chapter, for the continuing qualification, maintenance, or periodic requalification of DOT specification and exemption cylinders and UN pressure receptacles.

[71 FR 33894, June 12, 2006]

§ 180.203 Definitions.

As used in this section, the word ''cylinder'' includes UN pressure receptacles. In addition to the definitions contained in §171.8 of this subchapter, the following definitions apply to this subpart:

Commercially free of corrosive components means a hazardous material having a moisture content less than 55 ppm and free of components that will adversely react with the cylinder (*e.g.*, chemical stress corrosion).

Condemn means a determination that a cylinder is unserviceable for the continued transportation of hazardous materials in commerce and that the cylinder may not be restored by repair, rebuilding, requalification, or any other procedure.

Filled or *charged* means an introduction or presence of a hazardous material in a cylinder.

Mobile unit means a vehicle specifically authorized under a RIN to carry out requalification operations identified under the RIN within specified geographic areas away from the principle place of business. Mobile units must comply with the requirements outlined in the approval issuance letter from the Associate Administrator for Hazardous Materials Safety (see §107.805 of subchapter A of this chapter).

Non-corrosive service means a hazardous material that, in the presence of moisture, is not corrosive to the materials of construction of a cylinder (including valve, pressure relief device, etc.).

Over-heated means a condition in which the temperature of any portion of an aluminum cylinder has reached 176 °C (350 °F) or higher, or in which the temperature of any portion of a steel or nickel cylinder has reached 343 °C (650 °F) or higher.

Over-pressurized means a condition in which the internal pressure applied to a cylinder has reached or exceeded the yield point of the cylinder.

Permanent expansion means a permanent increase in a cylinder's volume after the test pressure is released.

Proof pressure test means a liquid-based pressure test by interior pressurization without the determination of a cylinder's expansion.

Rebuild means the replacement of a pressure part (e.g. a wall, head, or pressure fitting) by welding.

Repair means a procedure for correction of a rejected cylinder that may involve welding.

Requalification means the completion of a visual inspection and/or the test(s) required to be performed on a cylinder to determine its suitability for continued service.

Requalification identification number or RIN means a code assigned by DOT to uniquely identify a cylinder requalification, repair, or rebuilding facility.

[67 FR 51660, Aug. 8, 2002, as amended at 71 FR 33894, June 12, 2006; 85 FR 85432, Dec. 28, 2020]

§ 180.205 General requirements for requalification of specification cylinders.

(a) *General.* Each cylinder used for the transportation of hazardous materials must be an authorized packaging. To qualify as an authorized packaging, each cylinder must conform to this subpart, the applicable requirements specified in part 173 of this subchapter, and the applicable requirements of subpart C of part 178 of this subchapter.

(b) *Persons performing requalification functions.* No person may represent that a repair or requalification of a cylinder has been performed in accordance with the requirements in this subchapter unless that person holds a current approval issued under the procedural requirements prescribed in subpart I of part 107 of this chapter. No person may mark a cylinder with a RIN and a requalification date or otherwise represent that a DOT specification or special permit cylinder has been requalified unless all applicable requirements of this subpart have been met. A person who requalifies cylinders must maintain the records prescribed in §180.215 at each location at which it inspects, tests, or marks cylinders.

(c) *Periodic requalification of cylinders.* Each cylinder bearing a DOT, CRC,

BTC, or CTC specification marking must be requalified and marked as specified in the requalification table in §180.209(a) or requalified and marked by a facility registered by Transport Canada in accordance with the Transport Canada TDG Regulations (IBR, see §171.7 of this subchapter). Each cylinder bearing both a TC specification marking and also marked with a corresponding DOT specification marking must be requalified and marked as specified in the requalification table in §180.209(a) or requalified and marked by a facility registered by Transport Canada in accordance with the Transport Canada TDG Regulations. Each cylinder bearing a DOT special permit (or exemption) number must be requalified and marked in conformance with this section and the terms of the applicable special permit (or exemption). Each cylinder bearing only a TC mark must be requalified and marked as specified in the Transport Canada TDG Regulations, except that registration with Transport Canada is not required and cylinders must be marked with the requalifier's DOT issued requalifier identification number. No cylinder may be filled with a hazardous material and offered for transportation in commerce unless that cylinder has been successfully requalified and marked in accordance with this subpart. A cylinder may be requalified at any time during or before the month and year that the requalification is due. However, a cylinder filled before the requalification becomes due may remain in service until it is emptied. A cylinder with a specified service life may not be refilled and offered for transportation after its authorized service life has expired.

