

(b) Where water spray devices are used for inundating attended underground equipment the rate of flow shall be at least 0.18 gallon per minute per square foot over the top surface area of the equipment (excluding conveyors, cutters, and gathering heads), and the supply of water shall be adequate to provide the required flow of water for 10 minutes.

(c) Where water is used for internal injection on attended equipment the total quantity of water shall be at least 4.5 gallons times the number of hazardous locations; however, the total minimum amount of water shall not be less than the following:

Type of equipment	Water in gallons
(1) Cutting machines	36
(2) Continuous miners	36
(3) Haulage vehicles	22.5
(4) All other attended equipment	18.0

The rate of flow shall be not less than 7 gallons per minute.

(d) Where water is used in a combination internal injection and inundation system on attended equipment the rate of flow shall be at least 0.12 gallon per minute per square foot over the top surface area of the equipment (excluding conveyors, cutters, and gathering heads), and the supply of water shall be adequate to provide the required flow of water for 10 minutes.

(e) On equipment provided with a cable reel and an internal injection or combination-type system, the amount of water discharged into the cable reel compartments shall be approximately 25 percent of the amount required to be discharged by the system, however, such quantity need not exceed 10 gallons.

(f) Liquid chemicals may be used, as approved by the Secretary in self-contained fire suppression devices. Such liquid chemicals shall be nontoxic and when applied to a fire shall not produce excessive toxic compounds. The quantity of liquid chemicals required shall be proportionately less than water as based on equivalency ratings established by the Secretary or equivalency ratings made by a nationally recognized agency approved by the Secretary.

[37 FR 15302, July 29, 1972]

§ 75.1107-8 Fire suppression devices; extinguishant supply systems.

(a) Fire suppression systems using water or liquid chemical to protect attended equipment shall:

(1) Be maintained at a pressure consistent with the pipe, fittings, valves, and nozzles used in the system.

(2) Be located so as to be protected against damage during operation of the equipment protected.

(3) Employ liquid which is free from excessive sediment and noncorrosive to the system.

(4) Include strainers equipped with flush-out connections or equivalent protective devices and a rising stem or other visual indicator-type shutoff valve.

(b) Water supplies for fire suppression devices installed on underground equipment may be maintained in mounted water tanks or by connection to water mains. Such water supplies shall be continuously connected to the fire suppression device whenever the equipment is connected to a power source, except for a reasonable time for changing hose connections to hydrants while the machine is stopped in a ventilated passageway.

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§ 75.1107-9 Dry chemical devices; capacity; minimum requirements.

(a) Dry chemical fire extinguishing systems used on underground equipment shall be of the multipurpose powder-type and shall include the following:

(1) The system including all hose and nozzles shall be protected against the entrance of moisture, dust, or dirt;

(2) The system shall be guarded against damage during operation of the equipment protected;

(3) Hose and pipe shall be as short as possible; the distance between the chemical container and furthest nozzle shall not exceed 50 feet;

(4) Hose, piping, and fittings between the actuator and the chemical container shall have a bursting pressure of 500 pounds per square inch (gage) or higher; the hose, piping, and fittings between the chemical container and the nozzles shall have a bursting pressure of 300 pounds per square inch (gage) or higher and

§75.1107-10

30 CFR Ch. I (7-1-08 Edition)

(5) The system shall discharge in 1 minute or less, for quantities less than 50 pounds (nominal)¹ and in less than 2 minutes for quantities more than 50 pounds;

(b) On unattended underground equipment, the number of pounds of dry chemical employed by the system shall be not less than 1 pound per square foot of top surface area of the equipment; however, the minimum amount in any system shall be 20 pounds (nominal). The discharge shall be directed into and on potentially hazardous locations of the equipment.

(c) On attended underground equipment, the number of pounds (nominal) employed by the system shall equal 5 times the total number of hazardous locations; however, the minimum amount in any system shall not be less than the following, except that systems on haulage vehicles installed prior to the effective date of this section may contain 20 pounds (nominal).

Type of equipment	Dry chemical pounds (nominal)
(1) Cutting machines	40
(2) Continuous miners	40
(3) Haulage vehicles	30
(4) All other attended equipment	20

(d) The amount of dry chemical discharged into the cable reel compartments of attended underground equipment shall be approximately 25 percent of the total amount required to be discharged by the system; however, the quantity discharged into cable reel compartments need not exceed 10 pounds.

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¹Many dry chemical systems were originally designed for sodium bicarbonate before all-purpose chemical (ammonium phosphate) was shown to be more effective. Sodium bicarbonate is denser than ammonium phosphate; hence, for example, a 50-pound system designed for the sodium bicarbonate will hold slightly more by weight than all-purpose dry chemical (ammonium phosphate) by weight. The word "nominal" is used in §75.1107-9 to express the approximate weight in pounds of all-purpose dry chemical.

§75.1107-10 High expansion foam devices; minimum capacity.

(a) On unattended underground equipment the amount of water delivered as high expansion foam for a period of approximately 20 minutes shall be not less than 0.06 gallon per minute per square foot of surface area of the equipment protected; however, the minimum total rate for any system shall be not less than 3 gallons per minute.

(b) On attended underground equipment, foam may be delivered by internal injection, inundation, or combination-type systems. Each system shall deliver water as foam for a minimum of 10 minutes. For internal injection, the rate of water application as high expansion foam shall be not less than 0.5 gallon per minute per hazardous location; however, the minimum total rate shall be not less than 2 gallons per minute. For inundation, the rate of water application as high expansion foam shall be not less than 0.05 gallon per minute per square foot of top surface area of the equipment protected; however, the minimum total rate shall be not less than 5 gallons of water per minute.

(c) In combined internal injection and inundation systems the rate of water applied as foam shall not be less than 0.035 gallon per minute per square foot of top surface area of the equipment protected; however, the minimum total rate shall not be less than 3.5 gallons of water per minute.

(d) Where internal injection is employed, the amount of water discharged as high expansion foam into the cable reel compartments of underground equipment regularly operated by a miner shall be approximately 25 percent of the total amount required to be discharged by the system; however, the quantity of water discharged as foam into the cable reel compartment need not exceed 1.5 gallons.

[37 FR 15303, July 29, 1972]

§75.1107-11 Extinguishing agents; requirements on mining equipment employed in low coal.

On mining equipment no more than 32 inches high, the quantity of extinguishing agent required under the provisions of §§75.1107-7, 75.1107-9, and