



SHIP SAFETY BULLETIN

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Subject: Hydrostatic testing of pressure containers under the *Vessel Fire Safety Regulations*

Update

This bulletin replaces Ship Safety Bulletin no. [04/2019](#).

Scope

This bulletin applies to Canadian vessels that are of

- more than 15 gross tonnage; or
- 15 gross tonnage or less and carrying more than 12 passengers.

This bulletin **does not** apply to pleasure craft, fishing vessels or certain other vessel types listed in subsection [101\(3\)](#) of the *Vessel Fire Safety Regulations* (VFSR).

Purpose

The VFSR set out requirements that must be met for hydrostatic testing of pressure containers (cylinders), such as fire-extinguishing agent bottles.

Section [1.49](#) of the *Transportation of Dangerous Goods Regulations* (TDGR) outlines the pressure cylinder marking and product approval requirements for transportation of pressure cylinders to shore facilities for refilling, exchanging or requalification from a Canadian-flagged vessel.

Details

Part 1 or Part 2 Vessels

Keywords:

1. Hydrostatic testing
2. *Vessel Fire Safety Regulations*
3. Pressure container

Questions concerning this Bulletin should be addressed to:

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Ottawa, Ontario K1A 0N8

Contact us at: marinesafety-securitemaritime@tc.gc.ca or 1-855-859-3123 (toll free).

Vessels must meet the operational readiness and maintenance requirements of the *International Convention for the Safety of Life at Sea (SOLAS)*, Chapter II-2, including all guidelines and recommendations.

The VFSR also require grandfathered vessels that are subject to the *Fire Detection and Extinguishing Equipment Regulations* to comply with the same operational readiness and maintenance requirements. Consult subsection [106\(3\)](#) of the VFSR.

Consult the International Maritime Organization's (IMO) [Revised Guidelines on Maintenance and Inspection of Fire Protection Systems and Appliances \(MSC.1/Circ.1432\)](#). The document's annex contains hydrostatic testing requirements for

- fixed gas fire-extinguishing systems, other than carbon dioxide (CO₂) systems (section 10.1);
- water mist, water spray and sprinkler systems (section 10.2);
- fixed dry chemical powder systems (section 10.3);
- wheeled (mobile) fire extinguishers (section 10.5); and
- breathing apparatus (section 9.4).

Consult IMO's [Revised Guidelines for the Maintenance and Inspections of Fixed Carbon Dioxide Fire-Extinguishing Systems \(MSC.1/Circ.1318/Rev.1\)](#). **Note that the revision, issued on 25 May 2021, modifies paragraph 6.1.2 of the annex to introduce changes to the hydrostatic testing intervals for fixed CO₂ fire-extinguishing systems, the most important information to note as follow:**

*“At the 10-year inspection, at least 10% of the total number provided should be subjected to an internal inspection and hydrostatic test. If one or more cylinders fail, a total of 50% of the onboard cylinders should be tested. If further cylinders fail, all cylinders should be tested. **Before the 20-year anniversary and every 10-year anniversary thereafter, all cylinders should be subjected to a hydrostatic test.**”*

Consult IMO's [Improved Guidelines for Marine Portable Fire Extinguishers \(Resolution A.951 \(23\)\)](#). The annex contains the hydrostatic testing requirements for portable fire extinguishers.

Cylinders for fixed fire-extinguishing systems must meet the marking requirements of the standards referred to in section [124](#) of the VFSR. The TDGR include an exemption for the transportation of cylinders used in fixed fire-extinguishing systems on board vessels, for the purpose of refilling, exchanging or requalification. Vessels must meet the conditions of section 1.49 of the TDGR to benefit from that exemption.

Part 3 Vessels

Vessels must maintain their pressure containers in accordance with the manufacturer's instructions and the standards to which the system is certified or approved.

Fixed **carbon dioxide** (CO₂) fire-extinguishing systems

- are subject to subsection [345\(1\)](#) of the VFSR;
- are required under the *Standard on Carbon Dioxide Extinguishing Systems* (NFPA 12) to be hydrostatic tested
 - after 12 years of service; and
 - before recharging if 5 years have passed after the last test date.

Fixed **gas** fire-extinguishing systems (other than carbon dioxide systems)

- are required to be tested by following the requirements of the TDGR¹ and must meet either
 - subsection [346\(1\)](#) of the VFSR and the *Standard on Clean Agent Fire Extinguishing Systems* (NFPA 2001); or
 - paragraph [347\(1\)\(a\)](#) of the VFSR and the *Standard for Fixed Aerosol Fire-Extinguishing Systems* (NFPA 2010).

Where test intervals differ between the TDGR, the National Fire Protection Association or the manufacturer's requirements, you must use the most frequent interval.

Cylinders for fixed fire-extinguishing systems must meet the marking requirements of the standards referred to in subsection [339\(3\)](#) of the VFSR. The TDGR include an exemption for the transportation of cylinders used in fixed fire-extinguishing systems on board vessels, for the purpose of refilling, exchanging or requalification. Vessels must meet the conditions of section 1.49 of the TDGR to benefit from that exemption.

¹For further clarification of the applicable requirements of the TDGR, please contact the Transportation of Dangerous Goods Office in your region, which can be found at <https://www.tc.gc.ca/eng/tdg/menu.html>.