

Merchant Marine Circular

Panama Maritime Authority
General Directorate of Merchant Marine
Control and Compliance Department

MERCHANT MARINE CIRCULAR MMC-395

- To:** Owners/Operators of Panamanian flagged vessels, Recognized, Organizations, Masters and Annual Safety Inspectors, and all other stakeholders.
- Subject:** IGF CODE.
- Reference:** a) Resolution MSC.391(95) dated June 11, 2015; Resolution MSC.392(95) dated June 11, 2015, adopted through Resolution No.106-OMI-183-DGMM, dated December 12, 2016.
- b) Resolution MSC.422(98) dated June 15, 2017; adopted through Resolution No.106-OMI-225 DGMM, dated December 11, 2019.
- c) Circular MSC.1/Circ.1621 "Interim Guidelines for the safety of ships using Methyl/Ethyl alcohol as fuel". **(As a recommendation only)**.
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1. Purpose.

- 1.1.** The purpose of this Merchant Marine Circular is to inform Owners/Operators, Recognized Organizations, Masters, and Annual Safety Inspectors on the applicable procedures regarding the IGF Code and its amendments. The International Code of safety for ships using gases or other low-flashpoint fuels (IGF Code) was adopted by the Maritime Safety Committee of the IMO by Resolutions MSC.391(95) and MSC.392(95). The IGF Code is defined in SOLAS II-1/2.29, and through the new part G in Chapter II-1 of SOLAS Convention, the application and requirements to ships using low-flashpoint fuel is established (refer to SOLAS II-1/56 and 57).

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- 1.2. The basic philosophy of the IGF Code considers the IMO goal-based approach (Refer to MSC.1/Circ.1394 and its amendments). Therefore, goals and functional requirements were specified for each section forming the basis for the design, construction and operation of ships using low-flashpoint fuel, as the main areas for consideration.
- 1.3. The current version of the Code includes regulations to meet the functional requirements for natural gas fuel. Regulations for other low-flashpoint fuels will be added to the IGF Code as, and when, they are developed by the Organization and considering to be incorporated to this Code.
- 1.4. Considering that the IGF Code does not cover methanol as fuel and in the meantime Interim guidelines for the safety of ships using methyl/ethyl alcohol as fuel has been developed thorough the MSC.1/Circ.1621; this Administration accepts the use of this interim guidelines as complementary international standard for the registered fleet using methanol as alternative fuel.
- 1.5. According to the IGF Code, other low-flashpoint fuels not cover by the IGF Code must demonstrate compliance with the functional requirements of the IGF Code through alternative design procedures.

2. Scope: Application and Implementation.

- 2.1. The IGF code applies to vessels governed by part G of chapter II-1 of the International Convention for the Safety of Life at Sea (SOLAS); therefore, new ships using gases or other low-flashpoint fuels shall comply with the requirements of the IGF code, its mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuels, focusing initially on liquefied natural gas (LNG).
- 2.2. The IGF Code entered into force on 1 January 2017 and establishes an international standard for ships using gases or other low-flashpoint fuels for propulsion (Low-flashpoint fuel means gaseous or liquid fuel having a flashpoint lower than otherwise permitted under SOLAS regulation II-2/4.2.1.1). It contains mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuels, focusing currently on LNG.

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2.3. The IGF Code applies to ships using low-flashpoint fuels for which:

- 2.3.1.** the building contract is placed on or after 1 January 2017,
- 2.3.2.** the keels of which are laid or which are at a similar stage of construction on or after 1 July 2017 (in the absence of a building contract), or
- 2.3.3.** the delivery of which is on or after 1 January 2021.

2.4. Ships which commence a conversion on or after 1 January 2017 to use low-flashpoint fuels (or use additional or different low-flashpoint fuels other than those for which the ship was originally certified) will also be required comply with the IGF Code (see SOLAS regulation II-1/56).

Upon completion of construction, a ship Classification Society, acting as a Recognized Organization (RO) for the Administration, shall issue either a Safety Construction Certificate for Passenger Ships, indicating that the ship complies with “part G of Chapter II-1 of the Convention using “LNG” as fuel.”

3. Definitions.

Unless otherwise stated below, the following definitions are those from SOLAS chapter II-2:

- 3.1.** *Administration* means Panama Maritime Authority.
- 3.2.** *Bunkering* means the transfer of liquid or gaseous fuel from land based or floating facilities into a ships' permanent tanks or connection of portable tanks to the fuel supply system.
- 3.3.** *Dual fuel engines* means engines that employ fuel covered by this Code (with pilot fuel) and oil fuel. Oil fuels may include distillate and residual fuels.
- 3.4.** *Fuel containment system* is the arrangement for the storage of fuel including tank connections. It includes where fitted, a primary and secondary barrier, associated insulation and any intervening spaces, and adjacent structure if necessary for the support of these elements. If the secondary barrier is part of the hull structure it may be a boundary of the fuel storage hold space.
- 3.5.** Gas means a fluid having a vapour pressure exceeding 0.28 MPa absolute at a temperature of 37.8°C.

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3.6. *Hazardous area* means an area in which an explosive gas atmosphere is or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of equipment.

3.7. *High pressure* means a maximum working pressure greater than 1.0 MPa.

3.8. *LEL* means the lower explosive limit.

3.9. *LNG* means liquefied natural gas

3.10. *Loading limit (LL)* means the maximum allowable liquid volume relative to the tank volume to which the tank may be loaded.

3.11 *Low-flashpoint fuel* means gaseous or liquid fuel having a flashpoint lower than otherwise permitted under paragraph 2.1.1 of SOLAS regulation II-2/4.

3.12. *Risk* is an expression for the combination of the likelihood and the severity of the consequences.

