

A Guide For
Bunkering
Industry



Moving Towards IMO 2020 SULPHUR LIMIT

Developed by



Part of



BACKGROUND

On October 27, 2016 the International Maritime Organisation (IMO) decided that the Sulphur Limit under MARPOL Annex VI would enter into force on January 1, 2020.

IMO is a specialised agency of the United Nations, responsible for the safety and security of shipping and the prevention of marine pollution by ships. The International Convention for the Prevention of Pollution from Ships (MARPOL), developed by IMO, is one of the most important international marine environmental conventions.

It aims to preserve the marine environment by minimising pollution of the oceans and seas. MARPOL Annex VI was adopted in 1997 and took effect in 2005 to address air pollution from shipping. In October 2008, MARPOL Annex VI was amended to reduce the sulphur content limit of marine fuels. Come 1 January 2020, the range of compliant fuel that will be available in Singapore includes:

- Marine Gas Oil (MGO)
- Low Sulphur Fuel Oil (LSFO)
- Liquefied Natural Gas (LNG)
- High Sulphur Fuel Oil (HSFO) - for ships fitted with scrubber

The sulphur content of any fuel oil used on board ships shall not exceed the following limits:

4.50% m/m prior to 1 January 2012;
3.50% m/m on and after 1 January 2012; and
0.50% m/m on and after 1 January 2020.

The aim of this guidebook is to provide an overview on Singapore's efforts to prepare for IMO 2020 regulation from the supply perspectives of bunkering and would complement the published technical guides for visiting ships. This guidebook would also provide relevant guidance on operational areas while preparing to provide compliant fuel in port come 1 January 2020.

MPA'S EFFORTS TO PREPARE SINGAPORE'S READINESS

Fuel oil availability

MPA has been working closely with all licensed bunker suppliers to ensure that they would be able to supply 0.50% m/m sulphur content fuel ("**compliant fuel**") come 2020. In this regard, MPA has published an information sheet on its corporate website.

This information sheet aims to promote greater transparency and certainty to the shipping community on Singapore's readiness in complying with the 0.50% sulphur cap limit regulation.

The information sheet provides a list of licensed bunker suppliers and the types of compliant fuels available in Singapore, which include Marine Gas Oil, Low Sulphur Fuel Oil, Ultra Low Sulphur Fuel Oil and High Sulphur Fuel Oil.



The information sheet can be found at the following link:
<http://www.mpa.gov.sg>

BEST PRACTICES FOR FUEL OIL SUPPLIERS

Amendments to bunker delivery note

Amendments to the Bunker Delivery Note (BDN) for Marine Fuel Oil (MFO) deliveries have come into force on 1 January 2019 as the industry gears towards the IMO 2020 regulation.

BDN, as required by regulation 18 of MARPOL Annex VI, should be provided by the fuel oil supplier. Text on the BDN should include the requirements of appendix V of MARPOL Annex VI.

For the delivery of bunkers in Singapore, fuel oil suppliers should also comply

with the prevailing versions of national standards such as SS 524 - Singapore Standard Specification for Quality Management for Bunker Supply Chain, SS 600 - Singapore Standard Code of Practice for Bunkering by bunker tankers and TR 48 - Technical Reference for Bunker Mass Flow Metering. MPA could take regulatory action against fuel oil supplier who fail to comply with the prevailing bunkering standards and licensing requirements.

Come 1 January 2020, the bunker supplier shall indicate the relevant boxes in the following scenarios:

1st checkbox:

For bunker deliveries where sulphur content of fuel oil used on board ship shall not exceed 0.50% m/m on and after 1 January 2020.

2nd checkbox:

For bunker deliveries to ships operating within an emission control area, the sulphur content of fuel oil used on board ships shall not exceed 0.10% m/m and after 1 January 2015.

3rd checkbox:

For bunker deliveries where its sulphur content of fuel oil used on board ship exceed 0.50% m/m and in compliance with Regulation 4 or 3.2 of MARPOL Annex VI.

