



IMO CCC 9 and E&T 39

Meeting Summary

October 8, 2023

The 9th meeting of the IMO's sub-committee on carriage of cargoes and containers (CCC 9) was held 20-29 September 2023 in person at IMO Headquarters in London. This CCC 9 report also includes the relevant outcome of the 39th session technical and editorial group (E&T 39) held 2-6 October 2023 on the IMDG Code, which was authorized to report the outcome to the Maritime Safety Committee (MSC) directly.

LISCR participated in the following groups of CCC 9 in addition to the plenary as follows:

ID	Title and subject
WG 1	Working group on Development of technical provisions for safety of ships using alternative fuels
WG 2	Working group on IGF Code and review of the IGC Code
WG 3	Working group on Review of resolution A.1050(27)
DG 1	Drafting group on Amendments to IMDG Code (agenda item 6) and plastic pellet
DG 2	Drafting group on Interim recommendations for carriage of liquefied hydrogen in bulk

LISCR also participated in the E&T 39 meeting. The result of the E&T 39 is incorporated in the IMDG Code part of this summary.

New technologies for new fuels

Low flashpoint oil fuels

Hydrogen fuel

CCC 9 further worked on the report of the correspondence group (CG) and submission papers.

During the discussion at the working group (WG), the following points were intensively addressed:

- A holistic risk assessment for the use of hydrogen as fuel was agreed;
- Safe containment of the hydrogen, prevention of leakage and contingencies in case of leakage were addressed in various part of the draft text;
- Hydrogen's flammable/explosion range was very wide, and only small energy was needed for ignition;
- At this stage, only compressed and liquified hydrogen were to be considered. However, the alternative design provisions in paragraph 2.3 may be considered for other storage applications (e.g. metal hydrides);
- A fuel tank or a fuel preparation room (FPR) should be located on deck. Otherwise, special permission should be granted by the flag Administration based on the additional risk assessment;

- No bunker lines to pass through the accommodation, control stations or service spaces;
- Consider thermal pressure relief devices to address pressure building up in a compressed hydrogen storage tank in case of fire ;
- Material table as given in the IGC and the IGF code would be developed at a later stage when more experiences are gained;
- Bunkering stations could be enclosed or semi-enclosed. Installation of CCTV monitoring devices can be considered for bunkering operations; and
- Whether to insert de-bunkering requirements is left to further discussion.

CCC 9 tasked the CG to further work on the draft guidelines.

Ammonia fuel

CCC 9 continued its work using the text prepared by the CG and submissions. While the discussion at CCC 9 focused on toxicity, CCC 9 was also aware of the need to address corrosivity and flammability when ammonia is used as fuel.

The work here addresses the use of ammonia on non-IGC ships as fuel only, i.e., it does not address using ammonia cargo as fuel, which was addressed under agenda item 4. It was also agreed not to refer to Part G of SOLAS Chapter II-1 from the guidelines.

The following were tasked to the CG:

- A holistic risk assessment;
- Storage arrangements;
- Use of portable tanks;
- Safe refuge onboard (protected location in case of emergency);
- Personal protection equipment (PPE);
- Ammonia exposure limit; and
- Operational release into the atmosphere.

Captured CO₂ tank

A submission addressed protection of the captured CO₂ tanks from external damage. The paper also addresses the production of CO₂ as a product in relation to SOLAS regulation VI/5-2.

CCC 9 recognized that the proposal was related to the agenda item “Development of a safety regulatory framework to support the reduction of GHG emissions from ships using new technologies and alternative fuels” of the Maritime Safety Committee (MSC) and invited interested Member States and international organizations to consider a submission on the safe use of onboard carbon capture and storage to a future session of MSC.

LNG fuel and the further development of the IGF Code

Future work plan

There were submissions on fuel cell and methanol/ethanol alcohol for inclusion in the current interim guidelines (MSC.1/Circ.1647 on *Interim guidelines for the safety of ships using fuel cell power installations* and MSC.1/Circ.1621 on *Interim guidelines for the safety of ships using methyl/ethyl alcohol as fuel* into the IGF Code. CCC 9 considered them in conjunction with the work plan and agreed to address these in 2025.

LNG fuel - amendments to the IGF Code

CCC 9 revised the IGF Code for approval and subsequent adoption by the Maritime Safety Committee. The Expected entry into force date is 1 January 2028. Key changes and application criteria are:

- Align suction well distance from the bottom of the ship with the requirements of the IGC Code (new and existing ships) (Section 5.3);
- Clarifications of tank relief valves and overflow discharge arrangements. (new ships) (Sections 7.4 and 9.4);
- Clarification of the fire protection of fuel boundary requirements for fuel preparation room (new ships) (Section 11.3);

- Classification of the fuel tank protection (new ships) (Section 11.3); and
- Ventilation duct arrangements (new ships) (Sections 12.5 and 13.3).

