§ 19.12 Wording, purpose, and use of approval plate.

(a) *Approval plate.* The manufacturer shall attach, stamp, or mold an approval plate on the battery container of each permissible lamp. The plate shall bear the emblem of the Mine Safety and Health Administration and be inscribed as follows: ''Permissible Electric Cap Lamp. Approval No. _____ issued to the _____ Company.'' When deemed necessary, an appropriate caution statement shall be added. The size and position of the approval plate shall be satisfactory to MSHA.

(b) *Purpose of approval plate.* The approval plate is a label which identifies the lamp so that anyone can tell at a glance whether or not the lamp is of the permissible type. By it, the manufacturer can point out that his lamp complies with specifications of MSHA and that it has been judged as suitable for use in gassy mines.

(c) *Use of approval plate.* Permission to place MSHA's approval plate on his lamp obligates the manufacturer to maintain the quality of his product and to see that each lamp is constructed according to the drawings which have been accepted by MSHA for this lamp and which are in MSHA's files. Lamps exhibiting changes in design which have not been approved are not permissible lamps and must not bear MSHA's approval plate.

(d) *Withdrawal of approval.* MSHA reserves the right to rescind, for cause, at any time any approval granted under this part.

[Sched. 6D, 4 FR 4003, Sept. 21, 1939, as amended at 43 FR 12314, Mar. 24, 1978]

§ 19.13 Instructions for handling future changes in lamp design.

All approvals are granted with the understanding that the manufacturer will make his lamp according to the drawings which he has submitted to MSHA and which have been considered and included in the approval. Therefore, when he desires to make any change in the design of the lamp, he should first of all obtain MSHA's approval of the change. The procedure is as follows:

(a)(1) The manufacturer shall write to the U.S. Department of Labor, Mine Safety and Health Administration, Approval and Certification Center, 765 Technology Drive, Triadelphia, WV 26059, requesting an extension of the original approval and stating the change or changes desired. With this letter the manufacturer should submit a revised drawing or drawings showing the changes in detail, and one of each of the changed lamp parts.

(2) Where the applicant for approval has used an independent laboratory under part 6 of this chapter to perform, in whole or in part, the necessary testing and evaluation for approval of changes to an approved product under this part, the applicant must provide to MSHA as part of the approval application:

(i) Written evidence of the laboratory's independence and current recognition by a laboratory accrediting organization;

(ii) Complete technical explanation of how the product complies with each requirement in the applicable MSHA product approval requirements;

(iii) Identification of components or features of the product that are critical to the safety of the product; and

(iv) All documentation, including drawings and specifications, as submitted to the independent laboratory by the applicant and as required by this part.

(b) MSHA will consider the application and inspect the drawings and parts to determine whether it will be necessary to make any tests.

(c) If no tests are necessary, the applicant will be advised of the approval or disapproval of the change by letter from MSHA.

(d) If tests are judged necessary, the applicant will be advised of the material that will be required.

[Sched. 6D, 4 FR 4003, Sept. 21, 1939, as amended by Supp. 1, 20 FR 2718, Apr. 23, 1955; 43 FR 12314, Mar. 24, 1978; 52 FR 17514, May 8, 1987; 60 FR 35693, July 11, 1995; 68 FR 36419, June 17, 2003; 73 FR 52211, Sept. 9, 2008]

PART 20—ELECTRIC MINE LAMPS OTHER THAN STANDARD CAP LAMPS

Sec.

20.0 Compliance with the requirements necessary for obtaining approval.

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20.13 Approval plate.
20.14 Instructions for handling future changes in lamp design.

AUTHORITY: 30 U.S.C. 957, 961.

SOURCE: Schedule 10C, May 17, 1938, as amended at 5 FR 3467, Aug. 30, 1940, unless otherwise noted.

§ 20.0 Compliance with the requirements necessary for obtaining approval.

To receive approval of MSHA for any electric mine lamps other than standard cap lamps a manufacturer must comply with the requirements specified in this part.

§ 20.1 Purpose.

(a) The purpose of the investigations made under this part is to aid in the development and use of electric lamps, other than standard cap lamps, that may be used in mines, especially in mines that may contain dangerous proportions of methane.