(1) Each cylinder that is requalified in accordance with the requirements specified in this section must be marked in accordance with §180.213 or the requirements of the Transport Canada TDG Regulations, or in the case of a TC cylinder requalified in the United States by a DOT RIN holder, in accordance with the requirements of the Transport Canada TDG Regulations except that registration with Transport Canada is not required and cylinders must be marked with the requalifiers DOT issued requalifier identification number.

(2) Each cylinder that fails requalification must be:

(i) Rejected and may be repaired or rebuilt in accordance with §180.211 or §180.212, as appropriate; or

(ii) Condemned in accordance with paragraph (i) of this section.

(3) For DOT specification cylinders, the marked service pressure may be changed upon approval of the Associate Administrator and in accordance with written procedures specified in the approval.

(4) For a specification 3, 3A, 3AA, 3AL, 3AX, 3AAX, 3B, 3BN, or 3T cylinder filled with gases in other than Division 2.2, from the first requalification due on or after December 31, 2003, the burst pressure of a CG–1, CG–4, or CG–5 pressure relief device must be at test pressure with a tolerance of plus zero to minus 10%. An additional 5% tolerance is allowed when a combined rupture disc is placed inside a holder. This requirement does not apply if a CG–2, CG–3 or CG–9 thermally activated relief device or a CG–7 reclosing pressure valve is used on the cylinder.

(d) *Conditions requiring test and inspection of cylinders.* Without regard to any other periodic requalification requirements, a cylinder must be tested and inspected in accordance with this section prior to further use if—

(1) The cylinder shows evidence of dents, corrosion, cracked or abraded areas, leakage, or any other condition that might render it unsafe for use in transportation;

(2) The cylinder has been in an accident and has been damaged to an extent that may adversely affect its lading retention capability;

(3) The cylinder shows evidence of or is known to have thermal damage, or have been over-heated;

(4) Except in association with an authorized repair, evidence of removal of wall thickness via grinding, sanding or other means; or

(5) The Associate Administrator determines that the cylinder may be in an unsafe condition.

(e) *Cylinders containing Class 8 (corrosive) liquids.* A cylinder previously containing a Class 8 (corrosive) liquid may

not be used to transport a Class 2 material in commerce unless the cylinder is—

(1) Visually inspected, internally and externally, in accordance with paragraph (f) of this section and the inspection is recorded as prescribed in §180.215;

(2) Requalified in accordance with this section, regardless of the date of the previous requalification;

(3) Marked in accordance with §180.213; and

(4) Decontaminated to remove all significant residue or impregnation of the Class 8 material.

(f) *Visual inspection.* Except as otherwise provided in this subpart, each time a cylinder is pressure tested, it must be given an internal and external visual inspection.

(1) The visual inspection must be performed in accordance with the following CGA Pamphlets: C–6 for steel and nickel cylinders (IBR, see §171.7 of this subchapter); C–6.1 for seamless aluminum cylinders (IBR, see §171.7 of this subchapter); C–6.2 for fiber reinforced composite special permit cylinders (IBR, see §171.7 of this subchapter); C–6.3 for low pressure aluminum cylinders (IBR, see §171.7 of this subchapter); C–8 for DOT 3HT cylinders (IBR, see §171.7 of this subchapter); and C–13 for DOT 8 series cylinders (IBR, see §171.7 of this subchapter).

(2) For each cylinder with a coating or attachments that would inhibit inspection of the cylinder, the coating or attachments must be removed before performing the visual inspection.

(3) Each cylinder subject to visual inspection must be approved, rejected, or condemned according to the criteria in the applicable CGA pamphlet.

(4) In addition to other requirements prescribed in this paragraph (f), each specification cylinder manufactured of aluminum alloy 6351–T6 and used in self-contained underwater breathing apparatus (SCUBA), self-contained breathing apparatus (SCBA), or oxygen service must be inspected for sustained load cracking in accordance with Appendix C of this part at the first scheduled 5-year requalification period after January 1, 2007, and every five years thereafter.

