MARITIME AND PORT AUTHORITY OF SINGAPORE
PORT MARINE CIRCULAR
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Bunker Suppliers / Bunker Craft Operators / Bunker Surveying Companies / Bunker Surveyors / Shipping Community / Laboratory Testing Community

ADOPTION OF TESTING ENHANCEMENTS FOR MARINE FUEL INTENDED TO BE DELIVERED AS BUNKERS IN THE PORT OF SINGAPORE

1. This circular serve to inform all bunker suppliers licensed by the Maritime and Port Authority of Singapore (MPA) on the implementation of enhanced testing parameters for marine fuel batches intended to be delivered as bunkers in the port of Singapore in addition to the existing quality assurance measures. These testing enhancements are intended to be carried out at the upstream supply chain for system efficiencies and cost effectiveness compared to doing so for each delivery.

2. Arising from the bunker contamination incident in Singapore in February 2022, where about 200 ships were supplied with High Sulfur Fuel Oil (HSFO) containing high levels of Chlorinated Organic Compounds (COC) in the Port of Singapore, an Industry Expert Group (IEG)[1] co-chaired by the MPA and Singapore Shipping Association (SSA) was formed to strengthen the quality assurance of bunkers supplied in the Port of Singapore.

3. The IEG had provided its recommendations to MPA in mid-2023, as attached in Annex A of this circular.

4. Taking into account the IEG's recommendations and industry feedback, the following testing enhancements (to be carried out upstream) would be mandatory from 1st June 2024 (in addition to existing quality assurance measures):

[1] The IEG comprised of experts from international associations such as the International Bunker Industry Association (IBIA) and the International Council on Combustion Engines (CIMAC), representatives from fuel oil testing laboratories, bunker suppliers, shipowners, engine manufacturer from MAN Energy, and the Singapore's Health Sciences Authority (HSA).

I. For all residual and bio-residual bunker marine fuel supplied in the Port of Singapore, bunker suppliers must ensure that they do not contain COC above 50mg/kg, and must be free from inorganic acids. Specifically,

   a. COC must be tested for using the EN 14077 accredited test method (concentration of total organic chlorine must not exceed 50mg/kg) and shall be reported in the "Certificate of Quality" (COQ) provided to receiving vessels;

   b. Inorganic acids must be tested for using ASTM D664 accredited test method as prescribed in ISO 8217 and the Strong Acid Number (SAN) (in addition to the Total Acid Number (TAN)) shall be reported in the COQ (i.e. SAN = 0) provided to receiving vessels;

II. For all distillate and bio-distillate bunker marine fuel supplied in the Port of Singapore, bunker suppliers must ensure that they are free from inorganic acids, which must be tested for using ASTM D664 test method as prescribed in ISO 8217 and the SAN (in addition to the TAN) shall be reported in the COQ (i.e. SAN = 0) provided to receiving vessels.

5. Residual marine fuels should also be free from polystyrene, polyethylene and polymethacrylate. For the general detection of these polymers, the fuel can be tested using a test method which consists of filtration, microscopic examination, and Fourier-Transform Infrared spectroscopy (FTIR) analysis to qualitatively determine if they are present in the fuel. It is recommended that all MPA licensed bunker suppliers maintain proper test records to indicate that the current batch of bunker fuel supplied as bunkers in the port of Singapore is free from these polymers. Bunker buyers are also encouraged to consult the bunker suppliers in advance and have proper contractual agreement for the quality of fuel bunkered. MPA is working with relevant agencies and stakeholders to enhance polymer testing capabilities and establish standardised test method for these polymers in Singapore.

6. For marine fuel which is blended using batches of different fuel or feedstock, the tests prescribed in Para 4 must be carried out after the blending, and before being delivered as bunkers in the Port of Singapore. Blending is not permitted on board the MPA licensed bunker craft and the COQ must be of the fuel prior loading to the bunker tanker before the product is delivered as bunkers in the port of Singapore.