(b) This part supersedes Schedule 10B, issued under date of June 1, 1932, and Schedule 11A, issued under date of January 13, 1936, and goes into effect May 17, 1938.

(c)(1) Electric lamps and flashlights that meet 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 equipment, in order that State mine inspection departments, compensation bureaus, mine operators, miners, and others interested in safety equipment for mines may have information in regard to electric lamps and flashlights approved by MSHA.

(2) MSHA May approve electric lamps and flashlights that incorporate technology for which the requirements of this part are not applicable if MSHA determines by testing that the electric lamps or flashlights are as safe as those which meet the requirements of this part.

[Sched. 10C, May 17, 1938, as amended at 5 FR 3467, Aug. 30, 1940; 54 FR 30513, July 20, 1989]

§ 20.2 Definitions.

(a) *Adequate.* Appropriate and sufficient as determined by mutual agreement between the manufacturer and MSHA.

(b) *Approval.* Official notification in writing from MSHA to a responsible organization, stating that upon investigation its lamp has been adjudged satisfactory under the requirements of this part.

(c) *Explosion-proof compartment.* An enclosure that withstands internal explosions of methane-air mixtures without damage to itself or discharge of flame and without ignition of surrounding explosive methane-air mixtures.

(d) *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. 10C, May 17, 1938, as amended by Supp. 1, 20 FR 2718, Apr. 23, 1955]

§ 20.3 Application procedures and requirements.

(a) Before MSHA will undertake the active investigation of any lamp, the applicant shall make application by letter for an investigation of the lamp. This application shall be sent to: U.S. Department of Labor, Mine Safety and Health Administration, Approval and Certification Center, 765 Technology Drive, Triadelphia, WV 26059, together with the required drawings, one complete lamp, and instructions for its operation. Fees calculated in accordance with part 5 of this title shall be submitted in accordance with § 5.40.

(b) Where the applicant for approval has used an independent laboratory under part 6 of this chapter to perform, in whole or in part, the necessary testing and evaluation for approval under this part, the applicant must provide to MSHA as part of the approval application:

(1) Written evidence of the laboratory's independence and current recognition by a laboratory accrediting organization;

(2) Complete technical explanation of how the product complies with each requirement in the applicable MSHA product approval requirements;

(3) Identification of components or features of the product that are critical to the safety of the product; and

(4) All documentation, including drawings and specifications, as submitted to the independent laboratory by the applicant and as required under this part.

(c) An applicant may request testing and evaluation to non-MSHA product safety standards which have been determined by MSHA to be equivalent, under § 6.20 of this chapter, to MSHA's product approval requirements under this part.

[68 FR 36420, June 17, 2003, as amended at 70 FR 46343, Aug. 9, 2005; 73 FR 52211, Sept. 9, 2008]

§ 20.4 [Reserved]

§ 20.5 Conditions governing investigations.

(a) One complete lamp, with assembly and detail drawings that show the construction of the lamp and the materials of which it is made, should be submitted at the time the application for investigation is made. This material should be sent prepaid to the U.S. Department of Labor, Mine Safety and Health Administration, Approval and Certification Center, 765 Technology Drive, Triadelphia, WV 26059.

(b) When the lamp has been inspected by MSHA, the applicant will be notified as to the amount of material that will be required for the test. He will also be notified of the date on which the tests will start 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 of material and all information contained in the drawings, specifications, and instructions shall be deemed confidential and their disclosure will be appropriately safeguarded by MSHA.

(d) Permissibility tests will not be made unless the lamp is complete and in a form that can be marketed.

(e) The results of the tests shall be regarded as confidential by all present at the tests and shall not be made public in any way prior to the formal approval of the lamp by MSHA.

(f) No verbal report of approval or disapproval will be made to the applicant. Approval will be made only in writing by MSHA. The applicant shall not be free to advertise the lamp as being permissible, or as having passed the tests, prior to receipt of formal notice of approval.

[Sched. 10C, May 17, 1938, as amended by Supp. 1, 20 FR 2719, Apr. 23, 1955; 43 FR 12314, Mar. 24, 1978; 60 FR 35693, July 11, 1995; 73 FR 52212, Sept. 9, 2008]

§ 20.6 General requirements.