(5) Except in association with an authorized repair, removal of wall thickness via grinding, sanding or other means is not permitted. Removal of paint or loose material to prepare the cylinder for inspection is permitted (*e.g.*, shot blasting).

(6) Chasing of cylinder threads to clean them is permitted, but removal of metal must not occur. Re-tapping of cylinder threads is not permitted, except by the original manufacturer, as provided in §180.212.

(g) *Pressure test.* (1) Unless otherwise provided, each cylinder required to be retested under this subpart must be retested by means suitable for measuring the expansion of the cylinder under pressure. Testing must be performed in accordance with CGA C–1 (except for paragraph 5.3.2.2, if the required accuracy of the pressure indicating device can be demonstrated by other recognized means such as calibration certificates) (IBR, see §171.7 of this subchapter).

(2) The pressure indicating device and expansion indicating device must meet the resolution requirements of CGA C–1. Midpoint visual interpolation is allowed.

(3) Each day before retesting, the retester shall confirm, by using a calibrated cylinder or other method authorized in writing by the Associate Administrator, that:

(i) The pressure-indicating device, as part of the retest apparatus, is accurate within ±1.0% of the prescribed test pressure of any cylinder tested that day. The pressure indicating device, itself, must be certified as having an accuracy of ±0.5%, or better, of its full range, and must permit readings of pressure from 90%–110% of the minimum prescribed test pressure of the cylinder to be tested. The accuracy of the pressure indicating device within the test system can be demonstrated at any point within 500 psig of the actual test pressure for test pressures at or above 3000 psig, or 10% of the actual test pressure for test pressures below 3000 psig.

(ii) The expansion-indicating device, as part of the retest apparatus, meets the accuracy requirements of CGA C–1.

(4) Test equipment must be verified each day before retesting as required in CGA C–1.

(i) The retester must demonstrate calibration in conformance with this paragraph (g) to an authorized inspector on any day that it retests cylinders.

(ii) A retester must maintain calibrated cylinder certificates in conformance with §180.215(b)(4).

(5) A system check may be performed at or below 90% of test pressure prior to the retest. In the case of a malfunction of the test equipment or operator error, the test may be repeated in accordance with CGA C–1, section 5.7.1. This paragraph (g) does not authorize retest of a cylinder otherwise required to be condemned under paragraph (i) of this section.

(h) *Cylinder rejection.* A cylinder must be rejected when, after a visual inspection, it meets a condition for rejection under the visual inspection requirements of paragraph (f) of this section.

(1) Except as provided in paragraphs (h)(3) and (h)(4) of this section, a cylinder that is rejected may not be marked as meeting the requirements of this section.

(2) The requalifier must notify the cylinder owner, in writing, that the cylinder has been rejected.

(3) Unless the cylinder is repaired or rebuilt in conformance with requirements in §180.211, it may not be filled with a hazardous material and offered for transportation where use of a specification packaging is required.

(4) A rejected cylinder with a service pressure of less than 900 psig may be requalified and marked if the cylinder is repaired or rebuilt and subsequently inspected and tested in conformance with—

(i) The visual inspection requirements of paragraph (f) of this section;

(ii) Part 178 of this subchapter and this part;

(iii) Any special permit covering the manufacture, requalification, and/or use of that cylinder; and

(iv) Any approval required under §180.211.

(i) *Cylinder condemnation.* (1) A cylinder must be condemned when—

(i) The cylinder meets a condition for condemnation under the visual inspection requirements of paragraph (f) of this section.

(ii) The cylinder leaks through its wall.

(iii) Evidence of cracking exists to the extent that the cylinder is likely to be weakened appreciably.

(iv) For a DOT specification cylinder, other than a DOT 4E aluminum cylinder or a special permit cylinder, permanent expansion exceeds 10 percent of total expansion.

(v) For a DOT 3HT cylinder—

(A) The pressure test yields an elastic expansion exceeding the marked rejection elastic expansion (REE) value.

(B) The cylinder shows evidence of denting or bulging.

(C) The cylinder bears a manufacture or an original test date older than twenty-four years or after 4380 pressurizations, whichever occurs first. If a cylinder is refilled, on average, more than once every other day, an accurate record of the number of rechargings must be maintained by the cylinder owner or the owner's agent.

