

(d) *Ventilation control.* To adequately control dust from drilling rock, the air current shall be so directed that the dust is readily dispersed and carried away from the drill operator or any other miners in the area.

§ 72.710 Selection, fit, use, and maintenance of approved respirators.

In order to ensure the maximum amount of respiratory protection, approved respirators shall be selected, fitted, used, and maintained in accordance with the provisions of the American National Standards Institute's "Practices for Respiratory Protection ANSI Z88.2-1969," which is hereby incorporated by reference. This publication may be obtained from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018, and may be inspected at any Coal Mine Health and Safety district and subdistrict office, or at MSHA's Office of Standards, 1100 Wilson Blvd., Room 2352, Arlington, Virginia 22209-3939, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

[60 FR 30401, June 8, 1995, as amended at 67 FR 38386, June 4, 2002]

PART 74—COAL MINE DUST PERSONAL SAMPLER UNITS

Sec.

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SOURCE: 35 FR 4326, Mar. 11, 1970, unless otherwise noted.

§ 74.1 Purpose.

The regulations in this part set forth the requirements for approval of coal mine dust personal sampler units designed to determine the concentrations of respirable dust in coal mine atmospheres; procedures for applying for such approval; test procedures; and labeling.

§ 74.2 Sampler unit.

A coal mine dust personal sampler unit shall consist of (a) a pump unit, (b) a sampling head assembly, and (c) if rechargeable batteries are used in the pump unit, a battery charger.

§ 74.3 Specifications of sampler unit.

(a) *Pump unit*—(1) *Dimensions.* The overall dimensions of the pump unit, hose connections and valve or switch covers shall not exceed 8 inches in height, 6 inches in width and 4 inches in thickness.

(2) *Weight.* The pump unit shall not weigh more than 4 pounds.

(3) *Construction.* The case and all components of the pump unit shall be of sufficiently durable construction to endure the wear of use in a coal mine and shall be tight fitting, so as to minimize the amount of dust entering the pump case.

(4) *Exhaust.* The pump shall exhaust into the pump case, maintaining a slight positive pressure which will reduce the entry of dust into the pump case.

(5) *Switch.* The pump unit shall be equipped with an on-off switch or equivalent device on the outside of the pump case. This switch shall be protected against accidental operation during use and protected to keep dust from entering the mechanisms.

(6) *Flow rate adjustment.* Except as provided in the last sentence of this paragraph (a) (6), the pump unit shall be equipped with a suitable means of flow rate adjustment accessible from outside the case. To prevent accidental adjustment, the flow rate adjuster shall be recessed in the pump case and shall require the use of an adjusting

tool. If the pump is capable of maintaining the flow rate consistency required in this part without adjustment, an external flow rate adjuster is not required.

(7) *Battery.* The power supply for the pump shall be a suitable battery located in the pump case or in a separate case which attaches to the pump case by a permissible electrical connection.

(8) *Pulsation.* (i) The irregularity in flow rate due to pulsation shall have a fundamental frequency of not less than 20 Hz.

(ii) On and after July 1, 1974 the quantity of respirable dust collected with a sampler unit shall be within ± 5 percent of that collected with a sampling head assembly operated with non-pulsating flow.

NOTE: The test procedures for evaluating sampler units with respect to this specification will be provided on request by the National Institute for Occupational Safety and Health, 1014 Broadway, Cincinnati, Ohio 45202.

(iii) Certificates of approval issued for sampler units which fail to comply with the specification set forth in paragraph (a) (8) (ii) of this section when such specification becomes effective, shall be revoked.

(9) *Belt clips.* The pump unit shall be provided with a belt clip which will hold the pump securely on a coal miner's belt.

(10) *Recharging connection.* A suitable connection shall be provided so that the battery may be recharged without removing the battery from the pump case or from the battery case if a separate battery case is used.

(11) *Flow rate indicator.* A visual indicator of flow rate (e.g., a flowmeter) shall be provided either as an integral part of the pump unit or of the sampling head assembly. The flowrate indicator shall be calibrated within ± 5 percent at 2, 1.8, and 1.6 liters per minute to indicate the rate of air passing through the accompanying sampling head assembly.

