

Mine Safety and Health Admin., Labor

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§ 22.0 Compliance with the requirements necessary for obtaining approval.

To receive approval of MSHA for any portable methane detectors a manufacturer must comply with the requirements specified in this part.

§ 22.1 Purpose.

(a) The purpose of investigations under this part is to provide portable methane detectors that may be safely used in mines. Lists of such detectors will be published from time to time in order that State mine-inspection departments, compensation bureaus, mine operators, miners, and others interested in safe equipment for mines may have information in regard to permissible methane detectors. This part supersedes Schedule 8B, issued under date of November 17, 1926, and goes into effect October 31, 1935.

(b) Any methane detector that meets the requirements set forth in this part will be termed permissible by MSHA and if actively marketed will be listed as such in publications relating to permissible mining equipment.

§ 22.2 Definitions.

(a) *Methane detector.* A methane detector is a device that may be used to detect the presence of methane in a gassy mine.

(b) *Methane-indicating detector.* A methane-indicating detector is a device that will show, within certain limits of error, on an adequate scale, the percentage of methane in a gassy atmosphere.

(c) *Permissible.* Completely assembled and conforming in every respect with the design formally approved by MSHA under this part. (Approvals under this part are given only to equipment for use in gassy and dusty mines.)

[Sched. 8C, Oct. 31, 1955, as amended by Supp. 1, 20 FR 2575, Apr. 19, 1955]

§ 22.3 [Reserved]

§ 22.4 Applications.

Before MSHA will undertake the active investigation leading to approval of any methane detector, the manufacturer shall make application by letter for an investigation leading to approval of his detector. This application,

in duplicate, accompanied by a check, bank draft, or money order, payable to the U.S. Mine Safety and Health Administration, to cover all the necessary fees, shall be sent to Approval and Certification Center, RR 1, Box 251, Industrial Park Road, Triadelphia, WV 26059, together with the required drawings, one complete detector, and instructions for its operation.

[Supp. 1, 20 FR 2575, Apr. 19, 1955, as amended at 43 FR 12315, Mar. 24, 1978; 60 FR 35694, July 11, 1995]

§ 22.5 Conditions governing investigations.

(a) One complete detector, with assembly and detail drawings that show the construction of the device and the materials of which it is made, should be forwarded prepaid to Approval and Certification Center, RR 1, Box 251, Industrial Park Road, Triadelphia, WV 26059, at the time the application for tests is made.

(b) When this has been inspected by MSHA, the applicant will be notified as to the amount of material that will be required for the tests. The manufacturer will be notified of the date on which the tests will be started and will be given an opportunity to witness the tests.

(c) *Observers at formal investigations and demonstrations.* No one shall be present during any part of the formal investigation conducted by MSHA which leads to approval for permissibility except the necessary Government personnel, representatives of the applicant, and such other persons as may be mutually agreed upon by the applicant and MSHA. Upon granting approval for permissibility, MSHA will announce that such approval has been granted to the device and may thereafter conduct, from time to time in its discretion, public demonstrations of the tests conducted on the approved device. Those who attend any part of the investigation, or any public demonstration, shall be present solely as observers; the conduct of the investigation and of any public demonstration shall be controlled by MSHA. Results of chemical analyses of material and all information contained in the drawings, specifications, and instructions shall

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be deemed confidential and their disclosure will be appropriately safeguarded by MSHA.

[Sched. 8C, Oct. 31, 1935, as amended by Supp. 1, 20 FR 2575, Apr. 19, 1955; 43 FR 12315, Mar. 24, 1978; 60 FR 35694, July 11, 1995]

§ 22.6 General requirements.

Methane detectors approved under this part shall be portable. They shall be durable in construction, practical in operation, and suitable for service conditions underground. They shall offer no probable explosion hazard if used in gaseous mine atmospheres nor any bodily hazard, such as spilling of battery electrolyte. They shall exhibit under laboratory test conditions various requirements of minimum performance that are specified in this part.

§ 22.7 Specific requirements.

(a) *Design.* In the determination of adequacy of design, the following points will be considered: (1) Materials used, (2) construction, (3) accuracy, (4) size and shape, (5) range of detection (or indication), (6) life of the active parts, and (7) attention required. The suitability of the materials and the construction shall be determined by preliminary inspection, by dropping tests, by laboratory and field tests in gas and air mixtures, and by the general behavior of the equipment during the investigation.

(b) *Safety against explosion hazard—(1) Detectors.* Detectors shall be constructed so that they will not cause external ignitions when used in gaseous mine atmospheres.

(2) *Seals or locks.* All parts through which external ignitions might result shall be covered and protected adequately. All covers shall be sealed adequately or equipped with magnetic or other equally reliable locks to prevent their being opened by unauthorized persons.

(3) *Glasses.* Glasses or glass windows shall be of good-quality glass and protected adequately against breakage. Unguarded windows may be considered adequate in this respect, provided they are of small diameter and are of reasonably thick glass.

(4) *Battery.* If the detector is equipped with a battery, it shall be of such design that it will not produce sparks

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that will ignite an explosive mixture of methane and air.

(5) *Detectors of the flame type.* Methane detectors of the flame type shall be subject to the requirements of the flame-lamp schedule then in force.

(c) *Safety against bodily hazard.* Bodily hazard with battery-type detectors is due chiefly to possible burning of the user by electrolyte that has spilled from the battery. MSHA, therefore, requires that:

(1) *Spilling of electrolyte.* The battery shall be so designed and constructed that when properly filled it will not spill electrolyte under actual service conditions.

(2) *Corrosion of battery container.* The material of which the container is made shall resist corrosion under conditions of use.

(d) *Performance.* In addition to the general design and safety features, MSHA considers that permissible types of methane detectors should meet certain minimum requirements with respect to their performance, as follows:

(1) *Detectors.* (i) When the detector is operated according to the manufacturer's instructions, it shall be possible to detect at least 1 percent methane in air, and increasing percentages up to 5 percent shall be shown by continuously increasing evidence.

(ii) The average number of determinations that may be made in approximately 2-percent methane mixtures without recharging a battery or replacing a chemical accessory shall not be less than 25, and the average number of such determinations that may be made without replacing any other part shall be not less than 100.

(2) *Indicating detectors.* Indicating detectors shall give indications of as low as 0.25 percent methane. Detectors having an upper scale limit of 2 percent may be approved, but it is recommended that the detector be designed to give indications of as high as 4 percent methane. The indications for these percentages shall be within the limits of error specified in the following table: