

§ 20.2

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 Applications.

Before MSHA will undertake the active investigation leading to approval of any lamp, the manufacturer shall make application by letter for an in-

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vestigation of his lamp. 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 lamp, and instructions for its operation.

[Supp. 1, 20 FR 2718, Apr. 23, 1955, as amended at 43 FR 12314, Mar. 24, 1978; 60 FR 35693, July 11, 1995]

§ 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 Approval and Certification Center, RR 1, Box 251, Industrial Park Road, 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]

§ 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