

# IMO'S SUB COMMITTEE ON CARRIAGE OF CARGOES & CONTAINERS (CCC)

11<sup>th</sup> Session, 08 – 12 September 2025

**Session Outcomes**



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## **CCC 11**

The 11<sup>th</sup> session of the Sub-Committee on Carriage of Cargoes and Containers (CCC) was held from 8 – 12 September 2025.

This report provides an overview of the important outcomes of this session.

### **Summary**

The Sub-Committee finalized the following at this session:

- a) the Interim Guidelines for Hydrogen as Fuel for submission to MSC 111 for approval.
- b) amendments to the Revised Interim Recommendations for Carriage of Liquefied Hydrogen in Bulk for submission to MSC 111 for adoption.
- c) the Interim Guidelines for use of Ammonia Cargo as Fuel for submission to MSC 111 for approval.
- d) the draft amendments to the IGC Code for submission to MSC 111 for approval and adoption by MSC 112.

The Sub-Committee also agreed on a future workplan for outputs under a new agenda item "Safety Regulatory Framework to support the reduction of GHG emissions from ships using new technologies and alternative fuels".

## **SUMMARY OF RELEVANT TOPICS WHICH WERE DISCUSSED AT CCC 11**

### **Amendments to the IGF Code and Development of Guidelines for Alternative Fuels and related technologies (Agenda Item 3)**

#### *Interim Guidelines for Safety of Ships using Hydrogen as Fuel*

The Sub-Committee agreed on the Interim Guidelines for Safety of Ships using Hydrogen as Fuel with view to approval by MSC 111. The following are the salient points of discussion.

- The Interim Guidelines follow the IGF Code Structure
- A new functional requirement for Chapter 3 which considers possibility of oxygen enrichment due to exposure of leaked liquefied hydrogen or deterioration of insulation which exposes the tank surface and the surrounding air to very low temperatures leading to oxygen (and air) condensation has been introduced.
- Risk assessment for topics which are pertinent to the properties of the fuel (i.e. liquefied or compressed hydrogen) is to be performed
- The Hydrogen Fuel tank location can be considered in accordance with the deterministic criteria in the IGF Code. Probabilistic approach can be applied in accordance with the Section 2.3 of these interim guidelines for alternative design with the approval of the Administration.
- Gas Safe Machinery Spaces are required as per these interim guidelines. However, considering that this may not be feasible for all ship designs, the ESD Machinery Spaces can be considered for application using the provisions for alternative design as provided in Section 2.3 of these interim guidelines.
- Fuel pipes should not be routed through accommodation spaces even if they are double walled. However, such fuel pipes can be enclosed in a pipe trunk where such arrangement is necessary. Fuel pipes can be located in ro-ro spaces, special category spaces and open decks subject to provision of protection against mechanical damage.
- Fuel Preparation equipment needs to be located on open deck. However, the use of alternative design concept in accordance with Section 2.3 is permitted considering cases where this may be impractical.
- The Interim guideline requires to have separate provisions for tank connection spaces considering liquefied or compressed hydrogen. For liquefied hydrogen, tank connection spaces are to be provided (unless tank connections, valves and flanges are located on open deck) while for compressed hydrogen, tank connection enclosures are to be provided. It is also required to enclose the fuel pipes within secondary enclosures for liquefied hydrogen inside the tank connection space.
- Requirements for drip trays were formulated considering that these would be used to collect air condensate majorly rather than liquefied hydrogen. It is important to consider the effects of oxygen enrichment and also prevent possibility of liquid hydrogen and liquid oxygen mixing together.
- The Interim guidelines permit storage of liquid fuel only with vacuum insulated Type C tanks. Other types of tanks should be considered as alternative designs.
- The design of pressure relief systems should take into account ignition of hydrogen at the outlet of the vent mast and radiation analysis needs to be performed in order to assess safe distance of the vent mast from surrounding areas and spaces. Gas dispersion analysis is also additionally to be performed to ensure that flammable gas clouds do not impact surrounding areas and

spaces. Likewise, the vent lines need to be sized to withstand maximum possible pressure resulting from explosion within the lines.

