxic materials* or harmful physical agents. It requires us to set standards to ensure that a miner will not suffer a material impairment of health or functional capacity as a result of *exposure to the hazard,* even if the miner is exposed for his or her working life. It also requires us to consider the latest scientific data in the field, feasibility of the standard, and experience gained under this and other health and safety laws.

Section 101(a)(7) requires that any health or safety standard promulgated under the authority of § 101(a) of the Mine Act must prescribe the use of labels or other appropriate forms of warning, as are necessary, to ensure that miners are appraised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure.

Contrary to commenters' allegations, the legislative history of the Mine Act does not state that the use of § 101(a)(6)(A) is restricted to the promulgation of mandatory health standards that address specific limits for individual or classes of hazardous chemicals. The legislative history concerning § 101(a)(6)(A) specifically states that:

> The Secretary's authority under this section includes not only the promulgation of standards covering individual substances but also standards covering classes or groups of substances. The Committee believes that ''generic'' standards of this kind may often provide more effective protection to miners. *The committee believes that the overriding consideration in setting health standards dealing with toxic substances and harmful physical agents must be the protection of the health of miners.* S. Conf. Rep. No. 95–181, 95th Cong., 1st Sess. 21 (1977). [Emphasis added.]

Additionally, the legislative history of § 101(a)(7) states that:

> The Secretary, in determining the most effective means of appraising [sic] miners of hazards, should bear in mind the diminished effectiveness that may result from excess labeling, and *should consider other means of informing miners of hazards*, such as safety and health training of requiring period briefings of miners. *Id.* at 22. [Emphasis added.]

Both § 101(a)(6)(A) and § 101(a)(7) work in conjunction to identify and reduce a specific risk. In HazCom, the identified risk is miners' lack of information regarding the hazards of chemicals they are exposed to at their workplace. By providing this information to miners, the standard is intended to reduce the incidence of chemically related injuries and illnesses in the mining industry.

The information requirements of the HazCom standard provide basic protections for miners without the need to set specific permissible exposure limits. The provision of information under the HazCom standard, about the physical and health hazards of chemicals and protective measures designed to minimize those effects, are intended to reduce the incidence of chemical-source illnesses and injuries in the mining industry by modifying the behavior of mine operators and miners. The three information components in this standard (labels, MSDSs, and initial miner training) are all essential to the effective functioning of the HazCom program. The MSDS provides comprehensive technical information and serves as a reference document for exposed miners, as well as health professionals providing services to those miners. The labels provide a brief synopsis of the hazards of the chemicals and provide the first and most immediate source of information in the work area. Each component reinforces the other and all are directed not only at the identification of workplace chemicals, but also at the reduction of their hazards.

The information provided under the standard will also help health and safety professionals provide better services to exposed miners. The ready availability of health and safety information, such as signs and symptoms of exposure, will aid medical surveillance and the early detection and treatment of illnesses and injuries. It also will help mine operators to make better decisions regarding exposure monitoring, process or exposure controls, and appropriate personal protective equipment.

In sum, § 101(a)(7) does not limit the Secretary's authority to promulgate a HazCom standard under § 101(a)(6)(A). The fact that HazCom does not set exposure limits for hazardous chemicals and prescribes the use of labels and initial training to inform miners of the physical and health hazards of the chemicals they are exposed to in their work areas, does not alter our authority to promulgate the standard as a mandatory health and safety standard under § 101(a)(6)(A) of the Mine Act.

B. Finding of Significant Risk

Some commenters to the proposed and interim final rules stated that we must establish a significant risk for every chemical and mining sector covered under HazCom. They specifically stated that we have not

substantiated our general finding of significant risk because nothing in the rulemaking record or in the preamble to the interim final rule documents the relationship between HazCom's information collection and dissemination requirements and the reduction of alleged occupational risks miners face through exposure to hazardous chemicals.

We continue to disagree with these commenters that we must establish a significant risk for every chemical and mining sector covered under HazCom. We also disagree with their statement that nothing in our rulemaking record or preamble to the interim final rule documents the relationship between HazCom's information collection and dissemination requirements and the reduction of occupational risks miners face through exposure to hazardous chemicals.

As stated in the preamble to the interim final rule, HazCom is not a risk-based health standard for measuring exposures, requiring controls, or providing personal protective equipment. HazCom is an information standard intended to diminish risk by ensuring that operators provide miners with a level of knowledge that allows miners to reduce their exposures to hazardous chemicals by recognizing potential hazards and following safe work practices.

HazCom is being promulgated to anticipate the possibility of harm or loss from chemical exposures and provide information on ways to avoid them. The standard does not regulate chemical use; does not prohibit or limit the use of chemicals in the mining industry; does not set exposure limits; and does not prescribe controls to reduce exposures. HazCom's effectiveness is dependent on the operator's and miner's knowledge and awareness of hazards. Like any information standard, it is through hazard identification and awareness that HazCom addresses the information needed to limit hazardous chemical exposure and prevents injuries and illnesses.

It is clear from relevant court decisions involving OSHA's HCS, that a specific finding of significant risk is not required for a standard such as this, where the significant risk being regulated is that of inadequate knowledge. Section 101(a)(6)(A) of the Mine Act and § 6(b)(5) [8] of the Occupational Safety and Health Act (OSH Act) contain similar statutory language. Both statutory sections contain provisions indicating that mandatory standards must be designed to prevent ''material impairment of health or functional capacity * * *.''

The Supreme Court has indicated, in discussing significant risk of material impairment of health in the context of litigation under § 6(b)(5) of the OSH Act, that the significant risk determination constitutes a finding that, absent the change in practices mandated by the standard, the workplaces in question would be ''unsafe'' in the sense that workers would be threatened with a significant risk of harm. [*Industrial Union Dept.* v. *American Petroleum Institute*, 448 U.S. 607, 642 (1980)(Benzene)]. This finding, however, does not require mathematical precision or anything approaching scientific certainty if the ''best available evidence'' does not warrant that degree of proof. [Id. at 655–656]. Rather, the agency may base its findings largely on policy considerations, and the agency has considerable leeway with the kinds of assumptions it applies in interpreting the supporting data. [Id. at 656].

As previously stated, we believe that lack of knowledge regarding the hazards of chemicals in the workplace increases a miner's risk of suffering a chemically related occupational illness or injury, because precautions and appropriate protective measures would only be taken when the presence of a chemical hazard is known. The 3rd Circuit Court in *United Steelworkers of America* v. *Auchter*, 763 F.2d 728, 735 (1985) (discussion of ''significant risk'' in § 6(b)(5) of the OSH Act), concluded that as a threshold matter, the hazard communication rule is a § 6 standard under the OSH Act which is aimed at correcting a particular ''significant risk'' in the workplace. The court specifically indicated that ''inadequate communication is itself a hazard, which the standard can eliminate or mitigate.''

In *Associated Builders & Contractors* v. *Brock*, 862 F.2d 63 (1988), industry confronted the 3rd Circuit Court of Appeals with a similar argument involving the OSHA HCS and OSHA's general finding of significant risk. Industry argued that the standard was invalid because OSHA had promulgated it without a significant risk determination. Industry also claimed that OSHA needed to find a significant risk for each chemical covered and for each industry covered. The court disagreed with industry and ruled that the general significant risk finding for the original 1983 rule was appropriate for the entire manufacturing sector, and that it was also applicable to each of the 20 major Standard Industrial Classification (SIC) Code manufacturing subdivisions [Id. at 67].

The court also stated that OSHA was not required to determine significant risk for each chemical covered under the rule because the rule was not a substance based rule, but an information disclosure standard. The court concluded that—

> * * * for this performance-oriented information disclosure standard covering thousands of chemical substances used in numerous industries, the significant risk requirement must of necessity be satisfied by a general finding concerning all potentially covered industries. A requirement that the Secretary assess risk to workers and the need for disclosure with respect to each substance in each industry would effectively cripple OSHA's performance of the duty imposed on it by 29 U.S.C. 655(b)(5); a duty to protect all employees, to the maximum extent feasible. [Id. at 68]

OSHA was not required to assess individually the significant risk that would be alleviated by the HCS's application to each of the 70 major business classifications, much less for each of the hazardous substances used in those industries. Moreover, OSHA's application of the 1983 general finding of significant risk to the construction and grain processing and storage industries was upheld by the 5th Circuit in *National Grain and Feed Association* v. *OSHA,* 866 F.2d 717 (1989) (petition for review of OSHA's modified HCS as it applied to the construction and grain processing and storage industries).

Because our HazCom rule is modeled on OSHA's HCS, and the Mine Act and OSH Act are similar with respect to the regulatory requirements for the promulgation of mandatory safety and health standards, we believe we have satisfied our statutory threshold of establishing significant risk with the general finding of risk presented in this preamble. Also, contrary to commenters' allegations, our rulemaking record clearly indicates that inadequate communication about serious chemical hazards endangers miners, and that the requirements of this standard are necessary and appropriate for the elimination or mitigation of these hazards.

For example, the rulemaking record contains the National Occupational Health Survey of Mining (NOHSM) which NIOSH conducted between 1984 and 1989. In this survey, NIOSH examined almost 500 individual mines

[8] Section 6(b)(5) of the OSH Act states in part—

> The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this subsection, shall set the standard which must adequately assure, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life.

covering 70 commodities and about 60,000 miners. The NOHSM documented over 10,000 individual hazardous chemicals and mixtures of hazardous chemicals to which miners could be exposed. The NIOSH NOHSM report (September 1996) lists the 100 chemical substances with the highest projected number of miners potentially exposed. We used these data to develop Part VII as an addendum to this preamble. Part VII contains a list of 58 chemicals, to which 1,000 or more miners are projected to be exposed, and the acute and chronic health effects that can result from that exposure.

In reviewing the data presented in Part VII, it is obvious that a large number of miners could be exposed to hazardous chemicals on their jobs and that many of these chemicals have serious acute health effects, as well as life-shortening, chronic health effects due to exposure. Based on our experience and the rulemaking record, we have determined that mine operators have not communicated to miners many of the potential hazards associated with chemicals. In many cases, the mine operators do not know what the chemical hazards are and, thus, cannot take into account the potential impact the use of a particular chemical may have on miners.

Additionally, in considering this standard, MSHA reviewed reports of chemically related injuries and illnesses reported to the agency which are part of this rulemaking record. Those reports indicate that from January 1990 through December 1999, the mining industry reported over 2,500 chemical burns. More than 1,200 of these burns were lost work time cases. This same accident and injury data indicates more than 400 poisonings.

It is important to note that these chemically related injuries and illnesses data take into account only some of the acute effects reported as a result of chemical exposures. MSHA experience indicates that the health effects of some chemicals may contribute to the occurrence of injuries that are reported, but are not causatively linked to chemical exposures. For example, a miner was overcome while climbing down a ladder into a tank to retrieve his hard hat that had fallen off as he leaned over the tank opening. The resultant injury was reported as a ''fall of person.''

The data do not include the chronic effects that can occur from chemical exposure for several reasons. First, lack of knowledge about health effects associated with chemical exposures contributes to the chronic under-reporting of occupational illnesses. Second, because of an incomplete or non-existent occupational history, physicians may misdiagnose an illness and treat symptoms of chemically related occupational illnesses without realizing that the cause is an occupational chemical exposure. Third, worker turnover also increases the likelihood that the link between a workplace chemical exposure and subsequent illness will be overlooked and will not be reported. This is particularly true for long-term health effects which develop over time, or after repeated exposures.

Some commenters to the interim final rule claim that the above database does not support findings of significant risk because some entries in the database fall outside the scope of the regulation; others would not have been prevented by HazCom; and many would have been prevented by existing MSHA regulations. These comments are addressed fully in ''Reasons for Not Exempting Aggregate Producers'' in the introductory section of this preamble. We believe, however, that the above data understate the extent of the health and safety problems caused by chemicals in the workplace for the reasons cited above.

Finally, testimony by miners, as well as industry representatives at the most recent public hearings includes numerous accounts of miners injured because of their lack of knowledge regarding the health effects of chemicals in their workplace. Several commenters testified regarding their personal experience with illnesses and diseases due to their exposure to hazardous chemicals. These commenters indicated that they could not protect themselves from these injuries and illnesses because they had not received adequate training regarding these substances' health effects, and the appropriate protective equipment which would have been appropriate to use to protect themselves from these adverse health effects.

