



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

MAY - 4 2000

Ref. No. 00-0085

Mr. Donald E. Warren
Vice President Engineering
Safecraft Fire Protection Systems
2708 Teagarden St.
San Leandro, CA 94577

Dear Mr. Warren:

This is in response to your letter dated March 22, 2000, regarding the applicability of the requirements contained in 49 CFR 173.309(a) of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) to your non-DOT specification fire extinguishers. Specifically, you request clarification on the requirements for the manufacture and transportation of small fire extinguishers containing liquefied compressed gases.

Your questions are paraphrased and answered as follows:

- Q1. Is it true that a non-DOT specification cylinder that is used as a fire extinguisher and contains an extinguishing agent, such as Halon 1211 and Halon 1301, may have a volumetric capacity of no larger than 900 ml?
- A1. The answer is yes. See § 173.309 (a)(3)(i).
- Q2. If a manufacturer states that a cylinder is "approved" by Underwriters Laboratories (UL/ULC), can it be assumed that it is a non-DOT specification cylinder and is subject to the 900 ml maximum capacity?
- A2. The answer is yes, if the cylinder is not marked as conforming to an applicable specification prescribed in part 178 of the HMR. A non-DOT specification cylinder used as a fire extinguisher must fully conform to the requirement prescribed in §173.309(a) and to the general packaging requirements prescribed in § 173.24. The extinguishing agent must conform to the criteria in Special Provision 18 of § 172.102.
- Q3. Is it correct that a cylinder that is not marked or stamped with the applicable markings (i.e., DOT XX-XXX or DOT E-XXXX) would be classified as a non-DOT specification cylinder? Would this also include foreign-made cylinders, either unmarked/unidentified or with manufacturers information?
- A3. The answer is yes. See A2 above.
- Q4. If a fire extinguisher has an adhesive label that states, for example, "MEETS DOT REQUIREMENTS FOR ALUMINUM CYLINDERS", does this in anyway override the 900 ml capacity limit?

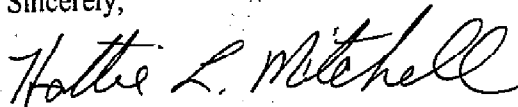


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- A4. The answer is no. Because DOT has specifications for aluminum cylinders, this wording should not be used. The HMR require this particular notation to be marked on a cylinder: "MEETS DOT REQUIREMENTS". See § 173.309(a)(3)(iii).
- Q5. Does § 173.309 (a) provide for the use of a non-DOT specification cylinder with a capacity greater than 900 ml as a fire extinguisher if it will contain a liquefied compressed gas?
- A5. The answer is no. However, you may submit an application for exemption in accordance with the procedures contained in §107.105. Your application must contain sufficient information to demonstrate that, if an exemption is issued, an equivalent level of safety will be achieved that is at least equal to that required by the regulations.
- Q6. Under § 173.309 (b), several DOT specification cylinders commonly used for fire extinguishers are absent from the list. For example, 4DS, 4D, welded steel cylinders which are used and shipped for aircraft fire protection, and DOT 39 cylinders which are commonly used for portable extinguishers. Is it correct that these cylinders are not limited to the 241 psig at 70 °F and 900 ml limitations as discussed above?
- A6. The answer is yes. The quantity limitation prescribed in § 173.306(a) is applicable only to non-DOT specification cylinders. However, those cylinders referenced in your example are not authorized for shipment under § 173.309. When filled with a liquefied compressed gas, the cylinders must be shipped in accordance with § 173.304.
- Q7. Are there any other requirements that specifically relate to the manufacture of non- DOT specification cylinders?
- A7. DOT has no requirements on the manufacture of non-DOT specification cylinders used as fire extinguishers, other than as noted in §§ 173.24 and 173.309 (a). I suggest that you contact the National Fire Protection Association for any industry standards that may be applicable to fire extinguishers.

I hope this information is helpful.

Sincerely,



Hattie L. Mitchell, Chief
Regulatory Review and Reinvention
Office of Hazardous Materials Standards

SAFECRAFT

FIRE PROTECTION SYSTEMS

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§ 173.309
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FAX MSG 202/366-3012

Edward T. Maazzullo, Director
Office of Hazardous Materials Standards, DHM-10
Research and Special Programs Administration
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400 7th St. SW
Washington, DC 20590-0001

Re: 49 CFR § 173.309 Fire extinguishers.

Dear Sir:

We are requesting clarification as to specific application of the subject DOT CFR in regards to shipping (and manufacturing) of small fire extinguishers. We will limit our discussion to those designs that only use liquified compressed gas extinguishing agents. These agents are of the familiar type as follows :

Halon 1211, bromochlorodifluoromethane, CBrClF₂
Halon 1301, bromotrifluoromethane, CBrF₃
FM 200TM, 1,1,1,2,3,3,3-heptafluoropropane, CF₃CHFCF₃
FE-13, FE-25, FE-36, FE-241, (DuPont Agents)
CEA 614, perfluorohexane, CF₃(CF₂)₄CF₃, 3M Company
Halotron I, (primarily) dichlorotrifluoroethane, CHCl₂CF₃
or any of the other SNAP approved halon replacements that are of the (liquified) compressed gas definition, i.e. not water based or dry chemical.

There seems to be a lot of confusion in the industry about shipping of these fire extinguishing agents within a variety of nonspecification cylinders. Our questions relate to § 173.309 Fire extinguishers, unless otherwise noted.

1. Is it true that an extinguisher that uses a nonspecification cylinder pressurized with any of the compressed gas agents above can be NO LARGER THAN 900ml.?

2. If a manufacturer claims that their cylinder is "approved" by Underwriters Laboratories (UL/ULC), does this still mean that it is a NONSPECIFICATION cylinder and is subject to the 900ml maximum capacity ?

3. Is it correct that any cylinder that is NOT marked or stamped with designation DOT XX-XXX or DOT E-XXXX would be classified as a NONSPECIFICATION cylinder ? Would this include foreign (made) cylinders, either unmarked/unidentified or with manufacturers information ?

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No. 4. If a fire extinguisher has an adhesive label that states, for example, "MEETS DOT REQUIREMENTS FOR ALUMINUM CYLINDERS", does this in anyway override the 900ml capacity limit ?

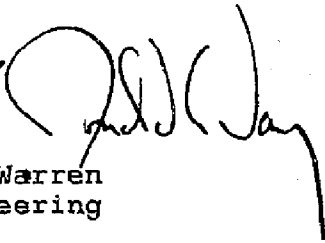
No. 5. Within the first paragraph of §173.309 (a) after charge pressure limit of 241psig @ 70°F, there are several references to conditions and exceptions in parts 172, 174 and 177. Is there anything that we may have missed that allows transportation of a fire extinguisher using liquified agents in nonspecification cylinders greater than 900ml ?

Limitation only applies to nonspec
6. Under §173.309 (b) there are several DOT specification cylinders commonly used for fire extinguishers absent from this list. Examples are 4DS, 4D, 4DA welded steel cylinders used and shipped for aircraft fire protection, and DOT 39 commonly used for portable extinguishers. Is it correct that none of these cylinders are limited to the 241psig and 900ml rules as discussed above ?

7. Are there any 49 CFR parts or other DOT requirements that specifically relate to the manufacture of NONSPECIFICATION cylinders ?

We hope that we are reasonably clear in our request for clarification. If you need discussion with me, please call on 510/297-6931.

Sincerely,



Donald E. Warren
V.P. Engineering