



**REPUBLIC OF  
THE MARSHALL ISLANDS**  
**MARITIME ADMINISTRATOR**

**Marine Notice**

**No. 2-011-51**

**Rev. Jul/2022**

**TO: ALL SHIPOWNERS, OPERATORS, MASTERS AND OFFICERS OF MERCHANT SHIPS, AND RECOGNIZED ORGANIZATIONS**

**SUBJECT: International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels (IGF Code)**

- References:**
- (a) **SOLAS**, *International Convention for the Safety of Life at Sea, Consolidated Edition 2020*
  - (b) **IGF Code**, *International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels*, as amended
  - (c) **STCW Convention**, *International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers*, 2011 Edition, as amended
  - (d) **STCW Code**, *Seafarers' Training, Certification, and Watchkeeping Code*, 2011 Edition, as amended
  - (e) IMO Resolution [MSC.396\(95\)](#), *Amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)*, 1978, as amended, adopted 11 June 2015
  - (f) **IMO Resolution** [MSC.397\(95\)](#), *Amendments to Part A of the Seafarers' Training, Certification and Watchkeeping (STCW) Code*, adopted 11 June 2015
  - (g) **IMO Resolution** [MSC.475\(102\)](#), *Amendments to the International Code of Safety for Ships using Gases or other Low-Flashpoint Fuels (IGF Code)*, adopted 11 November 2020
  - (h) **RMI** ([MI-118](#)), *Requirements for Seafarer Certification*
  - (i) **RMI Marine Notice** [7-038-2](#), *Minimum Safe Manning Requirements for Vessels*
  - (j) **RMI Marine Notice** [7-041-1](#), *Entering Enclosed Spaces Aboard Ships – Safety Precautions*

**PURPOSE**

This Notice details the Republic of the Marshall Islands (RMI) Maritime Administrator's (the "Administrator") requirements for operating ships using gases or other low-flashpoint fuels.

This update supersedes Rev. Mar/2017. Section 2.2 has been inserted to reflect a new IGF Code regulation requiring that fuel preparation rooms with potential ignition sources must have a fixed fire-extinguishing system complying with SOLAS regulation II-22/10.4.1.1.

## BACKGROUND

The IGF Code entered into force on 1 January 2017. It establishes goals, functional requirements, and regulations for the design and operation of ships using gases or other low-flashpoint fuels. IMO Resolution [MSC.392\(95\)](#) amended the International Convention for the Safety of Life at Sea (SOLAS) Chapters II-1, II-2, and the Appendix, thereby making the IGF Code mandatory under SOLAS.

## APPLICABILITY

Unless expressly provided otherwise, this Notice applies to ships to which Part G of SOLAS Chapter II-1 applies; specifically those using low-flashpoint fuels:

- for which the building contract is placed on or after 1 January 2017;
- in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2017; or
- the delivery of which is on or after 1 January 2021.

Except for gas carriers:

- a ship, irrespective of the construction date, including one constructed before 1 January 2009, which converts to using low-flashpoint fuels on or after 1 January 2017 will be treated as a ship using low-flashpoint fuels on the date on which such conversion commenced; and
- a ship using low-flashpoint fuels irrespective of the construction date, including one constructed before 1 January 2009, which, on or after 1 January 2017, undertakes to use low-flashpoint fuels different from those which it was originally approved to use before 1 January 2017 will be treated as a ship using low-flashpoint fuels on the date on which such undertaking commenced.

In accordance with SOLAS Regulation II-1/56.4, the IGF Code does not apply to gas carriers, as defined in SOLAS regulation VII/11.2:<sup>1</sup>

- using their cargoes as fuel and complying with requirements of the International Code for the Construction and Equipment of Ships Carrying Liquid Gases in Bulk (IGC Code); or
- using other low-flashpoint gaseous fuels provided that the fuel storage and distribution system design and arrangements for these gaseous fuels comply with the requirements of the IGC Code for gas as cargo.