In sum, our rulemaking record clearly indicates that exposure to chemical hazards occurs in every type of mine with miners typically experiencing multiple exposures to different chemical hazards at one point of time, or over a long period of employment. Neither the record evidence nor policy considerations support commenters' argument that we should apply HazCom only where chemical exposures pose known significant risks.

Chemicals pose myriad hazards to exposed miners that range from mild health effects, such as irritation, to serious health effects, such as blindness or even death. Some chemicals cause or contribute to chronic diseases, such as heart disease, kidney disease, sterility, or cancer. Many chemicals cause acute injuries or illnesses such as rashes, burns, and poisoning. Additionally, numerous chemicals pose physical hazards to miners by contributing to accidents like fires and explosions. Miners have an inherent right to know about hazardous chemicals at their workplaces, and a need to know how they can safely work with such chemicals, because they are at significant risk of experiencing adverse health or physical effects in the absence of such knowledge.

Even inert substances can pose a hazard when mixed or heated. For example, calcium chloride has limited toxicological information available. Contact with skin or eyes may cause severe irritation or burns; dust may irritate nose and throat; ingestion may cause nausea and vomiting. The MSDS for the compound, however, lists its toxic decomposition products as chlorine fumes or hydrogen chloride. The final HazCom rule requires operators to instruct each miner about the physical and health hazards of chemicals in the miner's work area, protective measures that miners can take against these hazards, and the mine's HazCom program.

We find that the risk of harm to miners will increase if operators allow a condition to develop that poses a significant risk of harm to miners, before providing the potentially exposed miners with chemical hazard information.

We also find that the information collection and dissemination requirements of this rule will reduce the occupational risks that miners face through exposure to hazardous chemicals. The HazCom standard provides miners with the right to know the hazards and identities of the chemicals they are exposed to while working, as well as the measures they can take to protect themselves from these hazards. With this final rule, mine operators will now have the necessary information regarding the hazards of chemicals present at their mine, so that work methods can be improved or instituted to minimize exposure to these chemicals. Miners will have access to this information, so that they can take action to protect themselves.

Some commenters stated that we failed to consider OSHA's experience under its HCS in promulgating HazCom. We disagree with these commenters. To the extent possible, we reduced the compliance burden on mine operators based on OSHA's experience and industry's experience under OSHA. We

believe that we addressed OSHA's experience in both the rule and our discussion in the preamble. We reviewed reports, OSHA letters of interpretation, compliance directives, court cases, and conferred with OSHA personnel, applying what we learned to HazCom. In promulgating HazCom, we considered among other things, OSHA's entire HCS rulemaking record; OSHA's compliance directives; National Advisory Committee on Occupational Safety and Health (NACOSH) reports of the Hazard Communication Workgroup; and a number of states' right-to-know laws. Moreover, we considered all comments submitted by the mining industry addressing our request for comments concerning their experience under the OSHA's HCS. In fact, some of the revisions in the interim and final HazCom rules such as electronic access to, content, and retention of MSDSs, reflect commenters suggestions based on their experience with OSHA's HCS.

C. Finding of Feasibility

After we have determined that a significant risk exists and that such risk can be reduced or eliminated by a standard, § 101 (a)(6)(A) requires a determination of feasibility.

The Mine Act and the OSH Act also have similar statutory requirements regarding ''feasibility.'' While § 6(b)(5) of the OSH Act requires that standards assure, ''to the extent feasible, * * * that no employee will suffer material impairment of health or functional capacity,'' § 101(a)(6)(A) of the Mine Act requires us to consider ''the feasibility of the standard * * *.''

The legislative history of the Mine Act specifically cites feasibility cases decided under the OSH Act and strongly suggests that ''feasibility'' principles applicable to OSHA standards are also applicable to our standards. [S. Rep. No. 95–181, 95th Cong., 1st Sess. 21 (1977)]. The legislative history of the Mine Act specifically states that—

> In adopting the language of [this section], the Committee wishes to emphasize that it rejects the view that cost benefit ratios alone may be the basis for depriving miners of the health protection which the law was intended to insure. *Id.*

Though the Mine Act and its legislative history are not specific in defining feasibility, the Supreme Court clarified its meaning in *American Textile Manufacturers' Institute* v. *Donovan,* 452 U.S. 490, 508–509 (1981)(Cotton Dust), in discussing significant risk of material impairment of health in the context of litigation under § 6(b)(5) of the OSH Act. In that case, the Court defined the word ''feasible'' as ''capable of being done, executed, or affected.'' The Court stated, however, that a standard would not be considered economically feasible if it threatened an entire industry's competitive structure. The Court also stated that in promulgating standards, agencies do not have to rely on hard and precise predictions regarding feasibility. They need only base their projections on reasonable inferences drawn from existing facts. Thus, to establish the economic and technological feasibility of a new rule, we must assess the likely range of costs that it will impose on mines, and show that a reasonable probability exists that a typical mine will be able to meet the standard.

We received numerous comments on the burden and cost of this standard. In general, commenters claimed that HazCom was unnecessarily burdensome in that compliance requires a continuing time and paperwork demand with little or no effect on reducing hazards. We address these comments in Part IV (The Regulatory Flexibility Act, the Small Business Regulatory Enforcement Fairness Act, and Executive Order 12866) and Part V (Paperwork Reduction Act) of this preamble.

The rulemaking record does not contain credible evidence that HazCom would be technologically or economically infeasible for the mining industry. On the contrary, the record contains substantial evidence of feasibility. In fact, testimony presented by industry at the most recent public hearings indicates that some operators on their own initiative have established programs that meet HazCom's provisions and goals, and have integrated OSHA's HCS requirements into the work practices at their mines.

We conclude that all of the administrative requirements contained in the HazCom standard can be merged economically into present practices. HazCom gives mine operators wide latitude with both individual requirements and optional compliance measures. The informational provisions of HazCom are capable of being done and will not threaten the viability or long-term profitability of the mining industry. The informational requirements contained in this final rule are not the types of obligations that approach the limits of feasibility. Also, this standard does not relate to activities on the frontiers of scientific knowledge. There are no technological barriers preventing implementation of the HazCom requirements because most of these requirements are accepted, common business practices that are administrative in nature. As previously stated, according to both comments and testimony to the proposed and interim final rules, some of these practices have already been implemented at certain mining operations.

As estimated in our Regulatory Economic Analysis (REA) supporting this HazCom final rule, the mining industry will incur costs of about $7.8 million annually to comply with the final rule. These compliance costs, which represent much less than 1% (about 0.01%) of mining industry annual revenues of $57.9 billion, provide convincing evidence that the final rule is economically feasible.

D. Petitions for Modification

As explained in the interim final rule, our classification of HazCom as both a safety and a health standard impacts whether operators or representative of miners can petition us for a modification. Under § 101(c) of the Mine Act, operators or representatives of miners may petition us to modify the application of a mandatory safety standard, but not a health standard. Because the HazCom final rule is being promulgated as both a health and safety standard, operators may not petition us for a modification. One of the purposes of a petition for modification is to provide a mine operator with an alternative method of compliance. To allow as much compliance flexibility as possible, however, the final HazCom requirements already provide the mine operator with the following alternatives for compliance, among others.

Temporary, portable containers. OSHA's HCS does not require the employer to label a temporary, portable container into which a hazardous chemical is transferred from a labeled container for the immediate use of the employee who performs the transfer. Under MSHA's HazCom standard, mine operators do not have to label the container if their miners know the identity, hazards, and protective measures for the chemical in the container, and leave the container empty at the end of the shift. Otherwise, mine operators must label the container, at least with the common name of its contents.

Existing labels. Under HazCom's labeling requirements, pre-existing hazard labels that comply with the labeling requirements of another federal statute or standard are in compliance with the labeling requirements of HazCom.

Inventory. HazCom will require mine operators to include in the HazCom program list or other record identifying all hazardous chemicals known to be at the mine. For compliance purposes, mine operators may compile the list for

the mine as a whole or for individual work areas. For example, if few chemicals are used in one work area, such as a mine's quarry, and many are used in another work area, such as its shop, the mine operator may decide to compile the list by individual work areas to avoid confusing the miners in the quarry who would have no exposure to most of the chemicals that would be on a mine's comprehensive list.

IV. The Regulatory Flexibility Act, the Small Business Regulatory Enforcement Fairness Act, and Executive Order 12866

The Regulatory Flexibility Act (RFA) requires a regulatory agency to evaluate each proposed and final rule and to consider alternatives so as to minimize the rule's impact on small entities (businesses and local governments). Under the RFA, we must use the Small Business Administration's (SBA's) definition of a small entity in determining a rule's economic impact unless, after consultation with SBA, we establish a different definition.

In the preamble to our HazCom proposed rule, we certified that this rule would not have a significant economic impact on a substantial number of small mining operations. The preamble also included a full discussion of the regulatory alternatives that we were considering and invited the public to comment.

In 1996, Congress enacted the Small Business Regulatory Enforcement Fairness Act (SBREFA) amending the RFA. SBREFA requires a regulatory agency to include in the preamble to a rule the factual basis for that agency's certification that the rule has no significant impact on a substantial number of small entities. The agency then must publish the factual basis in the **Federal Register**, followed by an opportunity for public comment. Although SBREFA did not exist when we published the HazCom proposed rule, we published a notice re-opening the record in March 1999 to give you an opportunity to comment on the factual basis for our previous certification that the HazCom proposed rule would pose ''no significant impact.''

For the interim final rule, we determined that the rule would not have a significant impact on a substantial number of small entities, and we so certified that finding to the Small Business Administration. The factual basis for that certification was provided in the Regulatory Economic Analysis in support of the interim final rule.

This final rule has been drafted and reviewed in accordance with Executive Order (E.O.) 12866, § 1(b), Principles of Regulation. Executive Order 12866 requires a regulatory agency to assess both the costs and benefits of proposed and final rules and to complete a Regulatory Economic Analysis (REA) for any rule having major economic consequences for the national economy, an individual industry, a geographic region, or a level of government. We prepared a REA and Regulatory Flexibility Certification Statement to fulfill the requirements of the RFA and E.O. 12866. Based on our REA, we determined that this final rule is not an economically significant regulatory action pursuant to § 3(f)(1) of E.O. 12866. Because it affects all mining operations, almost all of which are small businesses using SBA's definition of a small business, we determined that this final rule is significant under § 3(f)(4) of E.O. 12866. This section defines a significant regulatory action as one that may—

> * * * Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

The REA is available on request from MSHA, Office of Standards, Regulations, and Variances, 4015 Wilson Boulevard, Arlington, VA 22203 or from our Internet home page at *http://www.msha.gov.*

A. Alternatives Considered

In accordance with § 604 of the RFA, we are including a discussion of the regulatory alternatives considered in developing this final rule. We used OSHA's HCS as a model for the proposed rule. For the final rule, we also considered suggestions from commenters to the proposed and interim final rules. At this stage of the rulemaking process, we did not consider alternatives to the rule, which we did at the ANPRM stage, but alternatives within the rule. In part, the limited impact of the final rule on small mines reflects our decision not to require more costly alternatives. Most of the alternatives suggested addressed the scope of the standard—what would be covered and what would be exempt. In response to comments, we did adopt several provisions that differ from the proposed rule or OSHA's HCS.

(1) The proposed rule would have exempted hazardous waste regulated by EPA under the Resource Conservation and Recovery Act (RCRA) from both the labeling and MSDS provisions of HazCom. The interim final rule provided an alternative compliance option for the MSDS provision, but inadvertently left out the exemption for labeling. The final rule corrects this oversight and exempts hazardous waste regulated by EPA under RCRA from labeling. We determined that exempting EPA hazardous waste from the entire HazCom standard would put miners at risk of a potential injury or illness.

(2) Consistent with the proposed and interim final rules, the final rule exempts the raw material being mined or milled from labeling while on mine property. OSHA's HCS does not address raw material being mined or milled on mine property.

(3) The proposed rule exempted from HazCom's labeling requirements certain categories of hazardous chemicals regulated and labeled under the authority and standards of other federal agencies. These include consumer products, hazardous substances, drugs, tobacco products, foods, food additives, and color additives which are labeled in accordance with the requirements of the Food and Drug Administration or the Department of Agriculture. The interim final rule extended these exemptions to the full scope of the rule rather than to labeling only. The final rule retains these exemptions but simplifies the conditions for exemption to when they are intended for personal consumption or use.

(4) To be consistent with OSHA's HCS, the proposed, interim final and final rules included an exemption from labeling for hazardous substances that EPA or other federal agencies require to be labeled for hazards.