- The Interim Guidelines do not agree to explicitly including fuel cells as consumers to utilize the boil-off from the tanks in order to maintain the tank pressure and temperatures. Alternative design may be considered if such means is to be applied.
- The guidelines provide for the safe arrangements of vacuum insulation systems while noting that cryo-pumping of air is the worst-case scenario.
- The guidelines recommend avoiding the use of expansion bellows in the fuel piping systems.
- The guidelines require bunkering stations to be located on open deck. Enclosed or semi-enclosed bunkering stations may be considered as alternative designs in accordance with Section 2.3.
- The fuel piping essentially requires a dual barrier concept. For gaseous hydrogen double wall piping should be provided unless located on open deck if adequate natural ventilation is available (to be confirmed by gas dispersion analysis). Liquid hydrogen pipes should be contained in a secondary enclosure.
- For gaseous hydrogen piping, operating pressures should be kept low to the extent practicable using pressure reduction devices.
- The Interim Guidelines also provide safety requirement for arrangement of Fuel Reformers. This makes it possible to store fuel in the form of hydrogen carriers (e.g. methanol, ammonia, methane etc.)
- Fire Safety requirements are formulated considering the principle that the source of the fire should be isolated/shutdown first. The invisible nature of the hydrogen flames also needs to be considered.
- Explosion Risk Analysis needs to be performed considering possible leakage scenarios.
- Possibility of Oxygen enriched atmospheres should be considered when selecting appropriate electrical equipment to be located within an area/space.
- Section 15 includes requirements to monitor vacuum within tanks, secondary enclosures, fuel preparation rooms and tank connection spaces.

#### **Development of Guidelines for use of Ammonia Cargo as Fuel and Provisions for use of Alternative Fuels other than cargo on Gas Carriers (Agenda Item 4)**

The Interim Guidelines for Use of Ammonia Cargo as Fuel were agreed by the Sub-Committee with view to submission to MSC 111 for approval.

The Guidelines incorporate the following important features:

- Application of colour coding to exterior surface of ammonia fuel pipes
- Consideration and provision of safe havens is not necessary considering safety of use ammonia cargo as fuel
- Risk assessment should be performed considering the ammonia fuel system arrangements and design.
- Gas-safe machinery space concept should be applied
- Ammonia Release Management Systems should be installed to collect and handle possible ammonia releases from (but not limited to) double block and bleed valves and from draining and purging operations. The performance criteria for such systems are not prescribed but are subject to approval by the administration.
- Numerical Calculations such as CFD analysis should be performed evaluate adequacy of ventilation capacity and the location of ventilation inlet and outlet locations.

- Showers and Eyewash stations should be available near exits from fuel preparation rooms and machinery spaces containing ammonia consumers
- Alarms and shutdowns design should be supported by risk assessment.
- Safety concept should be developed for all ammonia fuel consumers and approved by administration.

### **Amendments to the IMSBC Code and Supplements (Agenda Item 5)**

The Sub-Committee agreed that a new output was needed in regard to the topic of safe use of pesticides and fumigation practices in cargo holds. Interested Member States were invited to submit proposals in this regard to the Maritime Safety Committee.

The Sub-Committee agreed to refer documents on the following products to E&T for consideration:

- Bituminous Granulates Coarse
- Bituminous Granulates Fine
- Contaminated Soil PFAS
- Calcium Carbonate/Lime Mud
- Mullite
- Kaolinite

### **Amendments to the IMDG Code (Agenda Item 6)**

The Sub-Committee agreed in principle to:

- minor editorial corrections made to the English, French, and Spanish versions of amendment 42-24 to the IMDG Code
- draft consequential amendments to the Revised emergency response, the EmS Guide on emergency response code for the new UN entries arising from draft amendment 43-26

The Sub-Committee forwarded to E&T the following proposals:

- Segregation of Radioactive Materials (Table 7.1.4.5.18 of IMDG Code)
- Multimodal Transport of diesel – harmonize classification
- Requirement of documentation for control temperatures for flammable liquids with flashpoints below 23°C when carried in non-explosion proof refrigeration systems.
- IMSAS audits illustrating deficiencies for implementation of SOLAS VII/3 for carriage of dangerous goods.
- Safe transport of vehicles on ro-ro passenger ships

### **Revision of the Revised Guidelines for the Preparation of the Cargo Securing Manual (MSC.1/Circ.1353/Rev.2) to include a harmonized performance standard for Lashing Software to permit lashing software to be used as a supplement for the Cargo Securing Manual (Agenda Item 7)**

The Sub-Committee re-established the Correspondence Group to further work on finalization of the revisions to the Revised Guidelines for the Preparation of the Cargo Securing Manual (MSC.1/Circ.1353/Rev.2) to include a harmonized performance standard for Lashing Software to permit lashing software to be used as a supplement for the Cargo Securing Manual.

