Technical Circular

No.: 058/2022 Date: 26th September 2022

Subject: GOI - Use of Biofuel and its Blend as fuel on board Indian Flagged Ships.

1. Indian Administration vide DGS Circular No. 18 of 2022 has permitted the usage of Bio-fuel blends onboard Indian vessels as follows:

   i. Fuel oil (blends of hydrocarbons derived from petroleum refining), which is a blend of not more than 30% by volume of biofuel, is allowed to be used on board Indian vessels, subject to no change is made to NOx affecting components or settings/operating values outside those as given by that engine's approved Technical File.

   ii. Fuel oil which are derived from methods other than petroleum refining or fuel oil which is a blend of more than 30% by volume of biofuel and which require changes to its NOx affecting components or settings/operating values outside those as given by that engine's approved technical file, will be considered by the Administration on case by case basis. However, the fuel oil which is a blend of more than 30% by volume of biofuel and which does not require changes to its NOx affecting components or settings/operating values outside those as given by that engine's approved technical file, such blends may be allowed to be used on board subject to the demonstration by the ship owner to the Administration that the resulting NOx emissions are still within the required limits. The proposal for use of such Biofuel blends in both the above cases are to be submitted for further consideration by Administration.

2. The circular is applicable to:

   a. All sea going Indian Ships registered under MS Act 1958, irrespective of whether the ship has coastal trade or certified under RSV (Ref. DGS Order No. 18 of 2013) or ICV (Ref. DGS Order No. 1 of 2014).

   b. All bunker suppliers registered with Government of India in accordance with Annex VI, Regulation 18 of MARPOL.

3. Following guidance is provided in the circular to be used by Ship-owners and Bunker Suppliers for a consistent and smooth implementation towards usage of Biofuel blend on board Indian ships.

1) Guidance to Bunker Suppliers for supply of bio-fuel blends:

a. The biofuel used as blend or in place of existing fossil fuels to be manufactured or imported in accordance with stated National Policy on Biofuels 2018.

b. Bunker supplier is to submit the Proof of Sustainability (PoS) for Biofuels, Bio and Biomass Fuels and emission savings percentage (carbon emission factor) as per relevant ISO standards (e.g. ISO 14040, ISO 14044, etc.) or under the Renewable Energy Directive (EU) 2018/2001 (RED II) or other equivalent national/international standards to the ship owner.

c. The bunker supplier is to also issue a certificate indicating the carbon content of biofuel blend.

d. Other than mandatory requirements mentioned in "Merchant Shipping Notice No.3 of 2014" towards compliance for Registration as a Bunker supplier, following additional requirements are to be considered:

i. In order to ensure that the quality of bunkers delivered to ships meets the relevant specifications, supplier is to source from appropriate renewable sources to produce bunkers meeting the relevant specifications. The end product should be homogeneous and stable.
ii. The sample sent for testing should be taken in accordance with guidelines for obtaining a representative sample (bottom, middle and top of the tank). The final blend or B100, whichever is the case, is to be tested from any test facility accredited to the National Accreditation Board for Testing and Calibration Laboratories (NABL). In the event of any deviation, in the fuel quality supplied, the Bunker supplier and not the product supplier, will be responsible and liable for the violation.
iii. The supplier is to ensure that the product confirms to relevant specifications and statutory limits and the final blend should be tested against the relevant standards (as mentioned in MEPC.1/ Circ.875) and the test results should be documented in accordance to applicable standards (e.g. ASTM D7467 for B6-B20, ASTM D6751 for B100).
iv. In order to maintain quality control throughout the supply chain, supplier should have a documentation to help identify product origins back to the manufacturing source and the various links in the chain to enable traceability, especially if problems arise to help pinpoint the source of the problem and take remedial action.
v. Supplier is to ensure that, there are appropriate storage & handling facilities to maintain product integrity so as to ensure that the end product is stable and blend components remain mutually compatible to avoid precipitation of solids.