(5) The proposed rule would have allowed you not to label temporary, portable containers of a hazardous chemical that was to be used only by the miner who transferred it from its labeled container. The final rule, consistent with the interim final rule, allows other miners to use the hazardous chemical from the unlabeled container if you ensure that all miners know the chemical's identity, its hazards, and protective measures; and that you ensure the container is left empty at the end of the shift. The final rule, however, also adds a new compliance alternative for labeling temporary, portable containers.

(6) In the proposed rule, we would have required you to label containers of your hazardous product or provide a copy of the labeling information with the first shipment to an employer. The final rule does not require you to label your hazardous product for sale to customers who are employers. Rather, we require you to provide the label or labeling information and an MSDS when requested. This requirement in the final rule is the same as that in the interim final rule.

B. Consultation with SBA

The RFA requires regulatory agencies to consult with SBA's Chief Counsel for Advocacy about regulations that have an impact on small entities. The RFA also requires us to use SBA's definition of a small entity in determining a rule's economic impact. To comply with this law, we consulted with SBA about this rule and our certification of no significant economic impact on small mines. For the mining industry, SBA defines *small* as a business with 500 or fewer employees (13 CFR 121.201). Almost all of the coal and M/NM mines fall into this category. To establish an alternative definition for the mining industry, after consultation with SBA, we must publish that definition in the **Federal Register** providing an opportunity for public notice and comment.

Traditionally, for regulatory purposes over the past 20 years, we have considered a mine ''small'' if it employs fewer than 20 miners and ''large'' if it employs 20 or more. These small mines differ from larger mines not only in the number of employees, but also, among other things, in economies of scale in material produced, in the type and amount of production equipment, and in supply inventory. Typically, their costs of complying with the final rule and the impact of the final rule on them will also differ. It is for this reason that ''small mines,'' as traditionally defined by the mining community, are of special concern to us.

For purposes of the REA and to comply with the RFA, we analyzed the impact of the final rule on mines using SBA's definition of ''small,'' as well as our traditional definition.

C. Compliance Costs

We estimate that the total net yearly cost of the final HazCom rule (30 CFR part 47) will be about $7.8 million. Table 1 summarizes our estimate of the yearly costs by mine size and by major provision. These costs reflect first year (one-time, start-up) costs of $25.5 million and annually recurring costs of $6.1 million. HazCom will affect all coal and M/NM mines, some only insignificantly.

TABLE 1.—YEARLY COSTS FOR HAZCOM FINAL RULE BY PROVISION, COMMODITY, AND MINE SIZE (× $1000)*

Mine Size	Provision					Total
	Written Program	Labels	MSDSs	HazCom Training	Access	
Coal Mines and Independent Contractors						
<20	$465	$32	$291	$452	$196	$1,436
≥20	262	52	86	319	136	846
M/NM Mines and Independent Contractors (M/NM)						
<20	$1,289	$76	$496	$1,204	$1,238	$4,303
≥20	304	72	82	424	293	1,175
All Mining	2,320	231	955	2,400	1,855	7,761

*Values are rounded.

D. Regulatory Flexibility Certification and Factual Basis

Based on our analysis of costs and benefits in the REA, we certify that this HazCom final rule will not have a significant economic impact on a substantial number of small mining entities using either SBA's or our traditional definition of ''small.''

1. Derivation of costs and revenues

In this final rule, both coal and M/NM mines must incur compliance costs. We examined the relationship between costs and revenues for the coal and M/NM mine sectors as two independent entities, rather than combining them into one category. All cost estimates in this preamble are presented in 2001 dollars.

For this final rule, we estimated the one-time costs, annualized costs (one-time costs amortized over a specific number of years), and annual costs. One-time costs are those that are incurred once and do not recur. For example, the cost to develop a written procedural program occurs only once. For the purpose of this REA, we amortized one-time costs over an infinite life resulting in an annualized cost equal to 7% of the one-time cost. Converting one-time costs to annualized costs allows us to add them to annual costs in order to compute a combined yearly cost for the rule. Annual costs are those that normally recur annually. Three examples of annual costs are maintenance costs, operating expenses, and recordkeeping costs.

Commenters on the interim final rule argued that MSHA had overestimated the percentage of mine operators, particularly larger operators and contractors, which are currently in compliance with OSHA's HCS and would already be in substantial compliance with MSHA's HazCom rule. In addition, commenters on the interim final rule argued that MSHA had failed to include costs for operators to obtain and assemble MSDSs and had underestimated the time required to comply with a variety of other provisions of MSHA's HazCom rule.

Based on our review and in response to these comments, we have introduced three major sets of changes in the REA for the final HazCom rule. First, we re-examined and subsequently modified our estimates of compliance rates for all operator types for all ten mine size classifications.[9] The most important changes were that we no longer assumed that all operators with more than 500 employees would be in substantial compliance with the final rule.[10] We revised these non-compliance rates as follows:

[9] See U.S. Department of Labor, Mine Safety and Health Administration, ''Compliance Rates by Mine Size and HazCom Provision for Mines and Contractors,'' December 12, 2001.

[10] MSHA's estimates of non-compliance rates were 0 percent in the interim final rule for all provisions, for all operators with more than 500 employees.

Mine type	HazCom program (Percent)	Labels (Percent)	MSDSs (Percent)	Training (Percent)	Access (Percent)
Coal Mine	10	5	5	30	75
M/NM Mine	10	5	5	5	5
Coal Mine	50	50	50	50	100
M/NM Contractor	50	50	50	50	100

We also dramatically increased our estimates of the number of contractors not currently in compliance with the various provisions of the final rule.[11] Second, we added costs to reflect the effort required by an operator to obtain and assemble physical copies of MSDSs or alternatively, under the option provided in the final rule, the effort required by an operator to establish access to MSDSs from an internet or commercial database. Third, in several instances, we increased our estimates of the time required for mine operators in specific size classes to comply with particular provisions of the final rule. These include time estimates for mine operators with more than 500 employees for all provisions of the final rule (except the time for operators with an existing HazCom program to review their existing program) and time estimates for mine operators in other size classes to develop MSDSs and to prepare lesson materials for HazCom training.

In addition, because many operators will not have sufficient time to integrate HazCom training into their part 46 or part 48 training before the final rule takes effect, we have added first-year costs for current miners to attend initial HazCom training. The effect of these changes has been to increase MSHA's total compliance cost estimates from about $5.7 million yearly for the interim final rule to about $7.8 million yearly for this final rule or, equivalently, from about $270 per operator, including independent contractors, to about $370 per operator.

Several commenters on both the proposed and the interim final rule also expressed their belief that we had underestimated the cost for operators to train miners and label containers and that the wage rates for conducting hazard evaluations should be two to three times higher than we estimated because consultants, not miners, would be conducting the evaluation. Nevertheless, we believe that the cost estimates in the REA supporting the final rule represent a reasonable approximation of the burden on operators for the following reasons.

First, we have existing standards for training. We did not calculate a cost for miners to attend training (except, now, in the first year the rule takes effect) because the HazCom training can be accomplished during annual refresher training or task training, both of which require operators to cover health and safety hazards. Our recent final training rules, both the new part 46 and the modified part 48, allow operators more flexibility in developing training courses to meet the changing needs of the miners and the changing hazards of the mine environment. Also, we intend to allow mine operators to use relevant training conducted in compliance with other MSHA, federal, or state regulations to meet the HazCom training requirement of this part. Mine operators can also use relevant training conducted in compliance with this part to meet the comparable requirements of other parts of this chapter. This means that relevant training provided to miners under other MSHA standards, such as parts 46 and 48, OSHA, EPA, DOT, and state requirements, can be credited toward HazCom training. HazCom training costs include the time to develop a HazCom training course, time for the instructor to prepare the lesson, and the cost for training materials.

Second, we have existing standards for labeling for metal/nonmetal mines and surface coal mines. We calculated only a small cost for labels because most hazardous chemicals are already labeled by the manufacturer or supplier before they are brought to the mine, and the HazCom rule exempts the raw materials being mined or milled from labeling. The small cost is for labeling storage tanks of bulk hazardous materials and portable transport containers, as necessary; for labeling containers of hazardous chemical mixtures produced and used at the mine; for labeling containers in underground coal mines; and for replacing damaged or missing labels.

Third, 39 states have employee right-to-know laws. OSHA's HCS has had widespread impact on state right-to-know regulations and, indirectly, on the mining industry. All operators comply with some of the provisions of this final rule. Some independent contractors work in industries under OSHA jurisdiction, as well as in the mining industry, and some large companies have other businesses in industries under OSHA jurisdiction. These operators comply with some or most of the provisions of this final rule because of existing federal, state, or local regulations. A few operators comply because the state regulations also cover mining. Others comply voluntarily because of corporate policy.

Finally, we are developing compliance aids to reduce the burden on operators, especially small operators. These include generic HazCom programs, generic training programs, training materials, and videos (some to help the operator develop a HazCom program and some to use in training the miner under the final rule and under parts 46 and 48). We will also provide training and compliance assistance through state grants, MSHA health specialists, and our Educational Field Services so that operators can understand and comply with the rule. MSHA's state grant recipients will be supporting HazCom through free training and program assistance. The benefit we see is that if operators develop their own programs to meet the unique needs of their operations, they will be better prepared to maintain it. We will help the mining community understand the requirements of this regulation before it goes into effect. Every first inspection after HazCom's publication will include HazCom outreach.

Because of our commitment to help the mining industry, especially small operators, implement a HazCom program with minimum burden, we do not anticipate a need for them to hire consultants. We anticipate that the vast majority of hazard determinations will be made by reading the MSDS and label and acting accordingly. We have no definitive information about the use of consultants under OSHA's HCS, however, numerous training and information materials have been developed in response to OSHA's HCS. We know that the industry's trade associations have model HazCom

[11] MSHA's estimates of contractor non-compliance rates increased by at least 44 percentage points for all mine size classes and all provisions relative to those in the interim final rule. See U.S. Department of Labor, Mine Safety and Health Administrator, ''Compliance Rates by Mine Size and HazCom Provision for Mines and Contractors,'' December 12, 2001.

programs, generic MSDSs, and a number of aids developed for their members. Because we intend to have extensive outreach programs, particularly for small mine operators, and reduce the need for outside consultants, we assumed in our calculation of wage rates that miners will conduct the hazard determination rather than consultants.

In determining revenues for coal mines, we multiplied mine production data (in tons) by the estimated price per ton of the commodity ($16.78 per ton in 2000). We obtained production data from our CM441 reports [12] and the price estimates from the Department of Energy.[13] Because we do not collect data on M/NM mine production, we took the total revenue generated by the M/NM industry ($40.2 billion) [14] and divided it by the total number of employee hours to arrive at the average revenue of $70.45 per hour of employee production. We then took the $70.45 and multiplied it by the employee hours in specific size categories to arrive at the estimated revenues for the size category.

2. Factual basis for certification

Whether or not compliance costs impose a ''significant'' impact on small entities depends on their effect on the profits, market share, and financial viability of small mines. To address these issues, we had to determine whether compliance with HazCom will place small mines at a significant competitive disadvantage relative to large mines or impose a significant cost burden on small mines.

The first step in this determination is to establish whether the compliance costs impose a significant burden on small mines in absolute terms. For this purpose, we began with a ''screening'' analysis of compliance costs relative to revenues for small mines. When estimated compliance costs are less than 1% of estimated revenues, we conclude that there is no significant impact on a substantial number of small entities. When estimated compliance costs approach or exceed 1% of revenue, we conclude that further analysis is needed.

The second step in this determination is to establish whether compliance with the HazCom rule will impose substantial capital or first-year, start-up costs on small mines. Because financing is typically more difficult or more expensive to obtain for small mines than for large mines, initial costs may impose a greater burden on small mines than on large mines. HazCom, however, does not require engineering controls or other items requiring a substantial initial capital expenditure. The initial costs associated with HazCom are those necessary to develop and implement a HazCom program. Because this cost is well below 1% of revenues, we do not consider it to be significant.

The third step in this determination is to establish whether there are significant economies of scale in compliance that place small mines at a competitive disadvantage relative to large mines. We investigated economies of scale by calculating whether compliance costs are proportional to mine employment. Although the annual compliance cost per miner is greater for small operations than for large, this difference is unlikely to provide strategic leverage because small mines generate over 95% of the revenues in their respective markets. Furthermore, total compliance costs will be greater, on average, for a large mine than for a small mine.

3. Results of screening analysis

In all size categories, the cost of complying with the final rule is well below 1% of revenues.