(a) The lamps shall be durable in construction, practical in operation, and suitable for the service for which they are designed and approved.

(b) The intensity of light, distribution of light, and battery capacity shall be adequate for the use for which the lamp is intended.

(c) Battery terminals and leads therefrom, as well as the battery gas vents, shall be designed to minimize corrosion of the electrical contacts.

(d) Bulbs and other replacement parts of the lamps shall be adequately marked as a means of identification.

§ 20.7 Specific requirements.

Two general classes of electric lamps are recognized in these requirements, namely: Class 1, those that are self-contained and easily carried by hand, and class 2, those that may or may not be self-contained and not so readily portable as the first class.

(a) *Class 1.* Class 1 includes hand lamps, signal lamps, inspection lamps, flashlights, and animal lamps which are operated by small storage batteries or dry cells.

(b) *Class 2.* Class 2 includes lamps such as the pneumatic-electric types and large battery lamps.

§ 20.8 Class 1 lamps.

(a) *Protection against explosion hazards.* Unless properly designed, class 1 lamps present two sources of probable explosion hazards: Ignition of an explosive atmosphere by the heated filament of the bulb in case the bulb glass is accidentally broken, and ignition by electric sparks or arcs from the battery or connections thereto. MSHA's therefore, requires the following safeguards:

(1) *Safety device or design.* The lighting unit shall have a safety device to prevent the ignition of explosive mixtures of methane and air if the bulb glass surrounding the filament is broken. Alternatively, if the lamp is designed and constructed of materials that will prevent the ignition of explosive mixtures of methane and air by protecting the bulb from breakage and preventing exposure of the hot filament, no separate safety device is required. Alternative designs will be evaluated by mechanical impact tests, temperature tests and thermal shock tests to determine that the protection provided is no less effective than a safety device.

(2) *Safety device (protection).* The design of the safety device and the housing which protects it shall be such that the action of the safety device is positive; yet the lamp shall not be too readily extinguished during normal service by the unnecessary operation of the device.

(3) *Locks or seals.* For lamps other than flashlights, all parts, such as bulb housing and battery container, through which access may be had to live terminals or contacts shall be adequately sealed or equipped with magnetic or other equally reliable locks to prevent opening by unauthorized persons. For flashlights, provision shall be made for sealing the battery container.

(4) *Battery current restricted.* Unless all current-carrying parts including conductors, are adequately covered and protected by the sealed or locked compartments, the maximum possible current flow through that part shall be limited by battery design, or by an enclosed-type fuse inside the sealed or locked container, to values that will not produce sparks or arcs sufficient to ignite an explosive mixture of methane and air.

(b) *Protection against bodily hazard.* This hazard is chiefly due to the possible burning of the user by electrolyte spilled from the battery. MSHA, therefore, requires that:

(1) *Spilling of electrolyte.* The lamp shall be so designed and constructed that when properly filled the battery will neither leak nor spill electrolyte under conditions of normal use. Lamps passing a laboratory spilling test will be considered satisfactory in this respect, contingent upon satisfactory performance in service.

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

[Sched. 10C, May 17, 1938, as amended at 5 FR 3467, Aug. 30, 1940; 54 FR 30513, July 20, 1989]

§ 20.9 Class 2 lamps.

(a) *Safety.* (1) Unless special features of the lamp prevent ignition of explosive mixtures of methane and air by the broken bulb or other igniting sources within the lamp, the bulb and all spark-producing parts must be enclosed in explosion-proof compartments.

(2) Explosion-proof compartments will be tested while filled and surrounded with explosive mixtures of Pittsburgh natural gas[1] and air. A sufficient number of tests of each compartment will be made to prove that there is no danger of ignition of the

[1] Investigation has shown that for practical purposes Pittsburgh natural gas (containing a high percentage of methane) is a satisfactory substitute for pure methane.

mixture surrounding the lamp by explosions within the compartment. The lamp will not pass the above tests, even though the surrounding explosive mixtures are not ignited, if external flame is observed, if excessive pressures are developed, or if excessive distortion of any part of the compartment takes place.