vi. The supplier is responsible for providing the required representative samples of the product delivered to ships to be taken at the ship's manifold and the required documentation including the bunker delivery note (BDN) and safety data sheets (SDS).
vii. The Product Name, as entered onto the bunker delivery note, should be of sufficient detail to identify whether, and to what extent, a biofuel is blended into the product as supplied.
viii. Supplier is to provide declaration to user and maintain records that the product is in accordance with the 'National Bio-fuel Policy'. Supplier to provide a declaration that the blend does not contain extraneous, potentially deleterious, materials in accordance to regulation 18.3 of MARPOL Annex VI.
ix. Bunker Supplier to issue a separate sample test analysis report with various other elements present along with BDN report beyond the MARPOL requirements.

e. Existing approved Bunker suppliers can supply biofuels or its blends to ships and no separate approval is required. However, the Certification mechanism towards supply of bio-fuel blends is required to be addressed in the Quality manual and same will be verified at next bunker supplier audit.

f. No biofuel or its blends is to be supplied without following test results showing kinematic viscosity, water content by volume, Sulphur content by mass, and flash point as specified in ISO 8217:2017. If the biofuel blend or B100 has crossed 6 months but within its shelf life since it is manufactured or blended, additional tests such as %FAME by Fame-Scan, Calorific Value by determination (e.g., ASTM D2450) for gross and net calorific value, Copper strip corrosion (e.g. ASTM D130) to gauge the corrosiveness of the fuel due to high FAME content, Steel strip corrosion (e.g. ASTM D665a) to gauge the corrosiveness of the fuel due to high FAME content and Sediment Wax Precipitation Point are recommended. A copy of test report with each consignment supplied shall be given to the ship.

2) Guidance for Owners/ Managers intending to use bio-fuel blends onboard the vessels:

a. A **Vessel Specific Risk Analysis** is to be carried out for use of bio-fuel blend. Any redundancy requirements on board as per risk analysis are to be taken care for the operational safety and emergency contingency measures. Guidance in respect of following is provided:

i. **Storage and Use**: The significant presence of FAME requires additional fuel management focus on addressing the propensity of FAME to retain water, and accelerate oxidation, microbial growth, filtration problems. To minimize the above

stated risks, long term storage should be avoided during the trial phase. Settling and service tanks should be regularly drained of water. Tank and fuel system materials (any tank coatings used that may not be compatible to such as FAME) should be assessed for suitability of storage and handling of this fuel. It is advisable to ensure the tanks to be loaded with the Bio-diesel are emptied, and cleaned of any excess sludge.

ii. **Purifiers and Filters**: When first put into use, the purifiers and filters are monitored as to any degree if initial sludge deposits from the cleaning effect of the fuel.

iii. **Oily Water Separators and Oil Content Meters:** The OEM is to be consulted and confirmation sought with regards to the compatibility of Oily filtering Equipment including the 15ppm bilge alarm (Marpol Annex 1 Reg.14) for handling B30 blends as an interim measure till IMO establishes requirement for approval of oily water filtering equipment and oil content meter alarm for use with biofuel blend.

iv. **Manufacturers of engines and fuel oil handling equipment e.g. purifiers are to be consulted** for suitability of use and specific recommendation if any to be followed. Biofuel blend may degrade hoses, gaskets, seals, elastomers, glues and plastics after prolonged exposure and may affect storage tank materials. All such materials/equipment used in the fuel system are to be identified in consultation with OEM and are inspected at intervals specified by OEM and renewed as recommended by OEM.

b. **Shipboard operational procedure** is to be prepared which may be part of the SMS manual and is to include procedure for procurement, availability test result, storage of biofuel blend, frequency of cleaning of fuel filters, inspection of storage tanks, monitoring of transfer lines and associated piping & fittings and any other requirements specified by the manufacturers of engines/equipment. The procedure is to also include logging/monitoring of all relevant engine parameters, maintenance, and checks in consultation with equipment manufacturer.

c. Record of any incident pertaining to use of biofuel blend on board is to be maintained and reported to the Administration.

d. The crew is to be familiarized with the shipboard procedures regarding the use of biofuel blend including contingency measures and records maintained.

e. No Biofuel blend is to be used for emergency equipment like lifeboat engine, emergency generator engine, and emergency fire pump engine.

f. Collection and reporting of fuel oil data is to be done as per DGS Engineering Circular 02 of 2018 as superseded by M.S.Notice 07 of 2021. However, blend ratio of the biofuel blend is to be included in the report.