IGC Code and carriage of hydrogen as cargo

Amendments to the IGC Code

The CCC Sub-Committee was tasked to review the IGC Code for applying to new ships with entry into force on 1 January 2028.

Carriage of CO₂ cargoes

CCC 9 agreed to combine the current two entries of CO₂ cargoes (“high purity” and “reclaimed quality”) into one category and apply limited requirements for toxic cargoes and exempt from fire-safety requirements.

However, due to the design impact, in particular, prohibition of bow and stern loading, the matter was tasked to the CG for further consideration.

Toxic cargo as fuel

Following the review of the outcome of the CG and submission paper cosponsored by Liberia, CCC 9, in principle, agreed to use toxic cargo as fuel provided permission is granted by the flag Administration based on the technical provisions, i.e., to be carried in type 2G/2PG type ship and establishing equivalency as per Section 1.3 of the IGC Code, and taking into account the guidelines to be developed by the Organization.

This will pave the way for the use of ammonia cargo for the propulsion of the gas carriers.

LPG Cargo as fuel

The Maritime Safety Committee at its 107th session (MSC 107) approved MSC.1/Circ.1666 on *Interim guidelines for the safety of ships using LPG fuels*.

With regard to the use of cargo for fuel and LPG fuel on a gas carrier, CCC 9 developed the *draft Interim guidelines for use of LPG cargo as fuel* for approval by MSC 108, scheduled for May 2024.

CCC 9 tasked the CG to further work on;

- additional guidelines for the gas carriers that do not carry LPG cargo but a separate LNG fuel tanks for fuel; and
- draft amendments to the IGC Code.

High manganese austenitic steel

Following the review of additional information submitted, CCC 9 concluded that high manganese austenitic steel was considered resistant to ammonia stress corrosion cracking

(SCC) and was suitable for tanks containing ammonia.

Subsequently, CCC 9 developed revisions to the following circular for approval by MSC 108:

- MSC.1/Circ.1599/Rev.2 on *the Revised guidelines on the application of high manganese austenitic steel for cryogenic service*; and
- MSC.1/Circ.1622 on *the Guidelines for the acceptance of alternative metallic materials for cryogenic service in ships carrying liquefied gases in bulk and ships using gases or other low-flashpoint fuels*.

Carriage of liquefied hydrogen in bulk

The Interim recommendations for carriage of liquefied hydrogen in bulk, i.e. resolution MSC.420(97), have been developed to facilitate establishment of a tripartite agreement for a pilot ship, where vacuum insulation was adopted for the cargo containment systems.

Following the Liberia-cosponsored submission, CCC 9 prepared *the Revised Interim Recommendations for Carriage of Liquefied Hydrogen in Bulk* for finalization by the 108th Session of the Maritime Safety Committee (MSC 108) scheduled for May 2024. Key summary of the recommendations are:

- The Interim Recommendations are intended to facilitate the establishment of a tripartite agreement among the relevant Administrations for the carriage of liquefied hydrogen in bulk. However, they are not intended to prohibit the adoption of designs and arrangements other than those specified in the Code or these recommendations at the discretion of the Administrations.
- While the overall structure is to address various types of hydrogen carriers, the technical provision is developed only for the independent tanks.
- As the hazard associated with hydrogen cargo is flammability but not toxicity, the ship type is considered 2G.
- The hazards related to liquefied hydrogen are low ignition energy, a wide range of flammability limits, low visibility of flames in case of fire, high flame velocity which may lead to the detonation with shockwave, low temperature and liquefaction/solidification of inert gas and constituents of air, which may result in an oxygen-enriched atmosphere, high permeation, low viscosity, and hydrogen embrittlement are addressed:
- The new guidelines allow use of insulation materials and hydrogen gas in the inner insulation spaces,

while the previous guidelines addressed vacuum insulation only.

- Use of hydrogen cargo boil-off gas for propulsion was not considered at this stage.

IMSBC Code

Tripartite agreement

MSC 107 instructed CCC to address annual listing and real-time updating of solid bulk cargoes not listed in the IMSBC Code but shipped based on provisional assessments (tripartite agreements) based on Liberia-cosponsored submission.