(12) *Flow rate range.* The pump shall be capable of operating in or over a range of from 1.5 to 2.5 liters per minute and shall be adjustable over this range.

(13) *Flow rate consistency.* The flow shall remain within ± 0.1 liters per minute over an 8-hour period when the

pump is operated at 2 liters per minute with a standard sampling head assembly. Not more than two readjustments of the flow rate to 2 liters per minute shall be required to maintain this accuracy.

(14) *Duration of operation.* The pump shall be capable of operating for not less than 8 hours at a flow rate of 2 liters per minute against a resistance of 4 inches of water measured at the inlet of the pump.

(b) *Sampling head assembly.* The sampling head assembly shall consist of a cyclone and a filter assembly as follows:

(1) *Cyclone.* The cyclone shall consist of a cyclone body with removable grit cap and a vortex finder and shall be constructed of nylon or a material equivalent in performance. The dimensions of the components, with the exception of the grit cap, shall be identical to those of a Door-Oliver 10 mm. cyclone body, part No. 28541/4A or 01B11476-01 and vortex finder, part No. 28541/4B.

(2) *Filter assembly.* The filter assembly shall meet the following requirements:

(i) *Filter.* The filter shall be a membrane filter type with a nominal pore size not over 5 microns. It shall be nonhydroscopic and shall not dissolve or decompose when emersed in ethyl or isopropyl alcohol. The strength and surface characteristics of the filter shall be such that dust deposited on its surface may be removed by ultrasonic methods without tearing the filter. The filter resistance shall not be more than 2 inches of water at an airflow rate of 2 liters per minute.

(ii) *Capsule.* The capsule enclosing the filter shall not permit sample air to leak around the filter. The capsule shall be made of nonhydroscopic material. Its weight, including the enclosed filter, shall not exceed 5 grams and it shall be preweighed by the manufacturer with a precision of ± 0.1 milligrams. Impact to the capsule shall not dislodge any dust from the capsule, which might then be lost to the weight measurement.

(iii) *Cassette.* The cassette shall enclose the capsule so as to prevent contamination. The cassette must be easily removable without causing a loss or gain of capsule weight. Appropriate

covers shall be provided to prevent contaminants from entering, or dust from leaving, the capsule when it is not in use.

(3) *Arrangement of components.* The connections between the cyclone vortex finder and the capsule and between the capsule and the 1/4-inch (inside diameter) hose mentioned in paragraph (b) (5) of this section shall be mechanically firm and shall not leak at a rate of more than 0.1 liters per hour under a vacuum of 4 inches of water.

(4) *Clamping of components.* The clamping and positioning of the cyclone body, vortex finder, and cassette shall be rigid, remain in alignment, be firmly in contact and airtight. The cyclone-cassette assembly shall be attached firmly to a backing plate or other means of holding the sampling head in position. The cyclone shall be held in position so that the inlet opening of the cyclone is pointing perpendicular to, and away from, the backing plate.

(5) *Hose.* A 3-foot long, 1/4-inch (inside diameter) hose shall be provided to form an airtight connection between the inlet of the sampler pump and the outlet of the filter assembly. A device, capable of sliding along the hose and attaching to the miner's outer garment shall be provided.

(c) *Battery charger—(1) Power supply.* The battery charger shall be operated from a 117 volt, 60 Hz power line.

(2) *Connection.* The battery charger shall be provided with a cord and polarized connector so that it may be connected to the charge socket on the pump or battery case.

(3) *Protection.* The battery charger shall be fused, shall have a grounded power plug, and shall not be susceptible to damage by being operated without a battery on charge.

(4) *Charge rates.* The battery charger shall be capable of operating at either a 16-hour or a 64-hour charge rate. The battery charger shall be capable of fully charging the battery in the pump unit in the stated times and shall not overcharge a discharged battery in 16 hours when operating at the 16-hour

charge rate or in 88 hours when operating at the 64-hour charge rate.

[35 FR 4326, Mar. 11, 1970, as amended at 37 FR 26712, Dec. 15, 1972; 37 FR 28294, Dec. 22, 1972; 39 FR 3677, Jan. 29, 1974]

§ 74.4 Tests of coal mine dust personal sampler units.