4. The Certification Procedures:

a. For certification purpose, use of fuel oil (blends of hydrocarbons derived from petroleum refining) which is a blend of not more than 30% by volume of biofuel and which do not require changes to its NOx critical components or settings/operating values outside those as given by that engine's approved Technical File, will be considered falling under regulation 18.3.1 of MARPOL Annex VI and accordingly no change will be required in IAPP certificate or supplement.

b. The Owners/ managers intending to use bio-fuel blends onboard their vessels are required to submit following documents to IRS for verification:

i. Proposal for use of biofuel blend prior use on board.
ii. Risk Analysis and redundancy arrangement on board.
iii. Operational procedure as per above para '3/2)'.

c. IRS will verify the submitted documents for compliance to requirements stated in above para '3/ 2)'and will provide its recommendation to the Administration who will then issue a Certificate under Regulation 4 (Equivalents) and also upload the same on IMO GISIS Module.

d. A copy of the Certificate is to be placed on board and made available to authorities as may be required.

5. Ship owners/ operators, bunkers suppliers and masters of Indian vessels are advised to be guided by above.

Enclosure:

1. DGS Circular No. 18 of 2022.

भारतसरकार/ GOVERNMENT OF INDIA
पत्तन, पोतपरिवहनऔरजलमार्गमंत्रालय
MINISTRY OF PORTS, SHIPPING AND WATERWAYS
नौवहनमहानिदेशालय, मुंबई
DIRECTORATE GENERAL OF SHIPPING, MUMBAI

File No: 13-20011/5/2020-ENGG - DGS (C.N.4076) **Dated: 29.08.2022**

DGS Circular No. 18 of 2022

Subject: Use of Biofuel and its Blend as fuel on board Indian Flagged Ships

A. Purpose and Application:

1. This guidance is to be used by Ship-owners and Bunker Suppliers for a consistent and smooth implementation towards usage of Biofuel blend on board Indian ships.
2. This circular is applicable to:

   2.1 All sea going Indian Ships registered under MS Act 1958, irrespective of whether the ship has coastal trade or certified under RSV (Ref. DGS Order No. 18 of 2013) or ICV (Ref. DGS Order No. 1 of 2014).

   2.2 All bunker suppliers registered with Government of India in accordance with Annex VI, Regulation 18 of MARPOL

B. Requirements related to Supply of Bio-Fuel:

3. The biofuel used as blend or in place of existing fossil fuels shall be manufactured or imported in accordance with stated National Policy on Biofuels 2018, as amended.
4. Bunker supplier is to submit the Proof of Sustainability (PoS) for Biofuels, Bio-liquids and Biomass Fuels and emission savings percentage (carbon emission factor) as per relevant ISO standards (e.g. ISO 14040, ISO 14044, etc.) or under the Renewable Energy Directive (EU) 2018/2001 (RED II) or other equivalent national/international standards to the ship owner."
5. The bunker supplier shall also issue a certificate indicating the carbon content of biofuel blend in t-CO_2/t-Fuel calculated:

   a) On weight percentage of bio-fuel component and fossil fuel component and,
   b) Taking C_f of zero for the component of bio-fuel, if a proof of sustainability is provided as above and,
   c) Using C_f of the fossil fuel component in accordance with MEPC.308 (73) (2018 Guidelines on the Method of Calculation of the Attained EEDI for New ships).

6. Other than mandatory requirements mentioned in "Merchant Shipping Notice No.3 of 2014" towards compliance for Registration as a Bunker supplier following additional requirements to be considered:

   6.1 In order to ensure that the quality of bunkers delivered to ships meets the relevant specifications, suppliers shall source from appropriate renewable sources to produce bunkers meeting the relevant specifications. The end product should be homogeneous and stable.

   6.2 The sample sent for testing should be taken in accordance with guidelines for obtaining a representative sample (bottom, middle and top

of the tank). The final blend or B100, whichever is the case, shall be tested from any test facility accredited to the National Accreditation Board for Testing and Calibration Laboratories (NABL). In the event of any deviation, in the fuel quality supplied, the Bunker supplier and not the product supplier, shall be responsible and liable for the violation.