(3) Glass-enclosed parts of such compartments must be guarded and be of extra-heavy glass to withstand pick blows, and be adequately protected by shrouds or by an automatic cut-out that opens the lamp circuit if the enclosure is broken.

(4) When an explosion-proof enclosure consists of two or more parts that are held together securely by bolts or some suitable means to permit assembly, the flanges comprising the joints between parts shall have surfaces with metal-to-metal contact, except enclosures requiring glass, in which case glass-to-metal joints are permitted. Gaskets, if adequate, may be used to obtain a firm seat for the glass but not elsewhere. Rubber, putty, and plaster of paris are not acceptable as material for gaskets. For enclosures having an unoccupied volume (air space) of more than 60 cubic inches the width of the joint measured along the shortest flame path from the inside to the outside of the enclosure shall not be less than 1 inch. When the unoccupied volume (air space) is less than 60 cubic inches, this path shall not be less than three-fourths inch.

(b) *Locks and seals* (*lighting attachment*). Explosion-proof compartments shall be equipped with seals or locks that prevent unauthorized and unsafe opening of the compartments in a mine.

(c) *Locks or seals* (*battery*). The battery shall be enclosed in a locked or sealed container that will prevent exposure of live terminals.

(d) *Temperature of lamp.* The temperature of the lamp under conditions of use shall not be such that a person may be burned in handling it.

(e) *Cable and connection.* (1) The cable or cord connecting the lamp to its battery shall be of high-grade design and materials, comparable to the specially recommended trailing cables as listed by MSHA, and shall be not more than 15 feet in length.

(2) The cable (or cord) shall be adequately protected at the battery end by a fuse in the locked battery box or housing. The cable (or cord) and the fuse shall be considered parts of the lamp, and specifications for them shall be submitted by the lamp manufacturer.

(3) The method of terminating the cable (or cord) at the lamp and at the battery housing shall be adequate, but in no case shall the cable or cord be detachable.

MSHA reserves the right to make minor changes in the requirements outlined in paragraphs (e) (1), (2), and (3) of this section (No. 9, class 2 lamps), as experience and service prove to be necessary in the interests of safety.

§ 20.10 Tests (class 1 and 2 lamps).

Such tests will be made as are necessary to prove the adequacy of a lamp or any of its parts in fulfilling the purposes for which it was designed. These tests include the following:

(a) Safety tests, including tests of safety devices, electrical contacts, and explosion-proof features.

(b) Photometric tests.

(c) Tests to demonstrate adequacy of mechanical strength.

(d) Tests of nonspilling features (storage-battery lamps of class 1).

(e) Temperature tests.

§ 20.11 Material required for MSHA records.

In order that MSHA may know exactly what it has tested and approved, detailed records are kept covering each investigation. These include drawings and actual equipment, as follows:

(a) *Drawings.* The original drawings submitted with the application for the tests and the final drawings which the manufacturer must submit to MSHA before approval is granted, to show the details of the lamp as approved, are retained. These drawings are used to identify the lamp and its parts in the approval and as a means of checking the future commercial product of the manufacturer.

(b) *Equipment.* (1) If MSHA so desires, parts of the lamps which are used in

the tests will be retained as a permanent record of the investigation and of the lamps submitted.

(2) If the lamp is approved, MSHA will require the manufacturer, as soon as his first manufactured lamps are available, to submit one complete lamp, with the approval plate attached, as a record of his commercial product.

§ 20.12 How approvals are granted.

(a) All approvals are granted by official letter from MSHA. A lamp will be approved under this part only when the testing engineers judge that the lamp has met the requirements of this part and after MSHA's records concerning the lamp are complete, including manufacturer's drawings that show the lamp as it is to be made commercially. No verbal reports of MSHA's decision concerning the investigation will be given, and no informal approvals will be granted.

(b) As soon as the manufacturer has received the formal approval he shall be free to advertise his lamp as permissible.

[Sched. 10C, May 17, 1938, as amended by Supp. 1, 20 FR 2719, Apr. 23, 1955]

§ 20.13 Approval plate.