BUNKER DELIVERY NOTE		BDN NO.	
Port		Bunker Metering Ticket No.	
Delivery Location		Vessel's Name	
Bunker Tanker's Name		Vessel's IMC No.	
SI No.		Gross Tonnage	
Allowable Vessel		Owner/Operator	
Commenced Pumping		ETA	
Completed Pumping		Next Port	
PRODUCT SUPPLIED			
Product Name	Quantity	Specification	
Viscosity at 40°C or 50°C (mm ² /s) (ISO 3106)	Sulphur Content % m/m (ISO 3106 or ISO 8216)		
GNP Density at 15°C (kg/m ³) (ISO 3107 or ISO 12185)	Water Content % w/w (ISO 3105)		
SUPPLIER'S DECLARATION		MADE/TO ORDER ENGINEER'S ACKNOWLEDGEMENT	
<p>I/we declare that the bunker fuel supplied conforms with Regulation 35.2 of the Annex and that the sulphur content of the fuel oil supplied does not exceed:</p> <p>Please check (x) in the appropriate box(es) below:</p> <p>(1) the limit value given by Regulation 35.2 of this Annex;</p> <p>(2) the limit value given by Regulation 35.4 of this Annex; or</p> <p>(3) the purchaser's specified limit value of _____ (m/m), as certified by the fuel oil supplier's representative and on the basis of the purchaser's notification that the fuel oil is intended to be used:</p> <p>in combination with an equivalent means of compliance in accordance with Regulation 4 of this Annex; or</p> <p>in violation of a relevant exemption for a ship to conduct trials for a valid under-ambient induction and control technology research in accordance with Regulation 3.2 of this Annex.</p>		<p>I/we acknowledge receipt of the above product and confirm to the intended use and that the following samples were jointly taken by the contractor and owner at the vessel's receiving, receipt and metering:</p> <p>Said No. _____ Customer Said No. (if any) _____</p> <p>Vessel: _____</p> <p>Bunker Tanker: _____</p> <p>Signature: _____</p> <p>Other: _____ (in square) _____ (in square)</p> <p>Was a copy of BDN received? Yes / No</p>	
<p>Signature of Supplier</p> <p>Full Name in Block Letters</p> <p>Bunker Tanker's Stamp</p>		<p>Signature of Master/Chief Engineer/ Date and Time</p> <p>Full Name in Block Letters</p>	
<p>Was a Note of Protest issued? Yes / No</p> <p>Master's Stamp</p>		<p>Signature of Receiver</p> <p>Very Satisfied</p> <p>Not Satisfied</p>	



Bunker Tanker Preparation Checklist

- ❑ Have you map out the implementation schedule for your bunker tanker taking into consideration the need for bunker tanker conversion, fuel oil system or pipeline modifications, mass flow meter (MFM) suitability etc?
- ❑ Are fuel oil system modifications required? If so, have you made arrangements with the shipyard or classification societies for a review?
- ❑ Have you made plans to establish the types of cargo fuel oil to carry? For instance, expected number of cargo tanks designated to carry 0.5% sulphur compliant fuel oil.
- ❑ Is there any need to convert your bunker tanker to carry 0.5% sulphur compliant fuel oil?
- ❑ Is there a need to perform tank cleaning for your bunker tanker? Have you made arrangements with tank cleaning service providers and/or surveyors to perform tank cleaning?
- ❑ Did you inform MPA on the intent to convert your bunker tanker to carry a new type of cargo fuel oil?
- ❑ To ensure your installed MFM is suitable for handling LSFO or MGO, have you checked with meter vendors and referred to the approval letter issued by MPA?
- ❑ Have you considered the expected date of loading the first batch of 0.5% m/m sulphur compliant fuel oil and made necessary arrangements with the oil terminal?



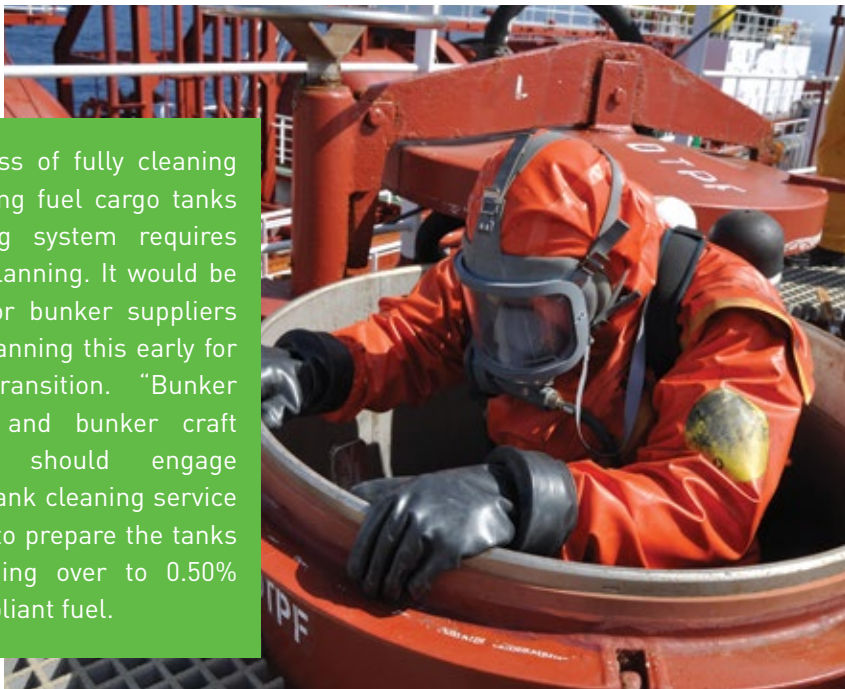
BEST PRACTICES FOR FUEL OIL SUPPLIERS

Fuel Cargo Tank Cleaning

Fuel cargo tank cleaning is an important measure to avoid compatibility and stability issues while transitioning to 0.50% m/m compliant fuel due to the risk of undetected residue from non-compliant fuels that may remain in the tanks when switching from HSFO to 0.50% m/m compliant fuel.

Even a small amount of HSFO remaining in the cargo oil tank of a bunker tanker can potentially render a newly loaded cargo of LSFO fuel to be non-compliant. Furthermore, residues of previous HSFO cargo may cause sedimentation when mixed with newly loaded LSFO.