6.3 The suppliers shall ensure that the product confirms to relevant specifications and statutory limits and the final blend should be tested against the relevant standards (as mentioned in MEPC.1/ Circ.875) and the test results should be documented in accordance to applicable standards (e.g. ASTM D7467 for B6- B20, ASTM D6751 for B100).

6.4 In order to maintain quality control throughout the supply chain, suppliers should have a documentation to help identify product origins back to the manufacturing source and the various links in the chain to enable traceability, especially if problems arise to help pinpoint the source of the problem and take remedial action.

6.5 Supplier shall ensure that, there are appropriate storage & handling facilities to maintain product integrity so as to ensure that the end product is stable and blend components remain mutually compatible to avoid precipitation of solids.

6.6 The supplier is responsible for providing the required representative samples of the product delivered to ships to be taken at the ship's manifold and the required documentation including the bunker delivery note (BDN) and safety data sheets (SDS).

6.7 The Product Name, as entered onto the bunker delivery note, should be of sufficient detail to identify whether, and to what extent, a biofuel is blended into the product as supplied.

6.8 Supplier shall provide declaration to user and maintain records that the product is in accordance with the 'National Bio-fuel Policy'. Supplier shall provide a declaration that the blend does not contain extraneous, potentially deleterious, materials in accordance to regulation 18.3 of MARPOL Annex VI.

6.9 Bunker Supplier to issue a separate sample test analysis report with various other elements present (refer paragraph 8) along with BDN report beyond the MARPOL requirements.

7. Existing approved Bunker suppliers can supply biofuels or its blends to ships and no separate approval is required. The Certification mechanism is to be addressed in the Quality manual to be verified at next audit.

8. No biofuel or its blends shall be supplied without following test results showing kinematic viscosity, water content by volume, Sulphur content by mass, and flash point as specified in ISO 8217:2017. If the biofuel blend or B100 has crossed 6 months but within its shelf life since it is manufactured or blended, additional tests such as %FAME by Fame-Scan, Calorific Value by determination (e.g., ASTM D2450) for gross and net calorific value, Copper strip corrosion (e.g. ASTM D130) to gauge the corrosiveness of the fuel due to high FAME content, Steel strip corrosion (e.g. ASTM D665a) to gauge the corrosiveness of the fuel due to high FAME content and Sediment Wax Precipitation Point are recommended. A copy of test report with each consignment supplied shall be given to the ship.

C) <u>The Certification Procedures:</u>

9. A Vessel Specific Risk Analysis are to be carried out for use of bio-fuel blend. Any redundancy requirements on board as per risk analysis are to be taken care for the operational safety and emergency contingency measures:

    9.1 Storage and Use: The significant presence of FAME requires additional fuel management focus on addressing the propensity of FAME to retain water, and accelerate oxidation, microbial growth, filtration problems. To minimise the above stated risks long term storage should be avoided during the trial phase. Settling and service tanks should be regularly drained of water. Tank and fuel system materials (any tank coatings used that may not be compatible to such as FAME) should be assessed for suitability of storage and handling of this fuel. It is advisable to ensure the tanks to be loaded with the Bio-diesel are emptied, and cleaned of any excess sludge.

    9.2 Purifiers and Filters: When first put into use the purifiers and filters are monitored as to any degree if initial sludge deposits from the cleaning effect of the fuel.

    9.3 Oily Water Separators and Oil Content Meters: The OEM shall be consulted and confirmation sought with regards to the compatibility of Oily filtering Equipment including the 15ppm bilge alarm (Marpol Annex 1 Reg.14) for handling B30 blends as an interim measure till IMO establishes requirement for approval of oily water filtering equipment and oil content meter alarm for use with biofuel blend.

    9.4 Manufacturers of engines and fuel oil handling equipment e.g. purifiers are to be consulted for suitability of use and specific recommendation if any is to be followed. Biofuel blend may degrade hoses, gaskets, seals, elastomers, glues and plastics after prolonged exposure and may affect storage tank materials. All such materials/equipment used in the fuel system shall be identified in consultation with OEM and are inspected at intervals specified by OEM and renewed as recommended by OEM.

