

§ 180.413. The suitability of any repair affecting the structural integrity of the cargo tank must be determined either by the testing required in the applicable manufacturing specification or in paragraph (g)(1)(iv) of this section.

(2) The cargo tank has sustained damage to an extent that may adversely

affect its lading retention capability. A damaged cargo tank must be pressure tested in accordance with the procedures set forth in paragraph (g) of this section.

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(c) *Periodic test and inspection.* Each specification cargo tank must be tested

and inspected as specified in the following table by an inspector meeting the qualifications in § 180.409. The retest date shall be determined from the specified interval identified in the following table from the most recent inspection or the CTMV certification date.

COMPLIANCE DATES—INSPECTIONS AND TEST UNDER § 180.407(C)

Test or inspection (cargo tank specification, configuration, and service)	Date by which first test must be completed (see Note 1)	Interval period after first test
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Internal Visual Inspection: All insulated cargo tanks, except MC 330, MC 331, MC 338 (see Note 4).	September 1, 1991	1 year.
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Note 4: Insulated cargo tanks equipped with manholes or inspection openings may perform either an internal visual inspection in conjunction with the external visual inspection or a hydrostatic or pneumatic pressure-test of the cargo tank.

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(d) *External visual inspection and testing.* The following applies to the external visual inspection and testing of cargo tanks:

(1) Where insulation precludes a complete external visual inspection as required by paragraphs (d)(2) through (d)(6) of this section, the cargo tank also must be given an internal visual inspection in accordance with paragraph (e) of this section. If external visual inspection is precluded because any part of the cargo tank wall is externally lined, coated, or designed to prevent an external visual inspection, those areas of the cargo tank must be internally inspected. If internal visual inspection is precluded because the cargo tank is lined, coated, or designed so as to prevent access for internal inspection, the tank must be hydrostatically or pneumatically tested in accordance with paragraph (g)(1)(iv) of this section. Those items able to be externally inspected must be externally inspected and noted in the inspection report.

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(4) Ring stiffeners or other appurtenances, installed on cargo tanks constructed of mild steel or high-strength, low-alloy steel, that create air cavities adjacent to the tank shell that do not allow for external visual inspection must be thickness tested in accordance with paragraphs (i)(2) and (i)(3) of this section, at least once every 2 years. At least four symmetrically distributed readings must be taken to

establish an average thickness for the ring stiffener or appurtenance. If any thickness reading is less than the average thickness by more than 10%, thickness testing in accordance with paragraphs (i)(2) and (i)(3) of this section must be conducted from the inside of the cargo tank on the area of the tank wall covered by the appurtenance or ring stiffener.

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(g) * * *

(1) * * *

(ii) All self-closing pressure relief valves, including emergency relief vents and normal vents, must be removed from the cargo tank for inspection and testing.

(A) Each self-closing pressure relief valve that is an emergency relief vent must open at the required set pressure and seat to a leak-tight condition at 90 percent of the set-to-discharge pressure or the pressure prescribed for the applicable cargo tank specification.

(B) Normal vents (1 psig vents) must be tested according to the testing criteria established by the valve manufacturer.

(C) Self-closing pressure relief devices not tested or failing the tests in this paragraph (g)(1)(ii) must be repaired or replaced.

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(iv) Each cargo tank must be tested hydrostatically or pneumatically to the internal pressure specified in the following table. At no time during the pressure test may a cargo tank be subject to pressures that exceed those identified in the following table:

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(4) All pressure bearing portions of a cargo tank heating system employing a medium such as, but not limited to, steam or hot water for heating the lading must be hydrostatically pressure tested at least once every 5 years. The test

pressure must be at least the maximum system design operating pressure and must be maintained for five minutes. A heating system employing flues for heating the lading must be tested to ensure against lading leakage into the flues or into the atmosphere.

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(h) *Leakage test.* The following requirements apply to cargo tanks requiring a leakage test:

(1) Each cargo tank must be tested for leaks in accordance with paragraph (c) of this section. The leakage test must include testing product piping with all valves and accessories in place and operative, except that any venting devices set to discharge at less than the leakage test pressure must be removed or rendered inoperative during the test. All internal or external self-closing stop valves must be tested for leak tightness. Each cargo tank of a multi-cargo tank motor vehicle must be tested with adjacent cargo tanks empty and at atmospheric pressure. Test pressure must be maintained for at least 5 minutes. Cargo tanks in liquefied compressed gas service must be externally inspected for leaks during the leakage test. Suitable safeguards must be provided to protect personnel should a failure occur. Cargo tanks may be leakage tested with hazardous materials contained in the cargo tank during the test. Leakage test pressure must be no less than 80% of MAWP marked on the specification plate except as follows:

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(iv) An MC 330 or MC 331 cargo tank in dedicated service for anhydrous ammonia may be leakage tested at not less than 414 kPa (60 psig).

(v) A non-specification cargo tank required by § 173.8(d) of this subchapter to be leakage tested, must be leakage tested at not less than 16.6 kPa (2.4