



SHIP SAFETY BULLETIN

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**Subject: Regulations for Vessel Air Emissions:
2015 SULPHUR EMISSIONS STANDARDS**

Purpose

The purpose of this bulletin is to inform stakeholders that under the *Vessel Pollution and Dangerous Chemicals Regulations* (the Regulations), the sulphur content requirements for marine fuel will be 0.1% effective January 1, 2015.

Background

Sulphur oxides are formed during combustion from the sulphur present in the vessel's fuel; therefore controls are set as the percentage of sulphur content in fuel. For vessels using emission control technology, the controls use an equivalent sulphur dioxide to carbon dioxide ratio.

The [Regulations](#) implement air emission standards, including the North American Emission Control Area (NA-ECA). They can be accessed through the Laws of Canada website managed by the Department of Justice Canada and will be enforced in accordance with the [Policy on Compliance and Enforcement of the Canada Shipping Act, 2001](#)- TP 13585.

Emissions Standards: Sulphur oxides

For vessels inside the NA-ECA and throughout Canadian waters south of 60°N, the Regulations set a limit of 1.00% on the sulphur content of marine fuel. This will decrease to 0.10% effective January 1, 2015. Compliance will be determined based on sulphur content, not fuel type.

In waters outside of the NA-ECA, north of 60°N and including all of Hudson's Bay, James Bay and Ungava Bay, the Regulations set the global standards under the MARPOL

Keywords:

1. Air Emissions
2. Marine Fuels
3. Regulations
4. Sulphur
5. Pollution Prevention

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Convention for sulphur content in marine fuel. This is currently 3.50%, but effective January 1, 2020, this will decrease to 0.50%.

Vessels over 400 gross tonnage are required by the Regulations to carry bunker delivery notes, which stipulate the sulphur content of fuel delivered to the vessel. Pursuant to section 124(1) of the Regulations and Regulation 18.5 of Annex VI to MARPOL, the vessel's bunker delivery note must contain the following information:

- Name and IMO Number of receiving ship
- Port
- Date of commencement of delivery
- Name, address, and telephone number of marine fuel oil supplier
- Product name(s)
- Quantity in metric tons
- Density at 15°C, kg/m³ tested in accordance with ISO 3675:1998 or ISO 12185:1996
- Sulphur content (% m/m) tested in accordance with ISO 8754:2003
- A declaration signed and certified by the fuel oil supplier's representative that the fuel oil supplied is in conformity with the applicable subparagraph of regulation 14.1 or 14.4 and regulation 18.3 of Annex VI to MARPOL.

Determining Compliance: Sulphur content in fuel

In most cases, an authorized representative of the vessel relies on the sulphur content provided in the bunker delivery note. However, Annex VI to MARPOL also requires samples of the fuel to be kept on board. As the authorized representative is responsible for having compliant fuel, verification would be prudent.

Appendix VI of Annex VI to MARPOL sets out the *Fuel Verification Procedure for MARPOL Annex VI Fuel Oil Samples*, to determine if the fuel oil delivered to and used on board ships is compliant with the sulphur limits. This procedure requires that sulphur content of fuel must be tested in accordance with a method published by the International Standards Organization (ISO). The method, ISO 8754:2003, can be found at the ISO website.

Petroleum fuels can vary greatly in composition depending on the stock crude and refining process they were subjected to. Therefore, variability between test results needs to be accounted for when determining if the fuel is compliant with the sulphur content standard. The ISO test method provides an accepted variability, amounting to $\pm 0.02\%$ in terms of measured sulphur content or a relative variance of 5%.

However, Annex VI to the MARPOL Convention sets out standards for sulphur content in marine fuel as absolute limits. This must be considered when managing compliance in the face of the natural variation of the fuel and that of laboratory measurements.

The Fuel Verification Procedure manages for a variance by setting requirements for when a test should be repeated by a second laboratory and those results included in the calculation or if the entire test should be repeated. When a fuel sample is found to have a sulphur content over the MARPOL standard and 0.59 times the reproducibility standard set by the ISO test method, the fuel represented by that sample is deemed non-compliant.

Determining Compliance: Sulphur dioxide to carbon dioxide ratio

As an alternative to the sulphur content in fuel, the Regulations allow for compliance to be in accordance with the IMO *Guidelines for Exhaust Gas Cleaning Systems*, Resolution [MEPC.184\(59\)](#). The Guidelines allow compliance with the sulphur content standards to be determined by the ratio of sulphur dioxide to carbon dioxide (SO₂/CO₂) in the vessel's exhaust. This document may be accessed at the IMO website through the Knowledge Centre, index of IMO Resolutions, under the [list of MEPC Resolutions](#).

Determining Compliance: Alternative options

Transport Canada can consider other alternative compliance options, which will require a Marine Technical Review Board decision for a Canadian vessel and for a foreign vessel, an approval by that vessel's Administration. Please note, if the vessel is to trade in the United States, or other countries with an emission control area, the alternative compliance method needs to be accepted by those countries. For more information, please see Ship Safety Bulletin [02/2013](#) on alternative compliance options.

Enforcement of the Regulations

With the reduction in sulphur in compliant marine fuel decreased by 90% from 1% sulphur content to 0.1% sulphur on January 1, 2015, enforcement of these regulations will be increased. Vessels with non-complaint fuel are still required to report. Please see Ship Safety Bulletin [04/2013](#) for further guidance on reporting non-compliant fuel.

A range of enforcement options, including detention of vessels and penalties, will be introduced in 2015 and will be applied in accordance with the [Policy on Compliance and Enforcement of the Canada Shipping Act, 2001](#)- TP 13585. Transport Canada will be working collaboratively with agencies in the United States and in European countries to ensure consistent enforcement of international standards for emission control areas.

Questions

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