Bunker vessels supplying liquefied gas fuels are gas carriers and subject to the IGC Code.

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1. Gas carrier means a cargo ship constructed or adapted and used for the carriage in bulk of any liquefied gas or other product listed in chapter 19 of the International Gas Carrier Code.

## REQUIREMENTS

### 1.0 Design

- 1.1 Ships to which this Notice applies must be designed in accordance with the applicable requirements of the IGF Code.
- 1.2 The design must be approved by a Recognized Organization.

### 2.0 Construction

- 2.1 Ships to which this Notice applies must be constructed in accordance with the applicable IGF Code requirements.
- 2.2 For ships constructed on or after 01 January 2024, fuel preparation rooms which contain pumps, compressors, or other potential ignition sources must have a fixed fire-extinguishing system that complies with SOLAS II-2/10.4.1.1, taking into account the necessary concentrations/application rate required for extinguishing gas fires. (See IMO Resolution [MSC.475\(102\)](#)).
- 2.3 Construction must be approved and supervised by a Recognized Organization.
- 2.4 On completion of construction, the Recognized Organization must issue either a Safety Construction Certificate for Passenger Ships or a Safety Construction Certificate for Cargo Ships, indicating that the ship complies with:

“part G of chapter II-1 of the Convention using Liquefied Natural Gas “LNG” as fuel.”<sup>2</sup>

### 3.0 Operating Requirements

- 3.1 Every ship covered by this Notice must carry a copy of the IGF Code on board (see §18.2.1 of the IGF Code). Electronic versions are acceptable.
- 3.2 Maintenance procedures and information for all gas-related installations must be available on board and must include all areas and systems that may be subject to gas leaks and their associated hazards. See also §4.0 of this Notice.
- 3.3 Each ship must be provided with a detailed fuel handling manual, to ensure that trained personnel can safely operate the fuel bunkering, storage, and transfer systems. The contents of this fuel handling manual are more fully described in §5.4 of this Notice.

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2. Other low flashpoint fuels may be substituted when approved as indicated in the IGF Code.

3.4 Each ship must be provided with emergency procedures, covering all aspects of the fuel handling systems. In addition, emergency procedures must be in place to provide for the emergency shutdown (ESD) of any equipment that has the potential to become hazardous under certain abnormal conditions.

#### 4.0 Maintenance Requirements

4.1 All maintenance and repair procedures must include considerations for tank locations and adjacent spaces, considering the safe operation and other hazards that may be relevant to the ship.

4.2 An inspection or survey plan for the liquefied gas fuel containment system must be developed and approved by the Administrator, or by the Recognized Organization acting on its behalf. All in-service survey, maintenance, and testing of the fuel containment system must be carried out in accordance with that plan. The inspection or survey plan must:

- .1 identify aspects to be examined or validated (or both) during surveys throughout the life of the liquefied gas fuel containment system;
- .2 also identify any necessary in-service survey, maintenance, and testing that was assumed when selecting liquefied gas fuel containment system design parameters.

4.3 The procedures and information must include maintenance of installed electrical equipment in explosion-hazard spaces and must be performed in accordance with a recognized standard. Refer to IEC [60079 17:2007](#) *Explosive atmospheres – part 17: Electrical installations inspection and maintenance*.

#### 5.0 Bunkering Operations

5.1 Before any bunkering operation commences, the Master of the receiving ship or their designated representative, and the representative of the bunkering source (Persons in Charge (PIC)) must:

- .1 agree in writing to the transfer procedure, including cooling down and (if necessary) gassing up, the maximum transfer rate at all stages, and volume to be transferred;
- .2 agree in writing the actions to be taken in an emergency; and
- .3 complete and sign the bunkering safety checklist<sup>3</sup>.

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3. The International Organization for Standards (ISO) has issued ISO Standard [20519:2021](#), *Ships and marine technology – Specification for bunkering of gas fueled ships*, that includes a complete *pro forma* bunkering safety checklist (ISO 20519, Annex A).

