

**§ 173.40 General packaging requirements for toxic materials packaged in cylinders.**

When this section is referenced for a Hazard Zone A or B hazardous material elsewhere in this subchapter, the requirements in this section are applicable to cylinders used for that material.

(a) *Authorized cylinders.* (1) A cylinder must conform to one of the specifications for cylinders in subpart C of part 178 of this subchapter, except that specification 8, 8AL, and 39 cylinders are not authorized.

(2) After September 30, 2002, DOT 3AL cylinders made of aluminum alloy 6351-T6 may not be filled and offered for transportation or transported with a Division 2.3 Hazard Zone A material, a Division 6.1 Hazard Zone A material, or any liquid meeting the definition of Division 6.1 and the criteria for Packing Group I Hazard Zone A, as specified in § 173.133. If it is otherwise serviceable and conforms to the regulations in effect on September 30, 2002, a DOT 3AL cylinder made of aluminum alloy 6351-T6 and filled before October 1, 2002, may be transported for reprocessing or disposal of the cylinder's contents until April 1, 2003.

(b) *Outage and pressure requirements.* The pressure at 55 °C (131 °F) of Hazard Zone A and, after December 31, 2003, Hazard Zone B materials may not exceed the service pressure of the cylinder. Sufficient outage must be provided so that the cylinder will not be liquid full at 55 °C (131 °F).

(c) *Closures.* Each cylinder containing a Hazard Zone A material must be closed with a plug or valve conforming to the following:

(1) Each plug or valve must have a taper-threaded connection directly to the cylinder and be capable of withstanding the test pressure of the cylinder without damage or leakage.

(2) Each valve must be of the packless type with non-perforated diaphragm, except that, for corrosive materials, a valve may be of the packed type with an assembly made gas-tight by means of a seal cap with gasketed joint attached to the valve body or the cylinder to prevent loss of material through or past the packing.

(3) Each valve outlet must be sealed by a threaded cap or threaded solid plug and inert gasketing material.

(4) The materials of construction for the cylinder, valves, plugs, outlet caps, luting, and gaskets must be compatible with each other and with the lading.

(d) *Additional handling protection.* Each cylinder or cylinder overpack combination offered for transportation containing a Division 2.3 or 6.1 Hazard Zone A or B material must conform to the valve damage protection performance requirements of this section. In addition to the requirements of this section, overpacks must conform to the overpack provisions of § 173.25.

(1) Each cylinder with a wall thickness at any point of less than 2.03 mm (0.08 inch) and each cylinder that does not have fitted valve protection must be overpacked in a box. The box must conform to overpack provisions in § 173.25. Box and valve protection must be of sufficient strength to protect all parts of the cylinder and valve, if any, from deformation and breakage resulting from a drop of 2.0 m (7 ft) or more onto a non-yielding surface, such as concrete or steel, impacting at an orientation most likely to cause damage. "Deformation" means a cylinder or valve that is bent, distorted, mangled, misshapen, twisted, warped, or in a similar condition.

(2) Each cylinder with a valve must be equipped with a protective metal cap, other valve protection device, or an overpack which is sufficient to protect the valve from breakage or leakage resulting from a drop of 2.0 m (7 ft) onto a non-yielding surface, such as concrete or steel. Impact must be at an orientation most likely to cause damage.

(e) *Interconnection.* Cylinders may not be manifolded or interconnected.

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**Subpart C—Definitions, Classification and Packaging for Class 1**

SOURCE: Amdt. 173-224, 55 FR 52617, Dec. 21, 1990, unless otherwise noted.