- For coal operations with fewer than 20 miners, the estimated average yearly cost of the HazCom rule is $400 per operation, which is about 0.24% of the average annual revenue per operation.
- For coal operations with 500 or fewer miners, the estimated average yearly cost of the HazCom rule is $481 per operation, which is about 0.02% of the average annual revenue per operation.
- For M/NM mines with fewer than 20 miners, the estimated average yearly cost of the HazCom rule is $334 per operation, which is about 0.05% of the average annual revenue per operation.
- For M/NM mines with 500 or fewer miners, the estimated average yearly cost of the HazCom rule is $361 per operation, which is about 0.01% of the average annual revenue per operation.

As shown in Table 2, compliance costs represent only about 0.01% to 0.02% of the value of mine production.

TABLE 2.—COMPLIANCE COSTS COMPARED TO REVENUE*

Small mines (1–500)	Average cost per mine	Total yearly cost (millions)	Total revenue (millions)	Cost as % of revenue (percent)
Coal	$481	$2.3	$15,093	0.02
M/NM	361	5.5	36,802	0.01

*Includes independent contractors and their employees.

Because the cost of HazCom as a percentage of revenue is considerably less than 1%, we believe that this result, in conjunction with the previous analysis, provides a reasonable basis for the certification of ''no significant impact'' in this case.

E. Benefits

In considering a HazCom standard, we reviewed chemically related injuries and illnesses reported to MSHA between January 1983 and June 1999. During this period, the mining industry reported almost 4,700 chemical burns crossing 57 commodities and 70 job classifications and involving exposures to chemicals at all sizes and types of mines. This same accident and injury data indicated more than 800 poisonings, 2,600 eye injuries, and 2,100 cases of dermatitis or skin injury as a result of chemical exposures. These data only account for the acute effects of chemical hazards, not the chronic effects which we know exist.

We conclude that miners face a significant risk from exposure to hazardous chemicals. We further conclude that compliance with this rule will prevent a substantial number of acute illnesses, injuries, and fatalities, as well as long term cancer cases.

HazCom is an important means of ensuring that both operators and miners are aware of the chemical hazards to which they may be exposed at the mine. We anticipate that our HazCom standard will enhance both operator and miner awareness of the physical and health hazards associated with hazardous chemicals in such a way that both

[12] MSHA's 2001 CM441 Report, cycle 1998/198.

[13] U.S. Department of Energy, Energy Information Administration, *Coal Industry Annual 2000,* January 2002, p. 206.

[14] U.S. Department of the Interior, U.S. Geological Survey, *Mineral Commodity Summaries 2001,* January 2001, p. 7.

parties will take positive steps to lower exposures, resulting in lower incidence of chemically related injuries and illnesses. Also, if the miner and operator know the potential health effects from exposure to a chemical, they can forewarn their doctor to watch for signs and symptoms of exposure and further reduce the risk of injury by obtaining early diagnosis and treatment.

Based on our review and analysis of the available data, we estimate that compliance with this rule will prevent one fatality every four years, beginning when the rule takes effect, as well as an annual average of 57 chemically related acute injuries and illnesses (15 in coal mines and 42 in M/NM mines). Of these 57 injuries and illnesses, 32.5 will result in 392 lost workdays and 24.8 will not require lost workdays.

In addition, we expect that HazCom will prevent a total of 50 cancer deaths (16 in coal and 34 in M/NM) from year 11 through year 20 after promulgation and 9.4 cancer deaths every year thereafter.

V. Paperwork Reduction Act

When we published the HazCom proposed rule in 1990, its information collection and paperwork requirements were not an information collection burden under the 1980 Paperwork Reduction Act because they were third-party disclosures. In August 1995, the Office of Management and Budget (OMB) published its final rule (60 FR 44978) implementing the new Paperwork Reduction Act of 1995 (PRA 95). These OMB rules expanded the definition of *information* to clarify that PRA 95 also covers agency rules that require businesses or individuals to maintain information for the benefit of a third-party or the public, rather than the government. The requirements for information collection and dissemination in HazCom are now an information collection burden because of this expanded definition. Most of the provisions in this HazCom final rule fit this definition: §§ 47.2, 47.31, 47.32, 47.41, 47.42, 47.43, 47.44, 47.51, 47.52, 47.53, 47.54, 47.55, 47.71, 47.72, 47.73, 47.81, 47.82, 47.83, 47.84, 47.85, 47.86, and 47.87. The HazCom training provisions that appeared in the interim final rule (§§ 47.51, 47.52, 47.53) have been moved to 30 CFR parts 46 and 48 and do not pose an additional paperwork burden. The final rule also removes the labeling requirements from existing §§ 56.16004, 57.16004, and 77.208, and adds conforming amendments to parts 46 and 48 for subsequent HazCom training. We submitted the interim final rule to OMB for its review and approval under § 3507 of PRA 95. OMB approved the information collection provisions for MSHA's Hazard Communication Interim Final Rule, 30 CFR part 47, under OMB Control No. 1219–0133, contingent on our addressing the comments. This approval expires on May 31, 2002.

Description of requirements. HazCom is primarily an information collection and dissemination rule. The annual information collection burden includes the time to inventory chemicals, determine the hazards of chemicals present, develop a HazCom program, develop or obtain labels or MSDSs as necessary, prepare training materials, provide initial training to current miners, and provide copies of HazCom materials. The information collection and paperwork burden encompasses each section of this part, as summarized in Table 3.

TABLE 3.—DESCRIPTION OF INFORMATION COLLECTION PROVISIONS

Provision	Information collection burden
Written HazCom Program	Prepare, administer, and review annually; determine hazards of chemicals; list hazardous chemicals at the mine.
Labels or other warnings	Prepare for hazardous chemicals produced; maintain legibility and accuracy.
Material Safety Data Sheets	Develop for hazardous chemicals produced; obtain for other hazardous chemicals; maintain availability and accuracy.
Training Program	Develop or obtain training courses and materials; conduct initial training for miners; administer program.
Copies of HazCom information	Distribute written HazCom program information to miners, HazCom designated representatives, and customers when requested; distribute to other operators.

All written information can be either paper or electronic format provided that you meet access requirements.

Description of respondents. The respondents are operators, including independent contractors. The final HazCom rule will be applicable to all 21,166 operations under MSHA jurisdiction: 2,459 surface and underground coal mines; 3,801 coal contracting firms; 11,337 surface and underground metal and nonmetal (M/NM) mines; and 3,569 M/NM contracting firms.

The percentage of mines complying with a specific HazCom requirement varies depending on the type of mine and the specific provision. For example, some mines label containers and keep MSDSs, but do not have a written program or provide HazCom information to miners. As a matter of corporate policy or to comply with state hazard communication or right-to-know laws, most existing HazCom programs are modeled on OSHA's HCS. For these reasons, we believe that operators can adjust their existing programs to comply fully with HazCom with little effort and few resources.

We assumed that many independent contractors conduct some work at locations under OSHA jurisdiction and would have an existing hazard communication program. The contractor's program, however, may need modification for a particular mine. The magnitude of the burden for any individual mine operator or independent contractor, therefore, will vary greatly by the size, type, and location of the operation.

Information Collection Burden. The greater portion of HazCom's burden accrues when the operator is developing and implementing the program. The first-year only information collection burden for coal mine operators, including independent contractors, will be 162,240 burden hours, and the associated burden hour costs will be $6,350,339 ($444,524 in annualized terms). The annual information collection burden for coal mine operators, including independent contractors, will be 62,249, and the associated burden hour costs will be $1,909,557. The first-year only information collection burden for M/NM mine operators, including independent contractors, will be 320,244 burden hours, and the associated burden hour costs will be $11,494,762 ($804,633 in annualized terms). The annual information collection burden for M/NM mine operators, including independent contractors, will be 149,287, and the

associated burden hour costs will be $3,870,336.

The final rule does not require records for initial miner training and 30 CFR parts 46 and 48 already requires training records. This change from the interim final rule results in a reduction in the information collection and paperwork burden of the final rule.

VI. Other Regulatory Considerations

We recognize that the mining industry has changed since 1990 when we developed the Preliminary Regulatory Impact Analysis (PRIA) and published the HazCom proposed rule. Most of the changes, however, decreased the impact of HazCom on the mining industry. For example, the number of mines and miners has decreased while the number of independent contractors has increased. Independent contractors are more likely than mines to have an existing hazard communication program because they are more likely to work in operations under OSHA jurisdiction, as well as in mines under MSHA jurisdiction. Similarly, more mines have a hazard communication program now than in 1990 because the parent company also has operations in industries subject to OSHA's HCS, or the mine is located in a state with a state right-to-know law that covers mining. We believe that these existing programs decrease the economic impact of the HazCom rule on the mining industry.

Another change that affects the hazard communication environment is increased public awareness due to the length of time that the OSHA HCS has been in effect. There is an abundance of hazard communication information, supplies, training, and training aids readily available to the public off-the-shelf or through the Internet.

On March 30, 1999, we re-opened the rulemaking record (64 FR 15144) for the limited purpose of receiving comments on several regulatory mandates, some of which were not in existence when the Agency published the hazard communication proposed rule in 1990. Current statutory mandates and Executive Orders require the Agency to evaluate the impact of a regulatory action on small mines; on the environment; on expenditures by state, local, and tribal governments (Unfunded Mandates); on constitutionally protected property rights; on the federal court system; on children; on federalism; on Indian tribal governments; and on energy.

A. The National Environmental Policy Act of 1969

The National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et seq.*) requires each federal agency to consider the environmental effects of its actions. NEPA also requires an agency to prepare an Environmental Impact Statement for major actions significantly affecting the quality of the environment. We have reviewed the HazCom final rule in accordance with the requirements of NEPA, the regulations of the Council on Environmental Quality (40 CFR part 1500), and the Department of Labor's NEPA regulations (29 CFR part 11). As a result of this review, we have determined that this final rule has no significant environmental impact.

B. Unfunded Mandates Reform Act of 1995

For purposes of the Unfunded Mandates Reform Act of 1995, this rule does not include any federal mandate that may result in increased expenditures by state, local, and tribal governments in the aggregate of more than $100 million annually, or increased expenditures by the private sector of more than $100 million annually.

C. Executive Order 12630: Government Actions and Interference With Constitutionally Protected Property Rights

The HazCom final rule is not subject to Executive Order 12630 because it does not involve implementation of a policy with takings implications.

D. Executive Order 12988: Civil Justice Reform

We have reviewed Executive Order 12988 and determined that the HazCom final rule will not unduly burden the federal court system. We wrote the final rule to provide a clear legal standard for affected conduct and have reviewed it carefully to eliminate drafting errors and ambiguities.

E. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

We have evaluated the environmental safety and health effects of the HazCom final rule on children and have determined that the final rule will have no disproportionate effect on children. HazCom is a health and safety information standard. It does not set exposure limits or require controls. It can, however, benefit children indirectly. One commenter to the re-opened record supported the interim final rule stating that—

- Parents exposed to a genotoxic material could have their reproductive genes damaged which, in turn, could result in miscarriages or congenital or developmental impairments in their children;
- Parents could bring home hazardous chemicals on their clothing or their person which could result in children being injured by contact with the parent; and
- If parents knew that a chemical could adversely affect their children, they would take more precautions to prevent their own and their children's exposures.

F. Executive Order 13132: Federalism

We have reviewed this rule in accordance with Executive Order 13132 regarding federalism, and have determined that it does not have ''federalism implications.'' The rule does not—

> * * * have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

We certify that the final rule does not impose substantial direct compliance costs on Indian tribal governments. Further, MSHA provided the public, including Indian tribal governments which operated mines, the opportunity to comment on the interim final rule. No Indian tribal government applied for a waiver or commented on the interim final rule.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

In accordance with Executive Order 13211, we have reviewed the final HazCom rule for its energy impacts. The rule has no effect on the distribution or use of energy. The only impacts of the rule on the supply of energy would be through its effect on the price of coal or the production of coal. Impacts of the rule on metal/nonmetal mines do not affect the supply of energy.

The final rule has no direct effects on the production of coal. The rule does not prevent the mining of particular coal deposits, nor does the rule require coal deposits to be mined at a slower pace. The only impacts of the rule on coal mine production are indirect, via the cost or price of coal.

The estimated annual cost of the final rule for the coal mining industry is $2.3 million.[15] The annual revenues of the coal mining industry in 2000 were

[15] Estimate obtained from Table IV–1 of the Regulatory Economic Analysis.

$17,663,646,512.[16] The cost of the rule for the coal mining industry is 0.01% of revenues. Even if we were to suppose that the increased cost caused by the rule would be fully reflected in coal prices, the impact would be negligible.

