

(b) Welding and cutting shall not be done within 50 feet of a mine opening unless all persons are out of the mine and the mine opening is covered. The cover shall be a substantial material, such as metal or wood, topped with a layer of wetted material to prevent sparks and flames from entering the mine opening.

**§ 57.22105 Smoking and open flames (IV mines).**

Smoking or open flames shall not be permitted in a face or raise, or during release of gas from a borehole until tests have been conducted in accordance with § 57.22226 and the methane level has been determined to be below 0.5 percent.

**§ 57.22106 Dust containing volatile matter (I-C mines).**

Dust containing volatile matter shall not be allowed to accumulate on the surfaces of enclosures, facilities, or equipment used in surface milling in amounts that, if suspended in air, would become an explosive mixture. An explosive mixture of dust containing volatile matter is 0.02 ounce or more per cubic foot of air.

VENTILATION

**§ 57.22201 Mechanical ventilation (I-A, I-B, I-C, II-A, II-B, III, IV, V-A, and V-B mines).**

All mines shall be ventilated mechanically.

**§ 57.22202 Main fans (I-A, I-B, I-C, II-A, III, V-A, and V-B mines).**

(a) Main fans shall be—

(1) Installed on the surface in noncombustible housings provided with noncombustible air ducts;

(2) Except in Subcategory I-A mines, provided with an automatic signal device to give an alarm when the fan stops. The signal device shall be located so that it can be seen or heard by a person designated by the mine operator.

(b) Fan installations shall be—

(1) Offset so that the fan and its associated components are not in direct line with possible explosive forces;

(2) Equipped with explosion-doors, a weak-wall, or other equivalent devices located to relieve the pressure that

would be created by an explosion underground. The area of the doors or weak-wall shall be at least equivalent to the average cross-sectional area of the airway.

(c) (1) All main fan-related electrical equipment and cables located within or exposed to the forward or reverse airstream shall be approved by MSHA under the applicable requirements of 30 CFR part 18;

(2) Drive belts and nonmetallic fan blades shall be constructed of static-conducting material; and

(3) Aluminum alloy fan blades shall not contain more than 0.5 percent magnesium. [Paragraph (c)(3) of this section does not apply to Subcategory I-C mines].

(d) When an internal combustion engine is used to power a main fan or as standby power, the engine shall be—

(1) Installed in a noncombustible housing;

(2) Protected from a possible fuel supply fire or explosion; and

(3) Located out of direct line with the forward and reverse airstream provided by the fan. Engine exhaust gases shall be vented to the atmosphere so that exhaust cannot contaminate mine intake air.

(e) For Subcategory I-A mines only: Main exhaust fans shall be equipped with methane monitors to give an alarm when methane in the return air reaches 0.5 percent. The alarm shall be located so that it can be seen or heard by a person designated by the mine operator.

[52 FR 24941, July 1, 1987, as amended at 52 FR 41397, Oct. 27, 1987]

**§ 57.22203 Main fan operation (I-C mines).**

Main fans shall be operated continuously while ore production is in progress.

**§ 57.22204 Main fan operation and inspection (I-A, II-A, III, and V-A mines).**

Main fans shall be—

(a) Provided with a pressure-recording system; and

(b) Inspected daily while operating if persons are underground. Certification

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of inspections shall be made by signature and date. Certifications and pressure recordings shall be retained for at least one year and made available to an authorized representative of the Secretary.

[52 FR 24941, July 1, 1987, as amended at 52 FR 41397, Oct. 27, 1987; 60 FR 33722, June 29, 1995]

### **§ 57.22205 Doors on main fans (I-A, II-A, III, and V-A mines).**

In mines ventilated by multiple main fans, each main fan installation shall be equipped with noncombustible doors. Such doors shall automatically close to prevent air reversal through the fan. The doors shall be located so that they are not in direct line with explosive forces which could come out of the mine.

### **§ 57.22206 Main ventilation failure (I-A, II-A, III, and V-A mines).**

(a) When there has been a main ventilation failure, such as stoppage of main fans or failure of other components of the main ventilation system, tests for methane shall be conducted in affected active workings until normal air flow has resumed.

(b) If a total failure of ventilation occurs while all persons are out of the mine and the failure lasts for more than 30 minutes, only competent persons shall be allowed underground to examine the mine or to make necessary ventilation changes. Other persons may reenter the mine after the main fans have been operational for at least 30 minutes, or after the mine atmosphere has been tested and contains less than 1.0 percent methane. Persons other than examiners shall not reenter a Subcategory II-A mine until the methane level is less than 0.5 percent.

### **§ 57.22207 Booster fans (I-A, II-A, III, and V-A mines).**

(a) Booster fans shall be approved by MSHA under the applicable requirements of 30 CFR part 18, and be—

(1) Provided with an automatic signal device located so that it can be seen or heard by a person designated by the mine operator to give an alarm when the fan stops or when methane reaches the following levels:

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(i) 1.0 percent at the fan in Subcategory I-A, Category III, and Subcategory V-A mines; and

(ii) 0.5 percent at the fan in Subcategory II-A mines.

(2) Equipped with a device that automatically deenergizes power in affected workings should the fan stop; and

(3) Equipped with starting and stopping controls located at the fan and at another accessible remote location.

(b) Booster fan installations, except for booster fans installed in ducts, shall be—

(1) Provided with doors which open automatically when all fans in the installation stop; and

(2) Provided with an air lock when passage through the fan bulkhead is necessary.

### **§ 57.22208 Auxiliary fans (I-A, II-A, III, and V-A mines).**

(a) Auxiliary fans, except fans used in shops and other areas which have been so designed that methane cannot enter the airway, shall be approved by MSHA under the applicable requirements of 30 CFR part 18, and be operated so that recirculation is minimized. Auxiliary fans shall not be used to ventilate work places during the interruption of normal mine ventilation.

(b) Tests for methane shall be made at auxiliary fans before they are started.

### **§ 57.22209 Auxiliary fans (I-C mines).**

Electric auxiliary fans shall be approved by MSHA under the applicable requirements of 30 CFR part 18. Tests for methane shall be made at electric auxiliary fans before they are started. Such fans shall not be operated when air passing over or through them contains 0.5 percent or more methane.

### **§ 57.22210 In-line filters (I-C mines).**

Filters or separators shall be installed on air-lift fan systems to prevent explosive concentrations of dust from passing through the fan.

### **§ 57.22211 Air flow (I-A mines).**

The average air velocity in the last open crosscut in pairs or sets of developing entries, or through other ventilation openings nearest the face, shall be