(a) The National Institute for Occupational Safety and Health, Department of Health and Human Services, shall conduct tests to determine whether a coal mine dust personal sampler unit which is submitted for approval under these regulations meets the requirements set forth in § 74.3.

(b) The Mine Safety and Health Administration, Department of Labor (MSHA) will conduct tests, pursuant to § 18.68 of this chapter, to determine whether the pump unit of a coal mine dust personal sampler unit submitted for approval under these regulations is intrinsically safe.

[35 FR 4326, Mar. 11, 1970, as amended at 37 FR 26712, Dec. 15, 1972; 43 FR 12319, Mar. 24, 1978; 47 FR 28095, June 29, 1982]

§ 74.5 Conduct of tests; demonstrations.

Prior to the issuance of a certificate of approval, only personnel of MSHA and National Institute for Occupational Safety and Health, representatives of the applicant, and such other persons as may be mutually agreed upon may observe the tests conducted. The MSHA and the National Institute for Occupational Safety and Health shall hold as confidential, and shall not disclose, principles of patentable features prior to certification, nor shall MSHA or Institute disclose any details of the applicant's drawings or specifications or other related material. After the issuance of a certificate of approval, MSHA or the National Institute for Occupational Safety and Health may conduct such public demonstrations and tests of the approved coal mine dust personal sampler unit as MSHA or Institute deems appropriate. The conduct of all investigations, tests, and demonstrations shall be under the sole direction of the National Institute for Occupational Safety and Health and MSHA and any other

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persons shall be present only as observers.

[35 FR 4326, Mar. 11, 1970, as amended at 37 FR 26712, Dec. 15, 1972]

§ 74.6 Applications.

(a) Testing of a coal mine dust personal sampler unit will be undertaken by the National Institute for Occupational Safety and Health, and testing of the pump unit of such a sampler unit will be undertaken by MSHA, only pursuant to a written application in duplicate, each copy accompanied by complete scale drawings, specifications and description of materials. The applications, together with the drawings and specifications and any other related documents shall be sent to National Institute for Occupational Safety and Health, Department of Health and Human Services, Box 4256, 944 Chestnut Ridge Road, Morgantown, WV 26505, and MSHA Approval and Certification Center, RR 1, Box 251, Industrial Park Road, Triadelphia, WV 26059.

(b) Ten complete coal mine dust personal sampler units must be sent to the National Institute for Occupational Safety and Health in connection with an application. One pump unit must be sent to MSHA in connection with an application.

(c) Drawings and specifications shall be adequate in number and fully detailed to identify the design of the coal mine dust personal sampler unit or pump unit thereof and to disclose the dimensions and materials of all component parts.

(d) An application shall describe the way in which each lot of components will be sampled and tested to maintain their quality prior to assembly of each sampler unit. In order to ensure that the quality of the coal dust personal sampler unit will be maintained in production through adequate quality control procedures, the National Institute for Occupational Safety and Health and MSHA reserve the right to have their qualified personnel inspect each applicant's control-test equipment procedures, and records and to interview the employees who conduct the control tests. Two copies of the results of any tests made by the applicant on the coal mine dust personal sampler unit or the

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pump unit thereof shall accompany an application.

[35 FR 4326, Mar. 11, 1970, as amended at 37 FR 26712, Dec. 15, 1972; 43 FR 12319, Mar. 24, 1978; 47 FR 28095, June 29, 1982; 52 FR 17516, May 8, 1987; 60 FR 35695, July 11, 1995]

§ 74.7 Certificate of approval.

(a) Upon completion of the testing of a coal mine dust personal sampler unit or the pump unit thereof, the National Institute for Occupational Safety and Health or MSHA, as appropriate, shall issue to the applicant either a certificate of approval or a written notice of disapproval, as the case may require. The National Institute for Occupational Safety and Health shall not issue a certificate of approval for a coal mine dust personal sampler unit unless MSHA has issued a certificate of approval for the pump unit thereof. No informal notification of approval will be issued. If a certificate of approval is issued, no test data or detailed results of tests will accompany such approval. If a notice of disapproval is issued, it will be accompanied by details of the defects, resulting in disapproval, with a view to possible correction.