Accordingly, we have determined that the final HazCom rule has no significant adverse effect on the supply, distribution, or use of energy. Therefore, no reasonable alternatives to this action are necessary.

VII. Addendum: Physical and Health Effects of Chemical Substances Normally Used by Miners

In Appendix O of its National Occupational Health Survey of Mining (NOHSM) report, NIOSH projects the number of miners potentially exposed to various chemicals, not including the number of workers employed in the corresponding mineral commodity's mining industry. An asterisk (*) identifies those chemicals where the number of miners exposed does not include those who mine the listed chemical commodity. The following is a list of chemicals for which NIOSH projected more than 1,000 miners potentially exposed and their health effects. We found the listed health effects for most of these substances on material safety data sheets (MSDSs) available free on the Internet. The number in parentheses is the projected number of miners potentially exposed.

Common Chemical Hazards in Mining

Acetic Acid (1,066) Irritation of eyes, skin, nose, throat; eye, skin burns; skin sensitization; black skin, hyperkeratosis; dental erosion; conjunctivitis, lacrimation (discharge of tears); pharyngeal edema, chronic bronchitis.

Acetone (1,013) Irritation of eyes, nose, throat; dermatitis; headache, dizziness, central nervous system depressant, depression.

Acetylene (66,665) Headache, dizziness; asphyxia; frostbite (liquid).

Aluminum Sulfate (2,527) Health hazard acute and chronic: acute: irritation of eyes, skin and liquid alum is an acidic salt that can irritate the eyes, skin, open wounds and mucous membranes. Inhalation of mists can be irritating to the Respiratory tract and lungs. Chronic overexposure signs/symptoms of overexposure: health hazard: Cause contact dermatitis.

Ammonium Hydroxide (1,452) Inhalation: Vapors and mists cause irritation to the respiratory tract. Higher concentrations can cause burns, pulmonary edema and death. Brief exposure to 5000 ppm can be fatal. Ingestion: Toxic! May cause corrosion to the esophagus and stomach with perforation and peritonitis. Symptoms may include pain in the mouth, chest, and abdomen, with coughing, vomiting and collapse. Ingestion of as little as 3–4 mL may be fatal. Skin Contact: Causes irritation and burns to the skin. Eye Contact: Vapors cause irritation. Splashes cause severe pain, eye damage, and permanent blindness. Chronic Exposure: Repeated exposure may cause damage to the tissues of the mucous membranes, upper respiratory tract, eyes and skin. Aggravation of Pre-existing Conditions: Persons with pre-existing eye disorders or impaired respiratory function may be more susceptible to the effects of this material.

Ammonium Nitrate (4,333) Inhalation: May cause irritation to the respiratory tract; symptoms may include coughing, sore throat, and shortness of breath. At high temperatures, exposure to toxic nitrogen oxides decomposition products can quickly cause acute respiratory problems. Inhalation of large amounts causes systemic acidosis and abnormal hemoglobin. Ingestion: Large oral doses of nitrates may cause dizziness, abdominal pain, vomiting, bloody diarrhea, weakness, convulsions, and collapse. Harmful if swallowed. May cause methemoglobinemia resulting in cyanosis. Skin Contact: Causes irritation to skin. Symptoms include redness, itching, and pain. Eye Contact: Causes irritation, redness, and pain. Chronic Exposure: Small repeated oral doses of nitrates may cause weakness, depression, headache, and mental impairment.

Argon (1,587) Argon is odorless and nontoxic, but may produce suffocation by diluting the concentration of oxygen in air below levels necessary to support life. Personnel, including rescue workers, should not enter areas where the oxygen concentration is below 19%, unless provided with a self-contained breathing apparatus or airline respirator. Exposure to oxygen-deficient atmospheres may produce dizziness, nausea, vomiting, loss of consciousness, and death. Death may result from errors in judgement, confusion, or loss of consciousness which prevents self rescue. At low oxygen concentrations unconsciousness and death may occur in seconds without warning. Extensive tissue damage or burns can result from exposure to liquid argon or cold argon vapors.

95% Argon 5% Oxygen (5,516) Asphyxiant: Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.

75% Argon 25% Carbon Dioxide (8,493) The main health hazard associated with this gas is asphyxiation by displacement of oxygen. If the concentration of carbon dioxide (a component of this gas mixture) reaches 10% or more, suffocation can occur within minutes. At concentrations between 2-l0%, carbon dioxide can cause nausea, dizziness, headache, mental confusion, and increased blood pressure and respiratory rate. Moisture in the air could lead to the formation of carbonic acid, which can be irritating to the eyes and skin.

Calcium Chloride (10,513) Contact with skin or eyes may cause severe irritation or burns; dust may irritate nose and throat. Toxic gas produced: hydrogen chloride. Ingestion: May cause nausea and vomiting.

Calcium Hydroxide (2,411) Irritation eyes, skin, upper respiratory system; eye, skin burns; skin vesiculation; cough, bronchitis, pneumonia.

Calcium Oxide (4,252) Irritation eyes, skin, upper respiratory tract; ulcer, perforation nasal septum; pneumonia; dermatitis.

Carbon Dioxide (2,054) Headache, dizziness, restlessness, paresthesia; dyspnea (breathing difficulty); sweating, malaise (vague feeling of discomfort); increase(d) heart rate, cardiac output, blood pressure; coma; asphyxia; convulsions; frostbite (liquid, dry ice)

Carbonic Acid, Monosodium Salt (1,454) Not Available (disodium salt MSDS is available).

Carbonic Acid, Disodium Salt (2,729) Inhalation: dust may cause irritation to respiratory tract. Known to cause damage to nasal septum. Ingestion: only slightly toxic, but large doses may be corrosive to GI tract. Signs/symptoms of overexposure: skin: excessive contact may cause irritation w/Blistering and redness. Solutions may cause severe irritation or burns. Eye: contamination may be corrosive to eyes and cause conjunctivitis. Edema and corneal destruction. Chronic: prolonged or repeated skin exposure may cause sensitization.

Carbonic Acid, Dithio, o-Pentyl Ester, Potassium Salt (1,084) Not Available (o-ethyl MSDS is available).

Chloroprene (1,558) Health Hazard Acute And Chronic: Inhalation: central nervous system. Vapor emitted during

[16] Data for revenues derived from: U.S. Department of Labor, Mine Safety and Health Administration, Office of Standards, Regulations, and Variances, based on 1998 Final MIS data (quarter 1–quarter 4), CM441, cycle 1998/198; and U.S. Department of Energy, Energy Information Administration, Annual Energy Review 1998, DOE/EIA–0384(98), July 1999, p. 203.

processing above 200c are highly irritating causing soreness in eyes, nose and throat. Ingestion: central nervous system and severe stomach distress. Eyes: irreversible damage. Skin: irritation. Signs/symptoms of overexposure: inhalation: headaches, drowsiness, lack of coordination. Skin: redness, itching; in severe cases, blisters. Don't induce vomiting. Eyes: flush with water for 15 min. Skin: wash thoroughly w/soap and water. Obtain medical attention in all cases.

*Coal** (11,193) Chronic bronchitis, decreased pulmonary function, emphysema.

Coke (Petroleum) (1,887) or *Coke* (1,561) Eye: Dusts may be abrasive and irritating to the eyes and cause stinging, watering, and redness. Skin: Dusts may be abrasive and mildly irritating to the skin. No harmful effects from skin absorption are expected. Inhalation (Breathing): Low degree of toxicity by inhalation. Ingestion (Swallowing): No harmful effects expected. Signs and Symptoms: Repeated overexposure to dusts may result in irritation of the respiratory tract, pneumoconiosis (dust congested lungs), pneumonitis (lung inflammation), coughing and shortness of breath. Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin and respiratory (asthma-like) disorders. (See above.)

Denatured Alcohol (1,091) Inhalation: Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. Prolonged exposures to high concentration may cause drowsiness, loss of appetite, and inability to concentrate. Ingestion: Cause headaches, gastritis, intoxication, blindness and, in acute cases, death. Skin Contact: Causes skin irritation, cracking or flaking due to dehydration and defatting action. Eye Contact: Can cause eye irritation. Splashes may cause temporary pain and blurred vision. Chronic Exposure: Prolonged skin contact causes drying and cracking of skin. May affect the nervous system, liver, kidneys, blood, G.I. tract and reproductive system. Continued ingestion of small amounts could result in blindness. Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

Dichloro, Difluoro-Methane (1,178) Dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest. Liquid: frostbite.

Diesel Fuel, NEC (2,664) Central Nervous System (CNS) depression; possible irritation of eyes, nose, and lungs; and dermal irritation. Signs of kidney and liver damage may be delayed.

Diesel Fuel, No. 1 (16,852) Central nervous system depression; possible irritation of eyes, nose, and lungs; dermal irritation; delayed signs of kidney and liver damage.

Diesel Fuel, No. 2 (109,097) Central nervous system depression; possible irritation of eyes, nose, and lungs; dermal irritation; delayed signs of kidney and liver damage.

Gasoline (3,901) Irritation eyes, skin, mucous membrane; dermatitis; headache, fatigue, blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonia (aspiration liquid); possible liver, kidney damage; [Potential occupational carcinogen].

Gasoline, Leaded (19,893) Headache; nasal and respiratory irritation; drowsiness, fatigue; pneumonitis, pulmonary edema; central nervous system depression; and kidney damage. Long-term exposure to rats has resulted in kidney cancer. Regular leaded gasoline contains lead. Lead can be a cumulative poison.

Gasoline, Unleaded (30,811) Eyes, skin, respiratory system, central nervous system, liver, kidneys.

Graphite (1,420) Cough, dyspnea (breathing difficulty), black sputum, decreased pulmonary function, lung fibrosis.

*Gypsum** (6,701) Irritation eyes, skin, mucous membrane, upper respiratory system; cough, sneezing, rhinorrhea (discharge of thin nasal mucous).

Hydrogen Chloride (4,578) Irritation nose, throat, larynx; cough, choking; dermatitis; solution: eye, skin burns; liquid: frostbite; in animals: laryngeal spasm; pulmonary edema.

Fe, Iron (1,079) Inhalation: May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath. Ingestion: Extremely large oral dosages may produce gastrointestinal disturbances. An overdose of iron may cause vomiting, abdominal pain, bloody diarrhea, vomiting blood, lethargy, and shock. In severe cases, toxicity may progress and develop into an increase in acidity in the blood, bluish skin discoloration, fever, liver damage, and possibly death. Skin Contact: No adverse effects expected. Eye Contact: May cause irritation, redness and pain. Eye contact may cause conjunctivitis and deposition of iron particles can leave a ''rust ring'' or brownish stain on the cornea. Chronic Exposure: Long-term inhalation exposure to iron has resulted in mottling of the lungs, a condition referred to as siderosis. This is considered a benign pneumoconiosis and does not ordinarily cause significant physiological impairment. Ingestion of greater than 50 to 100 mg of iron per day may result in pathological iron deposition in body tissues. Repeated iron ingestion can produce cardiac toxicity. Aggravation of Pre-existing Conditions: Persons with impaired respiratory function may be more susceptible to the effects of the substance.

*Iron Ore** (1,410) Dust may be harmful if inhaled.

Iron Oxide (Fe_3O_4) (2,423) Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis (siderosis).

Iron Scale (1,455) Caustic.

Kerosene (10,712) Irritation of eyes, skin, nose, throat; dermatitis; headache, nausea, weakness, restlessness, lack of coordination, confusion, drowsiness; vomiting, diarrhea; burning sensation in chest; chemical pneumonia (aspiration of liquid).

Lignin Sulfonate (1,719) MSDS could not be found.

*Limestone** (8,918) Irritation of eyes, skin, mucous membrane; cough, sneezing, rhinorrhea (discharge of thin nasal mucous); lacrimation (discharge of tears).

Magnetite (2,668) Eye: May cause eye irritation. Exposure to iron particles may cause toxic effects. Skin: May cause skin irritation. Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. The toxicological properties of this substance have not been fully investigated. Inhalation: May cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. The toxicological properties of this substance have not been fully investigated. Chronic: No information found.

Methyl Acetylene-Propadiene Mixture (1,215) Inhalation: short term exposure: difficulty breathing, drowsiness, symptoms of drunkenness, disorientation. Long term exposure: no information on significant adverse effects. Skin contact: short term exposure: blisters, frostbite. Long term exposure: no information is available. Eye contact: short term exposure: irritation, blurred vision. Long term exposure: no information is available. Ingestion: short term exposure: frostbite. Long term exposure: no information is available.