The manufacturer shall attach, stamp, or mold an approval plate on the battery container or housing of each permissible lamp. The plate shall bear the emblem of the Mine Safety and Health Administration, and be inscribed as follows: ''Permissible _____ Lamp. Approval No. _____ issued to the _____ Company.'' When deemed necessary, an appropriate caution statement shall be added. The size, material, and position of the approval plate shall be satisfactory to MSHA.

(a) *Purpose of approval plate.* The approval plate is a label which identifies the lamp so that anyone can tell at a glance whether the lamp is of the permissible type or not. By it the manufacturer can point out that his lamp complies with specifications of MSHA and that it has been adjudged safe for use in gassy and dusty mines.

(b) *Use of approval plate.* Permission to place MSHA's approval plate on his lamp obligates the manufacturer to maintain the quality of his product and to see that each lamp is constructed according to the drawings which have been accepted by MSHA for this lamp and which are in the MSHA files. Lamps exhibiting changes in design which have not been approved are not permissible lamps and must not bear MSHA's approval plate.

(c) *Withdrawal of approval.* MSHA reserves the right to rescind for cause at any time any approval granted under this part.

[Sched. 10C, May 17, 1938, as amended at 5 FR 3467, Aug. 30, 1940; 43 FR 12314, Mar. 24, 1978]

§ 20.14 Instructions for handling future changes in lamp design.

All approvals are granted with the understanding that the manufacturer will make the lamp according to the drawings submitted to MSHA, which have been considered and included in the approval. Therefore, when the manufacturer desires to make any change in the design of the lamp, the manufacturer should first obtain an extension of the original approval to cover the change. The procedure is as follows:

(a)(1) The manufacturer shall write to the U.S. Department of Labor, Mine Safety and Health Administration, Approval and Certification Center, 765 Technology Drive, Triadelphia, WV 26059, requesting an extension of the original approval and describing the change or changes proposed. With this letter the manufacturer should submit a revised drawing or drawings showing the changes in detail, and one of each of the changed lamp parts.

(2) Where the applicant for approval has used an independent laboratory under part 6 of this chapter to perform, in whole or in part, the necessary testing and evaluation for approval of changes to an approved product under this part, the applicant must provide to MSHA as part of the approval application:

(i) Written evidence of the laboratory's independence and current recognition by a laboratory accrediting organization;

(ii) Complete technical explanation of how the product complies with each requirement in the applicable MSHA product approval requirements;

(iii) Identification of components or features of the product that are critical to the safety of the product; and

(iv) All documentation, including drawings and specifications, as submitted to the independent laboratory by the applicant and as required by this part.

(b) MSHA will consider the application and inspect the drawings and parts to determine whether it will be necessary to make any tests.

(c) If no tests are necessary, the applicant will be advised of the acceptance or rejection of the proposed change by letter from MSHA.

(d) If tests are judged necessary, the applicant will be advised of the material that will be required.

[Sched. 10C, May 17, 1938, as amended by Supp. 1, 20 FR 2719, Apr. 23, 1955; 43 FR 12314, Mar. 24, 1978; 52 FR 17514, May 8, 1987; 60 FR 35693, July 11, 1995; 68 FR 36420, June 17, 2003; 73 FR 52212, Sept. 9, 2008]

PART 22—PORTABLE METHANE DETECTORS

Sec.

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22.3 [Reserved]
22.4 Application procedures and requirements.
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22.8 Material required for MSHA records.
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22.10 Approval plate.
22.11 Instructions on handling future changes in design.

AUTHORITY: 30 U.S.C. 957, 961.

SOURCE: Schedule 8C, Oct. 31, 1935, unless otherwise noted.

§ 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 Application procedures and requirements.

(a) Before MSHA will undertake an active investigation leading to approval of any methane detector, the applicant shall make application by letter for an investigation leading to approval of the detector. This application shall be sent to: U.S. Department of Labor, Mine Safety and Health Administration, Approval and Certification Center, 765 Technology Drive, Triadelphia, WV 26059, together with the required drawings, one complete detector, and instructions for its operation. Fees calculated in accordance with part 5 of this title shall be submitted in accordance with § 5.40.