(b) A certificate of approval will be accompanied by a list of the drawings and specifications, covering the details of design and construction of the coal mine dust personal sampler unit or the pump unit thereof upon which the certificate of approval is based. The applicant shall keep exact duplicates of the drawings and specifications submitted to the National Institute for Occupational Safety and Health and to MSHA relating to the sampler unit or pump unit thereof which has received a certificate of approval. The approved drawings and specifications shall be adhered to exactly in the production of the certified sampler unit, including the pump unit thereof, for commercial purposes. In addition, the applicant shall observe such procedures for, and keep such records of, the control of component parts as either MSHA or Institute may in writing require as a condition of certification.

[35 FR 4326, Mar. 11, 1970, as amended at 37 FR 26712, Dec. 15, 1972]

§ 74.8 Approval labels.

(a) Certificates of approval will be accompanied by photographs of designs for the approval labels to be affixed to each coal mine dust personal sampler unit.

(b) The labels showing approval by the National Institute for Occupational Safety and Health and by MSHA shall contain such information as MSHA or Institute may require and shall be reproduced legibly on the outside of a sampler unit as directed by the appropriate bureau.

(c) The applicant shall submit full-scale designs or reproductions of approval labels and a sketch or description of the position of the labels on each unit.

(d) Use of the approval labels obligates the applicant to whom the certificates of approval were issued to maintain the quality of the complete coal mine dust personal sampler unit and to guarantee that the complete sampler unit is manufactured or assembled according to the drawings and specifications upon which the certificates of approval were based. Use of the approval labels is authorized only on sampler units which conform strictly with the drawings and specifications upon which the certificates of approval were based.

[35 FR 4326, Mar. 11, 1970, as amended at 37 FR 26712, Dec. 15, 1972]

§ 74.9 Material required for record.

(a) As part of the permanent record of the investigation, the National Institute for Occupational Safety and Health will retain a complete coal mine dust personal sampler unit, and MSHA will retain a pump unit, that has been tested and certified. Material not required for record purposes will be returned to the applicant at his request and at his expense on written shipping instructions to MSHA or Institute.

(b) As soon as a coal mine dust personal sampler unit is commercially available, the applicant shall deliver a complete unit free of charge to the National Institute for Occupational Safety and Health, Department of Health and Human Services, Box 4256, 944

Chestnut Ridge Road, Morgantown, WV 26505.

[35 FR 4326, Mar. 11, 1970, as amended at 37 FR 26712, Dec. 15, 1972; 47 FR 28095, June 29, 1982]

§ 74.10 Changes after certification.

(a) If the applicant desires to change any feature of a certified coal mine dust personal sampler unit, he shall first obtain the approval of the National Institute for Occupational Safety and Health pursuant to the following procedures:

(1) Application shall be made as for an original certificate of approval, requesting that the existing certification be extended to encompass the proposed change. The application shall be accompanied by drawings, specifications and related material, as in the case of an original application.

(2) The application and accompanying material will be examined by the National Institute for Occupational Safety and Health to determine whether testing of the modified sampler unit or components will be required. Testing will be necessary if there is a possibility that the modification may affect the performance of the sampler unit adversely. The National Institute for Occupational Safety and Health will inform the applicant whether such testing is required.

(3) If the proposed modification meets the pertinent requirements of these regulations, a formal extension of certification will be issued, accompanied by a list of new and revised drawings and specifications to be added to those already on file as the basis for the extension of certification.

(b) If a change is proposed in a pump unit of a certified coal dust personal sampler unit, the approval of MSHA with respect to intrinsic safety shall be obtained in accordance with the procedures set forth in paragraph (a) of this section.

[35 FR 4326, Mar. 11, 1970, as amended at 37 FR 26712, Dec. 15, 1972]

§ 74.11 Withdrawal of certification.

Any certificate of approval issued under the regulations in this part may

be revoked for cause by the Institute or MSHA which issued the certificate.

[37 FR 26712, Dec. 15, 1972]

PART 75—MANDATORY SAFETY STANDARDS—UNDERGROUND COAL MINES

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