CCC 9 agreed, in principle, to start issuing an annual CCC circular and a dedicated website, listing all current tripartite agreements as proposed in the document, and decided to refer the document to E&T 40, scheduled for spring 2024, for further consideration.

Amendment 08-25

CCC 9 instructed E&T 40 to prepare the draft amendments (08-25) to the IMSBC Code, based on the documents submitted to CCC 9 and related documents submitted to E&T 40.

IMDG Code

This part of the report reflects the relevant outcome of the 39th session technical and editorial group (E&T 39) held 2-6 October 2023, which was tasked to review the matter associated with the IMDG Code and report MSC 108 on the final draft of amendment 42-24.

Transport Provision for Vehicles

The CG presented its intersessional work. The group addressed various vehicle transportation issues, including fuel types, tank size, new/used vehicles, and electronic vehicles carried in Container Transport Unit (CTU) or ro-ro ships.

At CCC 9, various opinions, including definitions of vehicles, re-charging onboard, vehicles with alternative propulsion systems, coordination with the Sub-Committee on Ship Systems and Equipment (SSE), etc., were addressed.

CCC 9 re-established the CG to address the matter further.

Exception of segregation (paragraph 7.2.6.1)

Following the proposal and instruction of CCC 9, E&T 39 agreed on editorial clarification in paragraph 7.2.6.1 of the IMDG Code that the required stowage arrangements are to prevent the listed phenomena, for inclusion in Amendment 42-24.

Stowage plan (paragraph 5.4.3.1)

With regard to the information to be given in the stowage plan, E&T 39 agreed to insert the proposed clarification by inserting a phrase to explain that a detailed stowage plan identifies primary hazards class(es) and subsidiary hazard(s) as an editorial clarification into amendments 42-24. However, E&T 39 noted that while the principles given in the SOLAS and MARPOL regulations clearly state that a stowage plan can be an alternative to a special list or a manifest, but the format given in the IMDG Code does not support this principle.

Lithium battery cabinet (UN 3536)

A submission proposed draft amendments to Chapter 7.4 and Chapter 7.6 of the IMDG Code on the stowage and segregation of lithium battery energy storage cabinets. Another paper also provided further proposals and information. CCC 9 agreed to forward the proposal to E&T 39.

E&T 39 agreed to revise the stowage category to allow only on-deck carriage (away from the living quarter) due to the high energy impact in case of an explosion for inclusion in Amendments 42-24 to the IMDG Code.

Draft amendment 42-24 to the IMDG Code

CCC 9 authorized E&T 39 to finalize the draft amendments (42-24) to the IMDG Code based on documents submitted to CCC 9 and taking into account comments made and decisions taken by CCC 9.

Subsequently, E&T 39 finalized draft Amendment 42-24 to the IMDG Code for submission to MSC 108 for adoption following the circulation of the final draft in accordance with article VIII of the SOLAS Convention. Amendment 42-24 will enter into force on 1 January 2026, however, it will be encouraged to apply it on a voluntary basis from 1 January 2025.

In addition to the dangerous goods mentioned above, E&T 39 addressed the following:

- Carriage of various types of batteries and battery-powered vehicles;
- Carriage of various carbons;
- Clarifying documentation when an exemption is granted under a special provision; and
- Clarifying competent authority in special provision SP964.

Amendments to the EmS Guide

CCC 9 agreed, in principle, to the consequential amendments to the Revised Emergency Response Procedures for Ships Carrying Dangerous Goods (MSC.1/Circ.1588/Rev.2) (EmS Guide), emanating from draft amendment 42-24 to the IMDG Code and referred

them to E&T 39. Subsequently, E&T 39 prepared the final draft for adoption by MSC 108.

Plastic pellets

The 10th meeting of the Sub-Committee on Pollution Prevention and Response (PPR 10), held in April 2023, agreed on a two-stage approach entailing, first, the development of an MEPC circular containing recommendations addressing packaging, identification of plastic pellets on transport documents and protected stowage, and at a later stage, the development of amendments to appropriate instruments to define longer-term mandatory measures. PPR 10 then developed a draft MEPC circular and agreed to ask CCC for input.

CCC 9 agreed to accept the draft MEPC Circular as proposed by PPR 10. The key components of the circular were to store containers that contain plastic pellets should be stored either:

- under deck wherever reasonably practicable; or
- inboard in sheltered areas of exposed decks.

The draft circular was forwarded to PPR 11, scheduled for February 2024.

The topic will be discussed further in PPR 10 with a view to finding a suitable mandatory instrument for the transport of plastic pellets to reduce environmental risk.