- 5.2 In accordance with the IGF Code, §6.8.1, the storage tanks for liquefied gas must not be filled to more than a volume equivalent to 98% full at the reference temperature during the bunkering operations.
- 5.3 On completing bunkering operations, the ship's PIC must receive and sign a Bunker Delivery Note for the fuel delivered. It must contain at least the information specified in the Appendix to this Notice and it must be completed and signed by the bunkering source's PIC.
- 5.4 The fuel handling manual required by §3.3 of this Notice must be part of the vessel's Safety Management System (SMS)<sup>4</sup> and must include, but not be limited to:
  - .1 overall operation of the ship from dry-dock to dry-dock, including procedures for system cool down and warm up, bunker loading and, where appropriate, discharging, sampling, inerting, and gas freeing;
  - .2 bunker temperature and pressure control, alarm, and safety systems;
  - .3 system limitations, cool down rates, and maximum fuel storage tank temperatures prior to bunkering, including minimum fuel temperatures, maximum tank pressures, transfer rates, filling limits, and sloshing limitations;
  - .4 operation of inert gas systems;
  - .5 firefighting and emergency procedures, including the operation and maintenance of firefighting systems, and the use of extinguishing agents;
  - .6 specific fuel properties and special equipment needed for the safe handling of the particular fuel;
  - .7 fixed and portable gas detection operation and maintenance of equipment;
  - .8 emergency shutdown and emergency release systems, where fitted;
  - .9 a pro forma bunkering safety checklist, a copy of which is to be reviewed, completed, and signed during each bunkering operation; and
  - .10 a description of the procedural actions to be taken in an emergency situation, such as leakage, fire or potential fuel stratification resulting in rollover.

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4. This is a safety requirement of the Administrator to ensure that the fuel handling manual is maintained and updated throughout the life of the ship.

- 5.5 Documentation of successful verification must be indicated by the mutually agreed and executed bunkering safety checklist signed by both PICs.
  - 5.6 PICs must have direct and immediate communication with all personnel involved in the bunkering operation, and this communication must be maintained between both PICs at all times during the bunkering operations.
  - 5.7 Communication devices used in bunkering must comply with recognized standards for these devices acceptable to the Administrator. The ship shore link (SSL) or equivalent means to a bunkering source provided for automatic ESD communications, must be compatible with the receiving ship and the delivering facility ESD system.
  - 5.8 Hoses, transfer arms, piping, and fittings provided by the delivering facility used for bunkering must be electrically continuous, suitably insulated, and must provide a level of safety compliance with recognized standards<sup>5</sup>.
  - 5.9 Warning signs must be posted at the access points to the bunkering area listing fire safety precautions during fuel transfer.
  - 5.10 During the transfer operations, personnel in the bunkering manifold area must be limited to essential staff only. All staff engaged in duties or working in the vicinity of the operations must wear appropriate personal protective equipment (PPE). A failure to maintain the required conditions for transfer is cause to stop operations, and transfer must not be resumed until all required conditions are met.
- 6.0 Enclosed Space Entry
- 6.1 Under normal operational circumstances, personnel must 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 is determined by fixed or portable equipment to ensure enough oxygen and the absence of an explosive atmosphere.
  - 6.2 Personnel entering any space designated as a hazardous area must not introduce any potential ignition source into the space unless it has been certified gas-free and maintained in that condition. See RMI Marine Notice [7-041-1](#) for additional details.

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5. Additionally, ISO Standard 20519 recommends that an insulation flange be installed between the bunker manifold and the supply source to electrically isolate the vessel. (See ISO 20519, Paragraph 5.5.6.)

## 7.0 Inerting and Purging of Fuel Systems

- 7.1 The primary objective in inerting and purging of fuel systems is to prevent the formation of a combustible atmosphere in, near, or around fuel system piping, tanks, equipment, and adjacent spaces.
- 7.2 Procedures for inerting and purging fuel systems must ensure that air is not introduced into piping or a tank containing gas atmospheres, and that gas is not introduced into air contained in enclosures or spaces adjacent to fuel systems.