3.13. *Unacceptable loss of power* means that it is not possible to sustain or restore normal operation of the propulsion machinery in the event of one of the essential auxiliaries becoming inoperative, in accordance with SOLAS regulation II-1/26.3.

4. Alternative design.

4.1. The Code contains functional requirements for all appliances and arrangements related to the usage of low-flashpoint fuels.

4.2. Fuels, appliances and arrangements of low-flashpoint fuel systems may either:

- deviate from those set out in this Code, or
- be designed for use of a fuel not specifically addressed in this Code.
- Such fuels, appliances and arrangements can be used provided that these meet the intent of the goal and functional requirements concerned and provide an equivalent level of safety of the relevant chapters.

4.3. The equivalence of the alternative design shall be demonstrated as specified in SOLAS regulation II-1/55 and approved by Recognized Organizations authorized by the Administration. However, the Administration shall not allow operational

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methods or procedures to be applied as an alternative to a particular fitting, material, appliance, apparatus and item of equipment, or type thereof which is prescribed by the Code.

- 4.4.** Any application for equivalence of the alternative design related to the previous paragraph shall be submitted to the following email address: exemptions@segumar.com or the nearest SEGUMAR International Office of your convenience.

5. Risk assessment.

- 5.1.** A risk assessment shall be conducted to ensure that risks arising from the use of low-flashpoint fuels affecting persons on board, the environment, the structural strength or the integrity of the ship are addressed. Consideration shall be given to the hazards associated with physical layout, operation and maintenance, following any reasonably foreseeable failure.
- 5.2.** For ships to which part A-1 applies (Specific requirements for ships using natural gas as fuel), the risk assessment required by 4.2.1 need only be conducted where explicitly required by paragraphs 5.10.5, 5.12.3, 6.4.1.1, 6.4.15.4.7.2, 8.3.1.1, 13.4.1, 13.7 and 15.8.1.10 as well as by paragraphs 4.4 and 6.8 of the annex.
- 5.3.** The risks shall be analyzed using acceptable and recognized risk analysis techniques, and loss of function, component damage, fire, explosion and electric shock shall as a minimum be considered. The analysis shall ensure that risks are eliminated wherever possible. Risks which cannot be eliminated shall be mitigated as necessary. Details of risks, and the means by which they are mitigated, shall be documented to the satisfaction of the Administration; therefore, records of the Risk Assessments should be maintained through the Safety Management System.

6. DRILLS AND EMERGENCY EXERCISES

- 6.1.** Drills and emergency exercises on board shall be conducted at regular intervals.
- 6.2.** Such gas-related exercises could include for example:
- Tabletop exercise;

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- Review of fueling procedures based in the fuel handling manual required by 18.2.3;
- Responses to potential contingences;
- Tests of equipment intended for contingency response; and Reviews that assigned seafarers are trained to perform assigned duties during fueling and contingency response.

6.3. Gas related exercises may be incorporated into periodical drills required by SOLAS Convention.

7. TRAINING.

7.1. Companies shall ensure that seafarers on board ships using gases or other low-flashpoint fuels shall have a qualified and certificated in accordance with the new training requirements for service on board ships subject to the IGF Code (Regulation V/3), having successfully completed approved training and provided evidence of meeting seagoing service and experience requirements and the training requirements for service on board liquefied gas tankers and completed training to attain the abilities that are appropriate to the capacity to be filled and duties and responsibilities to be taken up, taking into account the provisions given in the STCW Convention and Code, as amended, and hold an appropriate certificate.

8. Additional indications.

8.1. To ensure adequate and safe implementation of the IGF code in Panamanian flag vessels, The Administration recommends that owners, operators, shipboard personnel and service providers:

8.1.1. Familiarize themselves with additional IGF Code standards that are called out by SOLAS Conventions requirements for ships using gases or low-flashpoint fuels with as it relates to the proper training, inspection, maintenance, and documentation of electrical equipment installed in hazardous areas to ensure that no potential ignition source is present in hazardous areas aboard tank vessels, gas carriers and vessels using gases or other low flashpoint fuels.

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8.1.2. An inspection/survey plan for the liquefied gas fuel containment system shall be developed and approved by our administration or by the authorized RO. The inspection/survey plan shall identify aspects to be examined and/or validated during surveys throughout the life of the liquefied gas fuel containment system. It shall also identify any necessary in-service survey, maintenance, and testing that was assumed when selecting liquefied gas fuel containment system design parameters.

8.1.3. During bunkering operations according to the IGF Code, upon completion of bunkering operations, the ship PIC shall receive and sign a Bunker Delivery Note for the fuel delivered, containing at least the information specified in the LNG-BUNKER DELIVERY NOTE* LNG AS FUEL FOR. (Please [click this hyperlink](#) to access this form).

8.1.4. Communication devices used in bunkering shall comply with recognized standards for such devices acceptable to the Administration.

8.1.5. Under normal operational circumstances, personnel shall not enter fuel tanks, fuel storage hold spaces, void spaces, tank connection spaces, or other enclosed spaces where gas or flammable vapors may accumulate. Personnel may enter these enclosed spaces only if the gas content of the atmosphere in such space is determined by means of fixed or portable equipment to ensure oxygen sufficiency and absence of an explosive atmosphere.

9. Instruction to Flag Safety Inspectors (FSI)

9.1. The FSI inspectors authorized by the Republic of Panama, are instructed to take into account the provisions of this merchant marine circular when inspections of the vessels that the IGF Code applies are carried out.

March, 2025 – Added new paragraph 1.4 to incorporate the use of the IMO Circ. MSC.1/Circ.1621.

July, 2021 – New.



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Inquiries concerning the subject of this Merchant Marine Circular or any other request should be forward to:

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