(vi) For a DOT 4E aluminum cylinder, permanent expansion exceeds 12 percent of total expansion.

(vii) For a DOT special permit cylinder, permanent expansion exceeds the limit in the applicable special permit, or the cylinder meets another criterion for condemnation in the applicable special permit.

(viii) For an aluminum or an aluminum-lined composite special permit cylinder, the cylinder is known to have been or shows evidence of having been overheated. Arc burns must be considered evidence of overheating.

(ix) The cylinder is known to have been or shows evidence of having been over-pressurized.

(x) For a cylinder with a specified service life, its authorized service life has expired.

(xi) The cylinder has been stamped on the sidewall, except as provided in part 178 of this subchapter.

(2) When a cylinder must be condemned, the requalifier must—

(i) Communicate condemnation of the cylinder as follows:

(A) Stamp a series of Xs over the DOT-specification number and the

marked pressure or stamp ''CONDEMNED'' on the shoulder, top head, or neck using a steel stamp;

(B) For composite cylinders, securely affix to the cylinder a label with the word ''CONDEMNED'' overcoated with epoxy near, but not obscuring, the original cylinder manufacturer's label; or

(C) As an alternative to the stamping or labeling as described in this paragraph (i)(2), at the direction of the owner, the requalifier may render the cylinder incapable of holding pressure; and

(ii) Notify the cylinder owner, in writing, that the cylinder is condemned and may not be filled with hazardous material and offered for transportation in commerce where use of a specification packaging is required.

(3) No person may remove, obliterate, or alter the required condemnation communication of paragraph (i)(2) of this section.

(j) *Training materials.* Training materials may be used for training persons who requalify cylinders using the volumetric expansion test method.

[67 FR 51660, Aug. 8, 2002, as amended at 68 FR 24662, May 8, 2003; 68 FR 75764, Dec. 31, 2003; 70 FR 34077, June 13, 2005; 70 FR 73166, Dec. 9, 2005; 71 FR 51128, Aug. 29, 2006; 73 FR 4720, Jan. 28, 2008; 75 FR 53597, Sept. 1, 2010; 82 FR 15896, Mar. 30, 2017; 85 FR 85433, Dec. 28, 2020]

§ 180.207 Requirements for requalification of UN pressure receptacles.

(a) *General.* (1) Each UN pressure receptacle used for the transportation of hazardous materials must conform to the requirements prescribed in paragraphs (a), (b) and (d) in § 180.205.

(2) No pressure receptacle due for requalification may be filled with a hazardous material and offered for transportation in commerce unless that pressure receptacle has been successfully requalified and marked in accordance with this subpart or requalified and marked by a facility registered by Transport Canada in accordance with the Transport Canada TDG Regulations (IBR, *see* § 171.7 of this subchapter). A pressure receptacle may be requalified at any time during or before the month and year that the requalification is due. However, a pressure receptacle filled before the requalification becomes due may remain in service until it is emptied. In accordance with the Transport Canada TDG Regulations a CAN marked UN cylinder may be requalified in the United States by a domestic requalifier, provided the requirements in §§ 178.69, 178.70, and 178.71, as applicable, are met.

(3) A pressure receptacle with a specified service life may not be requalified after its authorized service life has expired. A pressure receptacle with a specified service life may not be refilled and offered for transportation after its authorized service life has expired unless approval has been obtained in writing from the Associate Administrator.

(b) *Periodic requalification of UN pressure receptacles.* (1) Each pressure receptacle that is successfully requalified in accordance with the requirements specified in this section must be marked in accordance with § 180.213. The requalification results must be recorded in accordance § 180.215.

(2) Each pressure receptacle that fails requalification must be rejected or condemned in accordance with the applicable ISO requalification standard.

(c) *Requalification interval.* Each UN pressure receptacle that becomes due for periodic requalification must be requalified at the interval specified in the following table before it is filled:

TABLE 1—REQUALIFICATION INTERVALS OF UN PRESSURE RECEPTACLES

Interval (years)	UN pressure receptacles/hazardous materials
10	Pressure receptacles for all hazardous materials except as noted below (also for dissolved acetylene, see paragraph (d)(3) of this section):
5	Composite pressure receptacles.
5	Metal hydride storage systems
5	Pressure receptacles used for: All Division 2.3 materials. UN1013, Carbon dioxide.