Methyl Alcohol (1,504) Irritation eyes, skin, upper respiratory system;

headache, drowsiness, dizziness, vertigo (an illusion of movement), lightheadedness, nausea, vomiting; visual disturbance, optic nerve damage (blindness); dermatitis.

Methyl Chloroform (4,412) Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depressant/depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage.

Methyl Isobutyl Carbinol (1,039) Irritation of eyes, skin; dermatitis; headache, drowsiness; narcosis in animals.

Mineral Oil (1,563) Inhalation: Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. Inhalation of mist or vapor may produce aspiration pneumonia. Ingestion: Material is a cathartic and can cause serious diarrhea. Nausea and vomiting may also occur and possibly abdominal cramping. Aspiration of mineral oil into the lungs can cause chemical pneumonia. Skin Contact: Prolonged contact may cause irritation; occasionally dermatitis due to hypersensitivity occurs. Eye Contact: Mists or fumes can irritate the eyes. Can cause discomfort similar to motor oil. Chronic Exposure: Prolonged or repeated skin exposure may cause dermatitis. Highly refined mineral oils are not classified as human carcinogens. However, related forms (untreated and mildly-treated oils) are listed as human carcinogens by both N.T.P. and IARC. Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

Naphtha, Coal Tar (3,227) Irritation eyes, skin, nose; lightheadedness, drowsiness; dermatitis; in animals: liver, kidney damage.

Natural Gas (8,040) Light hydrocarbon gases are simple asphyxiants which, at high enough concentrations, can reduce the amount of oxygen available for breathing. Symptoms of overexposure can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting, and are reversible if exposure is stopped. Continued exposure can lead to hypoxia (inadequate oxygen), cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death. High concentrations of carbon dioxide can increase heart rate and blood pressure.

Nitric Acid (1,245) Nitric acid is extremely hazardous; it is corrosive, reactive, an oxidizer, and a poison. Inhalation: Corrosive! Inhalation of vapors can cause breathing difficulties and lead to pneumonia and pulmonary edema, which may be fatal. Other symptoms may include coughing, choking, and irritation of the nose, throat, and respiratory tract. Ingestion: Corrosive! Swallowing nitric acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract. Skin Contact: Corrosive! Can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and stain skin a yellow or yellow-brown color. Eye Contact: Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage. Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties of the acid. Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Nitrogen (4,042) Can cause rapid suffocation when concentrations are sufficient to reduce oxygen levels below 19.5%.

Petroleum White (3,110) Acute: Large doses may produce diarrhea. Chronic: not a hazard.

*Portland Cement** (1,002) Irritation of eyes, skin, nose; dermatitis; cough, expectoration; exertional dyspnea (breathing difficulty), wheezing, chronic bronchitis.

Propane (11,437) Dizziness, confusion, excitation; asphyxia; frostbite (liquid).

Silica, Crystalline (2,620) Cough, dyspnea (breathing difficulty), wheezing; decreased pulmonary function, progressive respiratory symptoms (silicosis); irritation eyes; [Potential occupational carcinogen].

Silicic Acid, Disodium Salt (1,067) A strong alkaline irritant. Inhalation: Can cause severe irritation of mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. High concentrations may cause lung damage. Ingestion: Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting, and diarrhea. Solid sodium silicate: Alkaline corrosive ingestion may produce burns to the lips, tongue, oral mucosa, upper airway, esophagus, and occasionally stomach. Skin Contact: Causes severe irritation. Symptoms include redness, itching, and pain. Dries to form a glass film which can cut skin. Solid sodium silicate: Dermal contact with alkaline corrosives may produce pain, redness, severe irritation or full thickness burns. Eye Contact: Alkaline eye exposures produce severe irritation with effects similar to those of dilute caustics. Inflammation or burns with possible damage to the eye tissues can occur together with tearing and considerable pain. Chronic Exposure: No information found. Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

Sodium Cyanide (1,063) Irritation of eyes, skin; asphyxia; weakness, headache, confusion; nausea, vomiting; increased respiratory rate; slow gasping respiration; thyroid, blood changes.

Sodium Hydroxide (4,567) Irritation eyes, skin, mucous membrane; pneumonitis; eye, skin burns; temporary loss of hair.

Stoddard Solvent (4,307) Irritation eyes, nose, throat; dizziness; dermatitis; chemical pneumonia (aspiration liquid); in animals: kidney damage.

Sulfate (2,025) Not Available.

Sulfuric Acid (4,626) Irritation eyes, skin, nose, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis; dental erosion; tracheobronchitis.

Xylene (2,994) Ingest: practically non-toxic; >2g/kg. Aspiration hazard. Inhale: harmful if inhaled. Eyes: irritant. Skin: practically non-irritating, but may cause defatting.

List of Subjects

30 CFR Part 42

Education, Intergovernmental relations, Mine safety and health.

30 CFR Part 46

Education, Mine safety and health, Reporting and recordkeeping requirements.

30 CFR Part 47

Chemicals, Hazardous substances, Labeling, Mine safety and health, Reporting and recordkeeping requirements.

30 CFR Part 48

Education, Mine safety and health, Reporting and recordkeeping requirements.

30 CFR Part 56

Chemicals, Electric power, Explosives, Fire prevention, Hazardous substances, Metals, Mine safety and health, Noise control, Reporting and recordkeeping requirements.

30 CFR Part 57

Chemicals, Electric power, Explosives, Fire prevention, Gases, Hazardous substances, Metals, Mine safety and health, Noise control, Radiation protection, Reporting and recordkeeping requirements.

30 CFR Part 77

Communications equipment, Electric power, Emergency medical services, Explosives, Fire prevention, Mine safety and health, Reporting and recordkeeping requirements.

Dated: June 14, 2002.

Dave D. Lauriski,

Assistant Secretary for Mine Safety and Health.

For the reasons set out in the preamble, and under the authority of the Federal Mine Safety and Health Act of 1977, we are amending chapter I of title 30 of the Code of Federal Regulations as follows.

PART 46—[AMENDED]

1. The authority citation for part 46 continues to read as follows:

Authority: 30 U.S.C. 811, 825.

2. Paragraph (b)(4) of § 46.5 is revised to read as follows:

§ 46.5 New miner training.

* * * * *

(b) * * *

(4) Instruction on the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program;

* * * * *

3. Paragraph (b)(4) of § 46.6 is revised to read as follows:

§ 46.6 Newly hired experienced miner training.

* * * * *

(b) * * *

(4) Instruction on the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program;

* * * * *

4. Paragraph (a) of § 46.7 is revised to read as follows:

§ 46.7 New task training.

(a) You must provide any miner who is reassigned to a new task in which he or she has no previous work experience with training in the health and safety aspects of the task to be assigned, including the safe work procedures of such task, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. This training must be provided before the miner performs the new task.

* * * * *

5. The second sentence of paragraph (c) of § 46.8 is amended by inserting the phrase ''information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program;'' after the phrase ''including mandatory health and safety standards;''.

PART 47—[REDESIGNATED AS PART 42]

6. The authority for part 47 continues to read as follows:

Authority: 30 U.S.C. 957.

7. Part 47—National Mine Health and Safety Academy is transferred to subchapter G–Filing and Other Administrative Requirements, and redesignated as part 42.

PART 47—[ADDED]

8. Add a new part 47 to subchapter H in chapter I, title 30 of the Code of Federal Regulations to read as follows:

PART 47—HAZARD COMMUNICATION (HazCom)

Sec.

Subpart A—Purpose, Scope, Applicability, and Initial Miner Training

47.1 Purpose of a HazCom standard; applicability.
47.2 Operators and chemicals covered; initial miner training.

Subpart B—Definitions

47.11 Definitions of terms used in this part.

Subpart C—Hazard Determination

47.21 Identifying hazardous chemicals.

Subpart D—HazCom Program

47.31 Requirement for a HazCom program.
47.32 HazCom program contents.

Subpart E—Container Labels and Other Forms of Warning

47.41 Requirement for container labels.
47.42 Label contents.
47.43 Label alternatives.
47.44 Temporary, portable containers.

Subpart F—Material Safety Data Sheets (MSDS)

47.51 Requirement for an MSDS.
47.52 MSDS contents.
47.53 Alternative for hazardous waste.
47.54 Availability of an MSDS.
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Subpart G—Reserved

Subpart H—Making HazCom Information Available

47.71 Access to HazCom materials.
47.72 Cost for copies.
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Subpart I—Trade Secret Hazardous Chemical

47.81 Provisions for withholding trade secrets.
47.82 Disclosure of information to MSHA.
47.83 Disclosure in a medical emergency.
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47.85 Confidentiality agreement and remedies.
47.86 Denial of a written request for disclosure.
47.87 Review of denial.

Subpart J—Exemptions

47.91 Exemptions from the HazCom standard.
47.92 Exemptions from labeling.

Authority: 30 U.S.C. 811, 825.

Subpart A—Purpose, Scope, Applicability, and Initial Miner Training

§ 47.1 Purpose of a HazCom standard; applicability.

The purpose of this part is to reduce injuries and illnesses by ensuring that each operator—

(a) Identifies the chemicals at the mine,

(b) Determines which chemicals are hazardous,

(c) Establishes a HazCom program, and

(d) Informs each miner who can be exposed, and other on-site operators whose miners can be exposed, about chemical hazards and appropriate protective measures.

(e) As of September 23, 2002, all mines employing six or more miners are required to comply with this part.

(f) As of March 21, 2003, all mines employing five or fewer miners are required to comply with this part.

§ 47.2 Operators and chemicals covered; initial miner training.

(a) This part applies to any operator producing or using a hazardous chemical to which a miner can be exposed under normal conditions of use or in a foreseeable emergency. (Subpart

J of this part lists exemptions from coverage.)

(b) Operators of mines which employ six or more miners must instruct each miner with information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program by September 23, 2002. Operators of mines that employ five or fewer miners must instruct each miner with information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program by March 21, 2003.

Subpart B—Definitions

§ 47.11 Definitions of terms used in this part.

The definitions in Table 47.11 apply in this part as follows:

TABLE 47.11—DEFINITIONS

Term	Definition for purposes of HazCom
Access	The right to examine and copy records.
Article	A manufactured item, other than a fluid or particle, that— (1) Is formed to a specific shape or design during manufacture, and (2) Has end-use functions dependent on its shape or design.
Chemical	Any element, chemical compound, or mixture of these.
Chemical name	(1) The scientific designation of a chemical in accordance with the nomenclature system of either the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS), or (2) A name that will clearly identify the chemical for the purpose of conducting a hazard evaluation.
Common name	Any designation or identification (such as a code name, code number, trade name, brand name, or generic name) used to identify a chemical other than by its chemical name.
Consumer product	A product or component of a product that is packaged, labeled, and distributed in the same form and concentration as it is sold for use by the general public.
Container	(1) Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like. (2) The following are not considered to be containers for the purpose of compliance with this part: (i) Pipes or piping systems; (ii) Conveyors; and (iii) Engines, fuel tanks, or other operating systems or parts in a vehicle.
Cosmetics and drugs	(1) Cosmetics are any article applied to the human body for cleansing, beautifying, promoting attractiveness, or altering appearance. (2) Drugs are any article used to affect the structure or any function of the body of humans or other animals.
CPSC	The U.S. Consumer Product Safety Commission.
Designated representative	(1) Any individual or organization to whom a miner gives written authorization to exercise the miner's rights under this part, or (2) A representative of miners under part 40 of this chapter.
EPA	The U.S. Environmental Protection Agency.
Exposed	Subjected, or potentially subjected, to a physical or health hazard in the course of employment. ''Subjected,'' in terms of health hazards, includes any route of entry, such as through the lungs (inhalation), the stomach (ingestion), or the skin (skin absorption).
Foreseeable emergency	Any potential occurrence that could result in an uncontrolled release of a hazardous chemical into the mine.
Hazard warning	Any words, pictures, or symbols, appearing on a label or other form of warning, that convey the specific physical and health hazards of the chemical. (*See* the definitions for *physical hazard* and *health hazard* for examples of the hazards that the warning must convey.)
Hazardous chemical	Any chemical that can present a physical or health hazard.
Hazardous substance	Regulated by CPSC under the Federal Hazardous Substances Act or EPA under the Comprehensive Environmental Response, Compensation, and Liability Act.
Hazardous waste	Chemicals regulated by EPA under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act.
Health hazard	A chemical for which there is statistically significant evidence that it can cause acute or chronic health effects in exposed persons. *Health* hazard includes chemicals which— (1) Cause cancer; (2) Damage the reproductive system or cause birth defects; (3) Are irritants, corrosives, or sensitizers; (4) Damage the liver; (5) Damage the kidneys; (6) Damage the nervous system; (7) Damage the blood or lymphatic systems; (8) Damage the stomach or intestines; (9) Damage the lungs, skin, eyes, or mucous membranes; or (10) Are toxic or highly toxic agents.
Health professional	A physician, physician's assistant, nurse, emergency medical technician, or other person qualified to provide medical or occupational health services.
Identity	A chemical's *common name* or *chemical name.*

