§ 173.301a Additional general requirements for shipment of specification cylinders.

(a) General. The requirements in this section are in addition to the requirements in §173.301 and apply to the shipment of gases in specification cylinders.

(b) Authorized cylinders not marked with a service pressure. For authorized cylinders not marked with a service pressure, the service pressure is designated as follows:

<table>
<thead>
<tr>
<th>Specification marking</th>
<th>Service Pressure psig</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1800</td>
</tr>
<tr>
<td>3E</td>
<td>1800</td>
</tr>
<tr>
<td>8</td>
<td>250</td>
</tr>
</tbody>
</table>

(c) Cylinder pressure at 21 °C (70 °F). The pressure in a cylinder at 21 °C (70 °F) may not exceed the service pressure for which the cylinder is marked or designated, except as provided in §173.302a(b). For certain liquefied gases, the pressure at 21 °C (70 °F) must be lower than the marked service pressure to avoid having a pressure at a temperature of 55 °C (131 °F) that is greater than permitted.

(d) Cylinder pressure at 55 °C (131 °F). The pressure in a cylinder at 55 °C (131 °F) may not exceed 5⁄4 times the service pressure, except:

1. For a cylinder filled with acetylene, liquefied nitrous oxide, or carbon dioxide.

2. For a cylinder filled in accordance with §173.302a(b), the pressure in the cylinder at 55 °C (131 °F) may not exceed 5⁄4 times the filling pressure.

3. The pressure at 55 °C (131 °F) of Hazard Zone A and 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).

(e) Grandfather clause. A cylinder in domestic use prior to the date on which the specification for the cylinder was first made effective may be used if the cylinder has been properly tested and

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otherwise conforms to the requirements applicable to the gas with which it is charged.


§ 173.301b Additional general requirements for shipment of UN pressure receptacles.

(a) General. The requirements of this section are in addition to the requirements in §173.301 and apply to the shipment of gases in UN pressure receptacles. A UN pressure receptacle, including closures, must conform to the design, construction, inspection and testing requirements specified in parts 178 and 180 of this subchapter, as applicable. Bundles of cylinders must conform to the requirements in §178.70(e) of this subchapter.

(1) A UN pressure receptacle may not be filled and offered for transportation when damaged to such an extent that the integrity of the UN pressure receptacle or its service equipment may be affected. Prior to filling, the service equipment must be examined and found to be in good working condition (see §178.70(d) of this subchapter). In addition, the required markings must be legible on the pressure receptacle.

(2) The gases or gas mixtures must be compatible with the UN pressure receptacle and valve materials as prescribed for metallic materials in ISO 11114–1 (IBR, see §171.7 of this subchapter) and for non-metallic materials in ISO 11114–2 (IBR, see §171.7 of this subchapter).

(3) A refillable UN pressure receptacle may not be filled with a gas or gas mixture different from that previously contained in the UN pressure receptacle unless the necessary operations for change of gas service have been performed in accordance with ISO 11621 (IBR, see §171.7 of this subchapter).

(4) When a strong outer packaging is prescribed, for example as provided by paragraph (c)(2)(vi) or (d)(1) of this section, the UN pressure receptacles must be protected to prevent movement. Unless otherwise specified in this part, more than one UN pressure receptacle may be enclosed in the strong outer packaging.

(b) Individual shut-off valves and pressure relief devices. Except for Division 2.2 permanent gases, each UN pressure receptacle must be equipped with an individual shut-off valve that must be tightly closed while in transit. Each UN pressure receptacle must be individually equipped with a pressure relief device as prescribed by §173.301(f), except that pressure relief devices on bundles of cylinders or manifolded horizontal cylinders must have a set-to-discharge pressure that is based on the lowest marked pressure of any cylinder in the bundle or manifolded unit.

(c) Pressure receptacle valve requirements. (1) When the use of a valve is prescribed, the valve must conform to the requirements in ISO 10297 (IBR, see §171.7 of this subchapter).

(2) A UN pressure receptacle must have its valves protected from damage that could cause inadvertent release of the contents of the UN pressure receptacle by one of the following methods:

(i) By constructing the pressure receptacle so that the valves are recessed inside the neck of the UN pressure receptacle and protected by a threaded plug or cap;

(ii) By equipping the UN pressure receptacle with a valve cap conforming to the requirements in ISO 11117 and Technical Corrigendum 1 (IBR, see §171.7 of this subchapter). The cap must have vent-holes of sufficient cross-sectional area to evacuate the gas if leakage occurs at the valve;

(iii) By protecting the valves by shrouds or guards conforming to the requirements in ISO 11117 (IBR; see §171.7 of this subchapter).

(iv) By using valves designed and constructed with sufficient inherent strength to withstand damage in accordance with Annex B of ISO 10297;

(v) By enclosing the UN pressure receptacles in frames, e.g., bundles of cylinders; or

(vi) By packing the UN pressure receptacles in a strong outer package, such as a box or crate, capable of meeting the drop test specified in §178.603 of this subchapter at the Packing Group I performance level.