7. Please refer to Annex B for FAQs. Should you have any queries, please write to us at bsd@mpa.gov.sg.

CAPT DAKNASH GANASEN
SENIOR DIRECTOR (OPERATIONS & MARINE SERVICES)
for CHIEF EXECUTIVE
MARITIME AND PORT AUTHORITY OF SINGAPORE

ANNEX A

Residual Marine Fuel

Compound Group	Recommendation
Chlorinated Organic Compounds	Residual marine fuels shall not contain chlorinated organic compounds. De minimis levels are taken as when the concentration of total organic chlorine does not exceed 50 mg/kg using the EN 14077 test method.
Inorganic Acids	Residual marine fuels shall be free of inorganic acids. The Strong Acid Number (SAN) (in addition to the Total Acid Number (TAN)) shall be reported within the Certificate of Quality (COQ) (i.e. SAN = 0) and according to test method ASTM D664 as prescribed in ISO 8217.
Polymers	Residual marine fuels should be free from polystyrene, polypropylene, and polymethacrylate. Due to the lack of standardised test methods for the general detection of polymers, the fuel can be tested using a test method which consists of filtration, microscopic examination, and Fourier-Transform Infrared spectroscopy (FTIR) analysis to qualitatively determine if they are present in the fuel.

Distillate Marine Fuel

Compound Group	Recommendation
Inorganic Acids	Distillate marine fuels shall be free of inorganic acids. The Strong Acid Number (SAN) (in addition to the Total Acid Number (TAN)) shall be reported within the Certificate of Quality (COQ) (i.e. SAN = 0) and according to test method ASTM D664 as prescribed in ISO 8217.

ANNEX B

Frequently Asked Questions (FAQs)

No.	FAQ	Answer
1	What are these testing enhancements for?	They are preventive measures introduced to reduce the occurrence of bunkering contaminated fuels by sieving out contaminants from the upstream bunker supply chain.
2	Are the test enhancements required for each bunker delivery?	No. These testing enhancements are to be carried out for the batch of fuel upstream and not for each bunker delivery.
3	Who is responsible for the testing enhancements?	MPA licensed bunker suppliers must ensure that the bunker fuel that they are supplying in the port of Singapore conforms with the requirements laid out in this PMC.
4	When must the enhanced testing be carried out?	For residual fuel / bio-residual bunker marine fuel, the COQ of the fuel loaded onto the bunker tanker must contain the tests results of the COC and SAN. For polymers, (polystyrene, polyethylene and polymethacrylate) suppliers are recommended to maintain proper test records, that the current batch of bunker fuel supplied is free from polymers. For distillate / bio-distillate bunker marine fuel batches, SAN must be tested and reported in the “Certificate of Quality” (COQ). The testing enhancements are to be carried out after blending of feedstocks/fuels (if any) in shore/floating tanks and before being intended to be delivered as bunkers in the Port of Singapore.
5	Are bunker suppliers allowed to adopt these testing enhancements before 1st June 2024?	Yes, MPA licensed bunker suppliers are highly encouraged to adopt these testing enhancements as early as possible. However, from 1st June 2024, bunker suppliers must comply with the requirements of this PMC.

6	Are there testing laboratories capable of conducting these testing enhancements available?	Yes, there are several laboratories in Singapore which have acquired the respective capabilities. Suppliers should approach them for further enquiries.
7	I have concerns due to the lack of standardised testing for polymers. How can we test for it?	Due to the lack of standardised test methods for the general detection of polymers (polystyrene, polypropylene and polymethacrylate), the IEG has hence recommended that the fuel can be tested using a test method which consists of filtration, microscopic examination, and Fourier-Transform Infrared spectroscopy (FTIR) analysis to qualitatively determine if such polymers are present in the fuel. There are several laboratories in Singapore that are or will be undergoing accreditation by SAC-SINGLAS to perform the qualitative polymers testing. MPA is working with relevant agencies to enhance the polymer testing capabilities in Singapore. More details will be announced in due course.
8	Is it compulsory for me to test for all of the polymers?	No, only three polymers (polystyrene, polypropylene, and polymethacrylate) are recommended to be tested for, as they are identified as detrimental when present in marine fuel.
9	Will these testing enhancements affect my turnaround time or impact the bunker supply in Singapore?	The testing enhancements are not expected to affect the current turnaround time to test bunker samples against the existing ISO 8217 testing parameters. As such, MPA does not expect these testing enhancements to have an adverse impact on the supply system.
10	What happens when the new ISO 8217 is published?	The ISO 8217 is expected to be published by early 2024. We will still require MPA bunker suppliers to comply and report the respective testing enhancement results in accordance with the PMC. Further details will be provided once the standard have been released.
11	Are these testing enhancements also included in the revised 8217?	The revised edition of ISO 8217 is yet to be released. The final version is expected to be released by early 2024.

12	Will the fuel be deemed off-spec if they do not meet these enhanced requirements?	Bunker fuel that does not meet the requirements of this PMC must not be supplied as bunkers in Singapore. Licensing action may be taken against the supplier that do not comply with the requirements of this PMC.