TABLE 47.11—DEFINITIONS—Continued

Term	Definition for purposes of HazCom
Label	Any written, printed, or graphic material displayed on or affixed to a container to identify its contents and convey other relevant information.
Material safety data sheet (MSDS)	Written or printed material concerning a hazardous chemical which— (1) An operator prepares in accordance with Table 47.52—Contents of MSDS; or (2) An employer prepares in accordance with 29 CFR 1910.1200, 1915.1200, 1917.28, 1918.90, 1926.59, or 1928.21 (OSHA Hazard Communication regulations); or (3) An independent source prepares which contains equivalent information, such as International Chemical Safety Cards (ICSC) and Workplace Hazardous Material Information Sheets (WHMIS).
Mixture	Any combination of two or more chemicals which is not the result of a chemical reaction.
Ordinary consumer use	Household, family, school, recreation, or other personal use or enjoyment, as opposed to business use.
OSHA	The Occupational Safety and Health Administration, U.S. Department of Labor.
Physical hazard	A chemical for which there is scientifically valid evidence that it is— (1) *Combustible liquid:* (i) A liquid having a flash point at or above 100°F (37.8°C) and below 200°F (93.3°C); or (ii) A liquid mixture having components with flashpoints of 200°F (93.3°C) or higher, the total volume of which make up 99% or more of the mixture. (2) *Compressed gas:* (i) A contained gas or mixture of gases with an absolute pressure exceeding: (A) 40 psi (276 kPa) at 70°F (21.1°C); or (B) 104 psi (717 kPa) at 130°F (54.4°C) regardless of pressure at 70°F. (ii) A liquid having a vapor pressure exceeding 40 psi (276 kPa) at 100°F (37.8°C) as determined by ASTM D–323–82. (3) *Explosive:* A chemical that undergoes a rapid chemical change causing a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature. (4) *Flammable:* A chemical that will readily ignite and, when ignited, will burn persistently at ambient temperature and pressure in the normal concentration of oxygen in the air. (5) *Organic peroxide:* An explosive, shock sensitive, organic compound or an oxide that contains a high proportion of oxygen-superoxide. (6) *Oxidizer:* A chemical, other than an explosive, that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases. (7) *Pyrophoric:* Capable of igniting spontaneously in air at a temperature of 130°F (54.4°C) or below. (8) *Unstable (reactive):* A chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, or temperature. (9) *Water-reactive:* A chemical that reacts with water to release a gas that is either flammable or a health hazard.
Produce	To manufacture, process, formulate, generate, or repackage.
Raw material	Ore, valuable minerals, worthless material or gangue, overburden, or a combination of these, that is removed from natural deposits by mining or is upgraded through milling.
Trade secret	Any confidential formula, pattern, process, device, information, or compilation of information that is used by the operator and that gives the operator an opportunity to obtain an advantage over competitors who do not know about it or use it.
Use	To package, handle, react, or transfer.
Work area	Any place in or about a mine where a miner works.

Subpart C—Hazard Determination

§ 47.21 Identifying hazardous chemicals.

The operator must evaluate each chemical brought on mine property and each chemical produced on mine property to determine if it is hazardous as specified in Table 47.21 as follows:

TABLE 47.21—IDENTIFYING HAZARDOUS CHEMICALS

Category	Basis for determining if a chemical is hazardous
(a) Chemical brought to the mine	The chemical is hazardous when its MSDS or container label indicates it is a physical or health hazard; or the operator may choose to evaluate the chemical using the criteria in paragraphs (b) and (c) of this table.
(b) Chemical produced at the mine	The chemical is hazardous if any one of the following that it is a hazard: (1) Available evidence concerning its physical or health hazards. (2) MSHA standards in 30 CFR chapter I.

TABLE 47.21—IDENTIFYING HAZARDOUS CHEMICALS—Continued

Category	Basis for determining if a chemical is hazardous
	(3) Occupational Safety and Health Administration (OSHA), 29 CFR part 1910, subpart Z, *Toxic and Hazardous Substances.* (4) American Conference of Governmental Industrial Hygienists (ACGIH), *Threshold Limit Values and Biological Exposure Indices* (2001). (5) U.S. Department of Health and Human Services, National Toxicology Program (NTP), *Ninth Annual Report on Carcinogens,* January 2001. (6) International Agency for Research on Cancer (IARC), Monographs and related supplements, Volumes 1 through 77.
(c) Mixture produced at the mine	(1) If a mixture has been tested as a whole to determine its hazards, use the results of that testing. (2) If a mixture has not been tested as a whole to determine its hazards— (i) Use available, scientifically valid evidence to determine its physical hazard potential; (ii) Assume that it presents the same health hazard as a non-carcinogenic component that makes up 1% or more (by weight or volume) of the mixture; and (iii) Assume that it presents a carcinogenic health hazard if a component considered carcinogenic by NTP or IARC makes up 0.1% or more (by weight or volume) of the mixture. (3) If evidence indicates that a component could be released from a mixture in a concentration that could present a health risk to miners, assume that the mixture presents the same hazard.

Subpart D—HazCom Program

§ 47.31 Requirement for a HazCom program.

Each operator must—

(a) Develop and implement a written HazCom program,

(b) Maintain it for as long as a hazardous chemical is known to be at the mine, and

(c) Share relevant HazCom information with other on-site operators whose miners can be affected.

§ 47.32 HazCom program contents.

The HazCom program must include the following:

(a) How this part is put into practice at the mine through the use of—

(1) Hazard determination,

(2) Labels and other forms of warning,

(3) Material safety data sheets (MSDSs), and

(4) Miner training.

(b) A list or other record identifying all hazardous chemicals known to be at the mine. The list must—

(1) Use a chemical identity that permits cross-referencing between the list, a chemical's label, and its MSDS; and

(2) Be compiled for the whole mine or by individual work areas.

(c) At mines with more than one operator, the methods for—

(1) Providing other operators with access to MSDSs, and

(2) Informing other operators about'

(i) Hazardous chemicals to which their miners can be exposed,

(ii) The labeling system on the containers of these chemicals, and

(iii) Appropriate protective measures.

Subpart E—Container Labels and Other Forms of Warning

§ 47.41 Requirement for container labels.

(a) The operator must ensure that each container of a hazardous chemical has a label. If a container is tagged or marked with the appropriate information, it is labeled.

(1) The operator must replace a container label immediately if it is missing or if the hazard information on the label is unreadable.

(2) The operator must not remove or deface existing labels on containers of hazardous chemicals.

(b) For each hazardous chemical produced at the mine, the operator must prepare a container label and update this label with any significant, new information about the chemical's hazards within 3 months of becoming aware of this information.

(c) For each hazardous chemical brought to the mine, the operator must replace an outdated label when a revised label is received from the chemical's manufacturer or supplier. The operator is not responsible for an inaccurate label obtained from the chemical's manufacturer or supplier.

§ 47.42 Label contents.

When an operator must make a label, the label must—

(a) Be prominently displayed, legible, accurate, and in English;

(b) Display appropriate hazard warnings;

(c) Use a chemical identity that permits cross-referencing between the list of hazardous chemicals, a chemical's label, and its MSDS; and

(d) Include the name and address of the operator or another responsible party who can provide additional information about the hazardous chemical.

§ 47.43 Label alternatives.

The operator may use signs, placards, process sheets, batch tickets, operating procedures, or other label alternatives for individual, stationary process containers, provided that the alternative—

(a) Identifies the container to which it applies,

(b) Communicates the same information as required on the label, and

(c) Is readily available throughout each work shift to miners in the work area.

§ 47.44 Temporary, portable containers.

(a) The operator does not have to label a temporary, portable container if he or she ensures that the miner using the portable container—

(1) Knows the identity of the chemical, its hazards, and any protective measures needed, and

(2) Leaves the container empty at the end of the shift.

(b) Otherwise, the operator must mark the temporary, portable container with at least the common name of its contents.

Subpart F—Material Safety Data Sheets (MSDS)

§ 47.51 Requirement for an MSDS.

Operators must have an MSDS for each hazardous chemical which they produce or use. The MSDS may be in any medium, such as paper or electronic, that does not restrict availability.

(a) For each hazardous chemical produced at the mine, the operator must

prepare an MSDS, and update it with significant, new information about the chemical's hazards or protective measures within 3 months of becoming aware of this information.

(b) For each hazardous chemical brought to the mine, the operator must rely on the MSDS received from the chemical manufacturer or supplier, develop their own MSDS, or obtain one from another source.

(c) Although the operator is not responsible for an inaccurate MSDS obtained from the chemical's manufacturer, supplier, or other source, the operator must—

(1) Replace an outdated MSDS upon receipt of an updated revision, and

(2) Obtain an accurate MSDS as soon as possible after becoming aware of an inaccuracy.

(d) The operator is not required to prepare an MSDS for an intermediate chemical or by-product resulting from mining or milling if its hazards are already addressed on the MSDS of the source chemical.

§ 47.52 MSDS contents.

When an operator must prepare an MSDS for a hazardous chemical produced at the mine, the MSDS must—

(a) Be legible, accurate, and in English;

(b) Use a chemical identity that permits cross-referencing between the list of hazardous chemicals, the chemical's label, and its MSDS; and

(c) Contain information, or indicate if no information is available, for the categories listed in Table 47.52 as follows:

TABLE 47.52—CONTENTS OF MSDS

Category	Requirements, descriptions, and exceptions
(1) Identity	The identity of the chemical or, if the chemical is a mixture, the identities of all hazardous ingredients. *See* § 47.21 (Identifying hazardous chemicals).
(2) Properties	The physical and chemical characteristics of the chemical, such as vapor pressure and solubility in water.
(3) Physical	The physical hazards of the chemical including the hazards potential for fire, explosion, and reactivity.
(4) Health hazards	The health hazards of the chemical including— (i) Signs and symptoms of exposure, (ii) Any medical conditions which are generally recognized as being aggravated by exposure to the chemical, and (iii) The primary routes of entry for the chemical, such as lungs, stomach, or skin.
(5) Exposure limits	For the chemical or the ingredients of a mixture—(i) The MSHA or OSHA permissible limit, if there is one, and (ii) Any other exposure limit recommended by the preparer of the MSDS.
(6) Carcinogenicity	Whether the chemical or an ingredient in the mixture is a carcinogen or potential carcinogen. See the sources specified in § 47.21 (Identifying hazardous chemicals).
(7) Safe use	Precautions for safe handling and use including—(i) Appropriate hygienic practices, (ii) Protective measures during repair and maintenance of contaminated equipment, and (iii) Procedures for clean-up of spills and leaks.
(8) Control measures	Generally applicable control measures such as engineering controls, work practices, and personal protective equipment.
(9) Emergency information	(i) Emergency medical and first-aid procedures; and (ii) The name, address, and telephone number of the operator or other responsible party who can provide additional information on the hazardous chemical and appropriate emergency procedures.
(10) Date prepared	The date the MSDS was prepared or last changed.

§ 47.53 Alternative for hazardous waste.

If the mine produces or uses hazardous waste, the operator must provide potentially exposed miners and designated representatives access to available information for the hazardous waste that—

(a) Identifies its hazardous chemical components,

(b) Describes its physical or health hazards, or

(c) Specifies appropriate protective measures.

§ 47.54 Availability of an MSDS.

The operator must make MSDSs accessible to miners during each work shift for each hazardous chemical to which they may be exposed either—

(a) At each work area where the hazardous chemical is produced or used, or

(b) At an alternative location, provided that the MSDS is readily available to miners in an emergency.

§ 47.55 Retaining an MSDS.

The operator must—

(a) Retain its MSDS for as long as the hazardous chemical is known to be at the mine, and

(b) Notify miners at least 3 months before disposing of the MSDS.

Subpart G—Reserved

Subpart H—Making HazCom Information Available

§ 47.71 Access to HazCom materials.