The Sub-Committee also noted the views of the Working Group that making the use of lashing software to be mandatory, would necessitate amendments to SOLAS and therefore Member States would need to submit proposals for new outputs.

### **Unified Interpretations of Provisions of IMO Safety, Security and Environment, Facilitation, Liability and Compensation-related conventions (Agenda Item 9)**

The Sub-Committee agreed to the draft MSC Circular for Unified Interpretation of the IGC Code and the 1983 IGC Code regarding testing and effectiveness of the secondary barrier and submission of the same to MSC 111 for approval.

### **Development of Measures to Prevent the Loss of Containers at Sea (Agenda Item 10)**

The Sub-Committee approved the CCC circular on mandatory reporting of loss of containers at sea. The circular also includes an online template which can be filled up by Member States to submit reports. It was also informed that a GISIS module on the same is being developed by the Secretariat.

### **Revision of the Interim Recommendations for Carriage of Liquefied Hydrogen in Bulk (Agenda Item 11)**

The Sub-Committee agreed to the draft amendments to the Revised Interim Recommendations for Carriage of Liquefied Hydrogen in Bulk (MSC.565(108)) with view to submission to MSC 111 for adoption. These amendments enable the use of membrane tanks to for carriage of liquefied hydrogen in bulk on ships.

The Sub-Committee also invited member states to submit proposals for training requirements on this topic.

### **Development of Safety Regulatory Framework to Support the Reduction of GHG Emissions from Ships using New Technologies and Alternative Fuels (Agenda Item 12)**

Based upon instructions from MSC 110, the Sub-Committee tasked the Working Group on Safety of Alternative Fuels and related technologies to develop a work plan for formulating various instruments as had been recommended by MSC 110.

The Work Plan was developed and agreed by the Sub-Committee. The Work Plan runs till 2030. The short-term targets of the work plan are the revision of the guidelines for safety of ships using methyl/ethyl alcohol and development of guidelines for safety of ships using low flashpoint diesels (also considering HVO biofuels). The Work Plan also address development of safety requirements of Ships with onboard carbon capture and storage arrangements to be targeted for completion by 2029.

The Sub-Committee agreed to re-establishment of the Correspondence Group and invite the MSC to approve re-establishment of the Inter-sessional Working Group to work on this agenda item.

### **Any Other Business (Agenda Item 15)**

Based upon instructions from MSC 110, the Sub-Committee tasked the Working Group on Safety of Alternative Fuels and related technologies to develop a work plan for formulating various instruments as had been recommended by MSC 110.

The Sub-Committee agreed to the following amendments to the IGC Code (considering the instructions from MSC 110 to consider the substantial proposals as had been identified by the drafting group therein)

- Section 3.2.6 (closing devices for air intakes, outlets and openings to accommodation spaces) – For ships constructed on or after 1 July 2028.
- Section 3.3.1 – Segregation arrangements for Cargo Machinery Spaces and Turret Arrangements
- Section 5.5.3 – Cargo Manifold Connections – provision of manual valve for each liquid connection. For ships constructed on or after 1 July 2028
- Section 11.2.6 – Firefighting equipment requirements are clarified.
- Section 13.3 – Overflow control – It is clarified that 13.3.4 applies only for ships constructed before 1 July 2028.
- Section 13.9 – System integration – Requirements for integrated systems to enable reliable communication between computer-based systems apply for ships constructed on or after 1 July 2028
- Section 16.3.5 and 16.3.6 – It is clarified that requirements for numerical calculations to be performed for ventilation capacity assessment and location of gas detection equipment are applicable for ships constructed on or after 1 July 2028.
- Section 16.4.1.5 – amendments to requirement for valves of inert gas piping are applicable for ships constructed on or after 1 July 2028.
- Section 16.7.1.4 – amendments necessitating arrangement of pressure relief systems for gas fired internal combustion engines are applicable for ships constructed on or after 1 July 2028.
- Section 16.8.1 – gas tight enclosures for turbines
- Appendix 2 for Model form of certificate of fitness for carriage of liquefied gases in bulk.

The above amendments would be submitted to MSC 111 for approval with a view to adoption by MSC 112.

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