Enclosed space entry

On 30 November 2011, IMO adopted the Assembly resolution on *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)). Since then, the Maritime Safety Committee adopted resolutions MSC.350(92) and MSC.380(94) on amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, with further provisions in relation to enclosed space entry and rescue drills, as well as the carriage of appropriate portable atmosphere testing instruments.

Following the review of the submissions, CCC 9 agreed, in principle, the following subject to further discussion by the CG:

- Remove the indicative list of enclosed space from the definition of enclosed space;
- Clarification of connecting space;
- Creating “Adjacent space”;
- Creating “Trapped hazardous Atmosphere”;
- Company provides information on cargo-specific hazards (Section 3);

- Company is responsible for training and maintenance/calibration of the atmosphere testing equipment (Section 3);
- Company provides necessary equipment (Section 3);
- Company ensure rescue drills are undertaken (Section 3);
- Creating an "enclosed space register" by the Company (Section 4) and keeping it updated as a live document;
- Control of shore personnel, etc. (Section 6);
- Gas detection equipment should be suitable for purpose and detect CO₂ (Section 7);
- CO₂ limit should be less than 0.5% or (5,000 ppm);
- Required oxygen level is changed from 21% to 20.8% (Section 7);
- Calibrated and tested personal gas detectors should be provided to monitor the levels of oxygen, CO₂, flammable gases or vapours, toxic gases and any other gases identified in the risk assessment (section 8);
- Emergency Escape Breathing Devices (EEBDs) should not be used for the entry into the enclosed spaces (Section 9);
- New Sub-section on CO₂ (Section 10);
- Example of an Enclosed Space Register to be kept as a live document (appendix 3); and
- Example of an Enclosed Space Contingency Plan and an Enclosed Space entry rescue and drill assessment plan (appendix 4).

Liberia expressed support and appreciation for the submission papers to CCC 9, however, it also stressed the need for improvement of implementation in conjunction with relevant mandatory instruments, including the ISM code, and subsequently, following the proposal by an industry NGO, "Organizational leadership plays a crucial role in successful implementation of this guidance by empowering shipboard staff to make the right decisions" is inserted in the draft text.

Liberia also pointed out that the matter should not be limited to resolution A.1050(27), but a holistic review would be needed to improve the situation.

CCC 9 agreed to inform other IMO bodies once the discussion is concluded at CCC 10.

There was a submission regarding the toxic cargoes for which no detection device was available in the market. CCC 9, noting that the matter has been addressed by the PPR Sub-Committee and working group on Evaluation of Safety and Pollution Hazards of Chemicals (ESPH), agreed to keep the document in abeyance until the relevant outcome has been made available.

CCC 9 agreed to further work on the text by the CG in particular:

- Oxygen depletion and gas emissions in enclosed spaces
- Establishing linkage with the implementation of the ISM Code;
- Improving communication between ship and shore personnel for better informing the risk of entering enclosed spaces;
- Whether to include a list of oxygen-depleting solid bulk cargoes;
- Consider the example of an Enclosed Space Register; and
- Consider the example of an Enclosed Space Contingency Plan and Drill Assessment plan.

Container matters

Container loss

CCC 9 noted the following information with appreciation:

- The 2023 update of the industry survey showed that a total of 661 containers were lost at sea out of 250 million transported. This represents the lowest losses in percentage since the start of the survey;
- A submission presented the progress of the Top Tier JIP on container losses;
- A submission updated the BoxTech Global Container Database; and
- Another submission presented an updated report on the activity of the Approved Continuous Examination Programs (ACEPs) Database.

GHG emissions control

ISO provided information on the work being conducted within ISO in support of GHG maritime emission reduction goals. It covers fuel standards (LNG, LPG, Hydrogen, Ammonia, Ethanol, Methanol, Bio-diesel), GHG LCA and environmental management, etc.

CCC 9 noted the information with appreciation.

FURTHER INFORMATION

For further information, please contact: imo@liscr.com

PROVISIONAL LIST OF DRAFT RESOLUTIONS AND CIRCULARS

- Draft Interim guidelines for use of LPG cargo as fuel
- Draft amendments to the IMDG Code (Amendments 42-24)
- Draft amendments to MSC.1/Circ.1599/Rev.2 on *the Revised guidelines on the application of high manganese austenitic steel for cryogenic service*;
- MSC.1/Circ.1622 on *the Guidelines for the acceptance of alternative metallic materials for cryogenic service in ships carrying liquefied gases in bulk and ships using gases or other low-flashpoint fuels*; and
- Draft amendments to the IGF Code.