## 8.0 Hot Work on or near Fuel Systems

No hot work may be undertaken in the vicinity of fuel tanks, fuel piping, and insulation systems that may be flammable, contaminated with hydrocarbons, or that may give off toxic fumes as a product of combustion, until the area has been secured and proven safe for hot work and all approvals have been obtained.

## 9.0 Training

- 9.1 Vessel owners and operators must ensure that seafarers on board ships using gases or other low-flashpoint fuels to which the IGF Code applies, are adequately qualified, trained, and experienced. The seafarers must have 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 by IMO Resolutions [MSC.396\(95\)](#)<sup>6</sup> and [MSC.397\(95\)](#)<sup>7</sup> respectively.
- 9.2 RMI Marine Notice [7-038-2](#), *Minimum Safe Manning Requirements for Vessels*, §2.0, contains the qualifications, special training, and certification required as part of minimum safe manning. Also see RMI ([MI-118](#)). *Requirements for Seafarer Certification*, §5.25.

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6. IMO Resolution [MSC.396\(95\)](#) amended the STCW Convention by adding new regulation V/3 which sets mandatory minimum requirements for the training and qualifications of masters, officers, ratings, and other personnel on ships subject to the IGF Code.

7. IMO Resolution [MSC.397\(95\)](#) establishes in Chapter V, new Section A-V/3, the minimum standards of competence for seafarers serving on ships subject to the IGF Code.

## APPENDIX

### LNG-BUNKER DELIVERY NOTE\* LNG AS FUEL FOR

SHIP NAME: \_\_\_\_\_ IMO No. \_\_\_\_\_

Date of Delivery: \_\_\_\_\_

#### 1. LNG – Properties

Methane Number **	-	
Lower calorific (heating) value	MJ/kg	
Higher calorific (heating) value	MJ/kg	
Wobbe Indices $W_s / W_i$	MJ/m <sup>3</sup>	
Density	kg/m <sup>3</sup>	
Pressure	MPa (abs)	
LNG temperature delivered	°C	
LNG temperature in storage tank(s)	°C	
Pressure in storage tank(s)	MPa (abs)	

#### 2. LNG – Composition

Methane, CH <sub>4</sub>	% (kg/kg)	
Ethane, C <sub>2</sub> H <sub>6</sub>	% (kg/kg)	
Propane, C <sub>3</sub> H <sub>8</sub>	% (kg/kg)	
Isobutane, i C <sub>4</sub> H <sub>10</sub>	% (kg/kg)	
N-Butane, n C <sub>4</sub> H <sub>10</sub>	% (kg/kg)	
Pentane, C <sub>5</sub> H <sub>12</sub>	% (kg/kg)	
Hexane, C <sub>6</sub> H <sub>14</sub>	% (kg/kg)	
Heptane, C <sub>7</sub> H <sub>16</sub>	% (kg/kg)	
Nitrogen, N <sub>2</sub>	% (kg/kg)	
Sulphur, S	% (kg/kg)	
<b>Negligible &lt; 5ppm</b> hydrogen sulphide, hydrogen, ammonia, chlorine, fluorine, water		

3. Net Total delivered: \_\_\_\_\_ t, \_\_\_\_\_ MJ \_\_\_\_\_ m<sup>3</sup>

Net Liquid delivery: \_\_\_\_\_ GJ

#### 4. Signature(s):

Supplier Company Name, contact details: \_\_\_\_\_

Signature: \_\_\_\_\_ Place/Port \_\_\_\_\_ Date: \_\_\_\_\_

Receiver: \_\_\_\_\_

\* The LNG properties and composition allow the operator to act in accordance with the known properties of the gas and any operational limitations linked to that.

\*\* Preferably above 70 and referring to the used methane number calculation method in DIN EN 16726. This does not necessarily reflect the methane number that goes into the engine.