Upon request, the operator must provide access to all HazCom materials required by this part to miners and designated representatives, except as provided in § 47.81 through § 47.87 (provisions for trade secrets).

§ 47.72 Cost for copies.

(a) The operator must provide the first copy and each revision of the HazCom material without cost.

(b) Fees for a subsequent copy of the HazCom material must be non-discriminatory and reasonable.

§ 47.73 Providing labels and MSDSs to customers.

For a hazardous chemical produced at the mine, the operator must provide customers, upon request, with the chemical's label or a copy of the label information, and the chemical's MSDS.

Subpart I—Trade Secret Hazardous Chemical

§ 47.81 Provisions for withholding trade secrets.

(a) Operators may withhold the identity of a trade secret chemical, including the name and other specific identification, from the written list of hazardous chemicals, the label, and the MSDS, provided that the operator—

(1) Can support the claim that the chemical's identity is a trade secret,

(2) Identifies the chemical in a way that it can be referred to without disclosing the secret,

(3) Indicates in the MSDS that the chemical's identity is withheld as a trade secret, and

(4) Discloses in the MSDS information on the properties and effects of the hazardous chemical.

(b) The operator must make the chemical's identity available to miners, designated representatives, and health professionals in accordance with the provisions of this subpart.

(c) This subpart does not require the operator to disclose process or percentage of mixture information, which is a trade secret, under any circumstances.

§ 47.82 Disclosure of information to MSHA.

(a) Even if the operator has a trade secret claim, the operator must disclose to MSHA, upon request, any information which this subpart requires the operator to make available.

(b) The operator must make a trade secret claim, no later than at the time the information is provided to MSHA, so that MSHA can determine the trade secret status and implement the necessary protection.

§ 47.83 Disclosure in a medical emergency.

(a) Upon request and regardless of the existence of a written statement of need or a confidentiality agreement, the operator must immediately disclose the identity of a trade secret chemical to the treating health professional when that person determines that—

(1) A medical emergency exists, and

(2) The identity of the hazardous chemical is necessary for emergency or first-aid treatment.

(b) The operator may require a written statement of need and confidentiality agreement in accordance with the provisions of § 47.84 and § 47.85 as soon as circumstances permit.

§ 47.84 Non-emergency disclosure.

Upon request, the operator must disclose the identity of a trade secret chemical in a non-emergency situation to an exposed miner, the miner's designated representative, or a health professional providing services to the miner, if the following conditions are met.

(a) The request is in writing.

(b) The request describes in reasonable detail an occupational health need for the information, as follows:

(1) To assess the chemical hazards to which the miner will be exposed.

(2) To conduct or assess health sampling to determine the miner's exposure levels.

(3) To conduct reassignment or periodic medical surveillance of the exposed miner.

(4) To provide medical treatment to the exposed miner.

(5) To select or assess appropriate personal protective equipment for the exposed miner.

(6) To design or assess engineering controls or other protective measures for the exposed miner.

(7) To conduct studies to determine the health effects of exposure.

(c) The request explains in detail why the disclosure of the following information would not satisfy the purpose described in paragraph (b) of this section:

(1) The properties and effects of the chemical.

(2) Measures for controlling the miner's exposure to the chemical.

(3) Methods of monitoring and analyzing the miner's exposure to the chemical.

(4) Methods of diagnosing and treating harmful exposures to the chemical.

(d) The request describes the procedures to be used to maintain the confidentiality of the disclosed information.

(e) The person making the request enters a written confidentiality agreement that he or she will not use the information for any purpose other than the health needs asserted and agrees not to release the information under any circumstances, except as authorized by § 47.85, by the terms of the agreement, or by the operator.

§ 47.85 Confidentiality agreement and remedies.

(a) The confidentiality agreement authorized by § 47.84—

(1) May restrict the use of the trade secret chemical identity to the health purposes indicated in the written statement of need;

(2) May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages;

(3) Must allow the exposed miner, the miner's designated representative, or the health professional to disclose the trade secret chemical identity to MSHA;

(4) May provide that the exposed miner, the miner's designated representative, or the health professional inform the operator who provided the trade secret chemical identity prior to or at the same time as its disclosure to MSHA; and

(5) May not include requirements for the posting of a penalty bond.

(b) Nothing in this subpart precludes the parties from pursuing non-contractual remedies to the extent permitted by law.

§ 47.86 Denial of a written request for disclosure.

To deny a written request for disclosure of the identity of a trade secret chemical, the operator must—

(a) Put the denial in writing,

(1) Including evidence to substantiate the claim that the chemical's identity is a trade secret,

(2) Stating the specific reasons why the request is being denied, and

(3) Explaining how alternative information will satisfy the specific medical or occupational health need without revealing the chemical's identity.

(b) Provide the denial to the health professional, miner, or designated representative within 30 days of the request.

§ 47.87 Review of denial.

(a) The health professional, miner, or designated representative may refer the written denial to MSHA for review. The request for review must include a copy of—

(1) The request for disclosure of the identity of the trade secret chemical,

(2) The confidentiality agreement, and

(3) The operator's written denial.

(b) If MSHA determines that the identity of the trade secret chemical should have been disclosed, the operator will be subject to citation by MSHA.

(c) If MSHA determines that the confidentiality agreement would not sufficiently protect against unauthorized disclosure of the trade secret, MSHA may impose additional conditions to ensure that the occupational health services are provided without an undue risk of harm to the operator.

(d) If the operator contests a citation for a failure to release the identity of a trade secret chemical, the matter will be adjudicated by the Federal Mine Safety and Health Review Commission. The Administrative Law Judge may review the citation and supporting documentation ''in camera'' or issue appropriate orders to protect the trade secret.

Subpart J—Exemptions

§ 47.91 Exemptions from the HazCom standard.

A hazardous chemical is exempt from this part under the conditions described in Table 47.91 as follows:

TABLE 47.91.—CHEMICALS AND PRODUCTS EXEMPT FROM THIS HAZCOM STANDARD

Exemption	Conditions for exemption
Article	If, under normal conditions of use, it— (1) Releases no more than insignificant amounts of a hazardous chemical, and (2) Poses no physical or health risk to exposed miners.
Biological hazards	All biological hazards, such as poisonous plants, insects, and micro-organisms.
Consumer product or hazardous substance regulated by CPSC.	(1) If the miner uses it for the purpose the manufacturer intended; and (2) Such use does not expose the miner more often and for longer periods than *ordinary consumer use.*
Cosmetics, drugs, food, food additive, color additive, drinks, alcoholic beverages, tobacco and tobacco products, or medical or veterinary device or product, including materials intended for use as ingredients in such products (such as flavors and fragrances).	When intended for personal consumption or use.
Radiation	All ionizing or non-ionizing radiation, such as alpha or gamma, microwaves, or x-rays.
Wood or wood products, including lumber	If they do not release or otherwise result in exposure to a hazardous chemical under normal conditions of use. For example, wood is not exempt if it is treated with a hazardous chemical or if it will be subsequently cut or sanded.

§ 47.92 Exemptions from labeling.

A hazardous chemical is exempt from subpart E of this part under the conditions described in Table 47.92 as follows:

TABLE 47.92—HAZARDOUS CHEMICALS EXEMPT FROM LABELING

Exemption	Conditions for exemption
Chemical substance, consumer product, hazardous substance, or presticide.	When kept in its manufacturer's or supplier's original packaging labeled under other federal labeling requirements.
Hazardous substance	When the subject of remedial or removal action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) in accordance with EPA regulations.
Hazardous waste	When regulated by EPA under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act.
Raw material being mined or processed	While on mine property, except when the container holds a mixture of the raw material and another hazardous chemical and the mixture is found to be hazardous under § 47.21, Identifying hazardous chemicals.
Wood or wood products, including lumber	Wood or wood products are always exempt from labeling.

PART 48—[AMENDED]

9. The authority citation for part 48 continues to read as follows:

Authority: 30 U.S.C. 811, 825.

10. Paragraph (b)(13) of § 48.5 is revised to read as follows:

§ 48.5 Training of new miners; minimum courses of instruction; hours of instruction.

* * * * *

(b) * * *

(13) *Health and safety aspects of the tasks to which the new miner will be assigned.* The course shall include instruction in the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

* * * * *

11. Paragraph (b)(11) of § 48.6 is revised to read as follows:

§ 48.6 Experienced miner training.

* * * * *

(b) * * *

(11) *Health and safety aspects of the tasks to which the experienced miner is assigned.* The course must include instruction in the health and safety aspects of the tasks assigned, including the safe work procedures of such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. Experienced miners who must complete new task training under § 48.7 do not need to take training under this paragraph.

* * * * *

12. Paragraphs (a)(1) and (c) of § 48.7 are revised to read as follows:

§ 48.7 Training of miners assigned to a task in which they have had no previous experience; minimum courses of instruction.

(a) * * *

(1) *Health and safety aspects and safe operating procedures for work tasks, equipment, and machinery.* The training shall include instruction in the health and safety aspects and the safe operating procedures related to the assigned tasks, including information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. The training shall be given in an on-the-job environment; and

* * * * *

(c) Miners assigned a new task not covered in paragraph (a) of this section shall be instructed in the safety and health aspects and safe work procedures of the task, including information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take

against these hazards, and the contents of the mine's HazCom program, prior to performing such task.

* * * * *

13. Paragraphs (c) and (d) of § 48.8 are redesignated as paragraphs (d) and (e) respectively, and new paragraph (c) is added to read as follows:

§ 48.8 Annual refresher training of miners; minimum courses of instruction; hours of instruction.

* * * * *

(c) Refresher training may include other health and safety subjects that are relevant to mining operations at the mine. Recommended subjects include, but are not limited to, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

* * * * *

14. Paragraph (b)(12) of § 48.25 is revised to read as follows:

§ 48.25 Training of new miners; minimum courses of instruction; hours of instruction.

* * * * *

(b) * * *

(12) *Health and safety aspects of the tasks to which the new miner will be assigned.* The course shall include instructions in the health and safety aspects of the tasks to be assigned, including the safe work procedures of such tasks, the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

* * * * *

15. Paragraph (b)(11) of § 48.26 is revised to read as follows:

§ 48.26 Experienced miner training.

* * * * *

(b) * * *

(11) *Health and safety aspects of the tasks to which the experienced miner is assigned.* The course must include instruction in the health and safety aspects of the tasks assigned, including the safe work procedures of such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. Experienced miners who must complete new task training under § 48.27 do not need to take training under this paragraph.

* * * * *

16. Paragraphs (a)(1) and (c) of § 48.27 are revised to read as follows:

§ 48.27 Training of miners assigned to a task in which they have had no previous experience; minimum courses of instruction.

(a) * * *

(1) *Health and safety aspects and safe operating procedures for work tasks, equipment, and machinery.* The training shall include instruction in the health and safety aspects and safe operating procedures related to the assigned task, including information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program. The training shall be given in an on-the-job environment; and

* * * * *

(c) Miners assigned a new task not covered in paragraph (a) of this section shall be instructed in the safety and health aspects and safe work procedures of the task, including information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program, prior to performing such task.

* * * * *

17. Paragraphs (c) and (d) of § 48.28 are redesignated as paragraphs (d) and (e) respectively, and new paragraph (c) is added to read as follows:

§ 48.28 Annual refresher training of miners; minimum courses of instruction; hours of instruction.

* * * * *

(c) Refresher training may include other health and safety subjects that are relevant to mining operations at the mine. Recommended subjects include, but are not limited to, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

* * * * *

PART 56—[AMENDED]

18. The authority citation for part 56 continues to read as follows:

Authority: 30 U.S.C. 811.

19. Section 56.16004 is revised to read as follows:

§ 56.16004 Containers for hazardous materials.

Containers holding hazardous materials must be of a type approved for such use by recognized agencies.

§ 56.20012 [Removed]

20. Section 56.20012 is removed.

PART 57—[AMENDED]

21. The authority citation for part 57 continues to read as follows:

Authority: 30 U.S.C. 811.

22. Section 57.16004 is revised to read as follows:

§ 57.16004 Containers for hazardous materials.

Containers holding hazardous materials must be of a type approved for such use by recognized agencies.

23. Section 57.20012 is removed.

PART 77—[AMENDED]

24. The authority citation for part 77 continues to read as follows:

Authority: 30 U.S.C. 811.

25. Paragraph (c) of § 77.208 is revised to read as follows:

§ 77.208 Storage of materials.

* * * * *

(c) Containers holding hazardous materials must be of a type approved for such use by recognized agencies.

* * * * *

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