10. Shipboard operational procedure is to be provided which may be part of the SMS manual and shall include procedure for procurement, availability test result, storage of biofuel blend, frequency of cleaning of fuel filters, inspection of storage tanks, monitoring of transfer lines and associated piping & fittings and any other requirements specified by the manufacturers of engines/equipment. The procedure shall also include logging/monitoring of all relevant engine parameters, maintenance, and checks in consultation with equipment manufacturer.
11. Record of any incident pertaining to use of biofuel blend on board is to be maintained and reported to the Administration.
12. The crew is to be familiarised with the shipboard procedures regarding the use of biofuel blend including contingency measures and records maintained.
13. Bunker sourced from outside Indiamust comply with paragraph 5, 6 (as relevant) & 8 above.
14. Noting that steps have be taken at IMO to allow use of Biofuel blends as a matter of urgency as part of the initial strategy on GHG reductions and considering various trials conducted on Indian ships have shown encouraging results, the Administration has considered allowing the usage of Bio-fuel blends as follows:

14.1 Fuel oil (blends of hydrocarbons derived from petroleum refining), which is a blend of not more than 30% by volume of biofuel, is allowed to be used on board Indian vessels, subject to no change is made to NOx affecting components or settings/operating values outside those as given by that engine's approved Technical File.

14.2 Fuel oil which are derived from methods other than petroleum refining or fuel oil which is a blend of more than 30% by volume of biofuel and which require changes to its NOx affecting components or settings/operating values outside those as given by that engine's approved technical file, shall be considered case by case basis. However, the fuel oil which is a blend of more than 30% by volume of biofuel and which does not require changes to its NOx affecting components or settings/operating values outside those as given by that engine's approved technical file, such blends may be allowed to be used on board subject to the demonstration by the ship owner to the administration that the resulting NOx emissions are still within the required limits. The proposal for use of such Biofuel blends in both the above cases shall be submitted for further consideration by Administration.

15. No Biofuel blend is to be used for emergency equipment like lifeboat engine, emergency generator engine, and emergency fire pump engine.
16. Collection and reporting of fuel oil data is to be done as per DGS Engineering Circular 02 of 2018. However, blend ratio of the biofuel blend is to be included in the report.

D) <u>Responsibilities of Recognized Organizations:</u>

17. The following documents are to be submitted by the owner for verification by an RO to Administration:
    a) Proposal for use of biofuel blend prior use on board.
    b) Risk Analysis and redundancy arrangement on board.
    c) Operational procedure as per the Certification Procedures above.
18. Certification**:** For certification purpose, use of fuel oil (blends of hydrocarbons derived from petroleum refining) which is a blend of not more than 30% by volume of biofuel and which do not require changes to its NOx critical components or settings/operating values outside those as given by that engine's approved Technical File, will be considered falling under regulation 18.3.1 of MARPOL Annex VI and there is no change in IAPP certificate or supplement necessary.
19. The RO shall submit its recommendation to the Competent Authority within 7-days of receipt of request from Ship Owners.

E) <u>Responsibility of Directorate General of Shipping:</u>

20. The Competent Authority shall issue a Certificate under Regulation 4 (Equivalents) within 7 days of receipt of recommendation from Recognized Organization and upload the same on IMO GISIS Module.
21. The Standard format of the equivalent certificate is attached as Annexures-1 of this circular.

22. A copy of the Certificate is to be placed on board and made available to authorities as may be required.

This Circular is issued with the approval of Chief Surveyor cum Additional DG (Engineering).

(Kiran Chempakassery Sasidharan)
E&SS-cum-DDG (Tech)

To,
All stakeholders through DGS Website.

Annexure-1

Format of Certificate

Issued under the authority of the Government of India by

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Particulars of ship

Name of ship.....

Distinctive number or letters.....

Port of registry.....

Gross tonnage.....

IMO Number.....

The ship has been allowed to use following bio-fuel blend under the provisions of Regulation 4 of Marpol Annex VI for the application of Regulation 18.3 of MARPOL Annex VI.

Type of Fuel	Percentage of blend	Manufacturing method	Limitation
Bio-Fuel Blend			