The process of fully cleaning and flushing fuel cargo tanks and piping system requires advance planning. It would be prudent for bunker suppliers to start planning this early for smooth transition. "Bunker suppliers and bunker craft operators should engage qualified tank cleaning service providers to prepare the tanks for switching over to 0.50% m/m compliant fuel.



BEST PRACTICES FOR FUEL OIL SUPPLIERS

Bunker transport, storage and transfer

The quality of a bunker fuel or blended components may change during transport, storage and transfer. The bunker supplier should ensure bunker quality via the following procedures:

Ensure products from different shore tanks contain the same grade and same certificate of quality prior loading into cargo tank.

Ensure cargo tank is empty before loading a new cargo into it.

Mass Flow Metering

With the implementation of the IMO 2020 regulation, some bunker tanker owners may wish to switch the fuel oil product from HSFO to LSFO.

To ensure that the existing installed MFM is suitable for handling LSFO or MGO, bunker suppliers and bunker craft operators should check with their meter vendors and/or the approval letter issued by MPA.



Ensure proper storage condition and handling of the product on board.

This includes keeping fuels at the right temperature and preventing water ingress into the tank from external sources.

MPA is currently working with the meter vendors and would be sharing more information on our website at a later stage.

More information on MFM can be accessed at the QR code on the right.





BEST PRACTICES FOR FUEL OIL SUPPLIERS

With regards to fuel specifications, International Standards Organization (ISO) has confirmed that the general requirements of ISO 8217 : 2017 covers compliant fuels in the same way as they cover today's fuels. ISO has also initiated the development of a Publicly Available Specification (PAS) "Considerations for fuel suppliers and users regarding marine fuel quality in view of the implementation of maximum 0.5% sulphur limit in 2020. This PAS is expected to be ready by end Sep 2019.

A certificate of quality issued by accredited testing laboratory under the national accreditation body to be provided for the fuel products purchased.

The bunker supplier is to make an agreement with the cargo provider that a continuous drip sample is collected at the jetty loading arm when loading products into bunker tankers from the oil and storage terminals.

Custody samples shall be collected by bunker suppliers during ship to ship transfer.

The retention period for such samples shall be in accordance with that stipulated in prevailing version of TR 48.

In the case of comingled products, the bunker supplier shall ensure that they are homogenous, stable and conform to the relevant IMO regulations and standards set by the ISO 8217.

The bunker supplier shall establish effective delivery control processes defining the ways it controls the bunkering operations to ensure that correct quantity and quality of bunkers are delivered to vessels in compliance with requirements under SS600 and TR 48.

IMO GUIDELINES



GUIDELINES ON CONSISTENT IMPLEMENTATION OF THE 0.50% M/M SULPHUR LIMIT

MEPC 74 approved the *Guidelines on consistent implementation of the 0.50% sulphur limit under MARPOL Annex VI* in May 2019. The guidelines include considerations on matters such as control mechanism and actions, including port State control and samples of fuel oil delivered, used and stored on board; verification issues; change to Fuel Oil Non-Availability Report (FONAR) form; possible impact on fuel and machinery systems resulting from new fuel blends or fuel types; and possible safety implications relating to fuel oils meeting the 0.50% m/m sulphur limit. The guidelines can be accessed at the QR Code link appended below.



Guidelines on Consistent Implementation of IMO 2020

JOINT MSC MEPC CIRCULAR ON DELIVERY OF COMPLIANT FUEL OIL BY SUPPLIERS

MEPC 74 approved a joint MSC-MEPC circular on *Delivery of compliant fuel oil by suppliers* in May 2019. The circular states that Member States should urge fuel oil suppliers to take into account, as relevant: MEPC.1/Circ.875 *Guidance on best practice for fuel oil purchasers/users for assuring the quality of fuel oil used on board ships*; and MEPC.1/Circ.875/Add.1 *Guidance on best practice for fuel oil suppliers for assuring the quality of fuel oil delivered to ships*. The circular as approved by MEPC 74, can be accessed at the QR Code link appended below.



Joint MSC-MEPC Circular Delivery of Compliant Fuel Oil by Suppliers



Ships calling into Singapore and submitting a Fuel Oil Non-Availability Report (FONAR) would be required to bunker compliant fuel oil in Singapore. In view of the carriage ban of non-compliant fuel come 1 March 2020, the remaining non-compliant fuel oil should be de-bunkered to the appropriate reception facilities. In Singapore, de-bunkering is only allowed if the vessel had received wrong grade(s) of bunker fuel from her last call to Singapore Port. For ships requiring de-bunkering of bunker fuel received from other ports due to non-compliance with sulphur content limits, please contact MPA Bunker Services Department at bsd@mpa.gov.sg

The procedures and requirements for de-bunkering non-compliant fuel oil will be added to the existing procedures, which can be accessed via the QR code provided below :





The contents of this guidebook is correct as of the date of printing. For updated version of the guidebook or other information, you may scan the QR code on the left or other pages of this guidebook.

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