



SUB-COMMITTEE ON CARRIAGE OF
CARGOES AND CONTAINERS
12th session
Agenda item 3

CCC 12/3/6
10 July 2026
Original: ENGLISH
Pre-session public release: ☒

**AMENDMENTS TO THE IGF CODE AND DEVELOPMENT OF GUIDELINES FOR
ALTERNATIVE FUELS AND RELATED TECHNOLOGIES**

**Proposed amendments to MSC.1/Circ.1621 reflecting the technical differences
between ethanol and methanol as marine fuel**

Submitted by Brazil, IBIA and CEA

SUMMARY

Executive summary: This document presents the proposed amendments to the *Interim guidelines for the safety of ships using methyl/ethyl alcohol as fuel* (MSC.1/Circ.1621), shown as revisions to the relevant text. The amendments operationalize the technical reasoning set out in document CCC 12/INF.15 (Brazil), calibrating detection, ventilation, protection and segregation measures according to the governing hazard of each fuel, each installation and the vessel's certification envelope, through a proportional, risk-based approach. Deletions are shown as grey strikethrough text and insertions are underlined.

Strategic direction, 2
if applicable:

Output: 2.3

Action to be taken: Paragraph 11

Related documents: MSC.1/Circ.1621; MSC-MEPC.2/Circ.17; MEPC.1/Circ.761/Rev.1 and MEPC.1/Circ.917 and CCC 12/INF.15

Introduction

1 This document presents a direct proposal for amending the text, based on the arguments set out in document CCC 12/INF.15 (Brazil), which technically characterizes the differences between ethanol and methanol relevant to the safety of ships using them as fuel. While that document sets out the supporting information and technical reasoning, the present document shows how its conclusions would be reflected in the text of the *Interim guidelines for the safety of ships using methyl/ethyl alcohol as fuel* (MSC.1/Circ.1621), enabling the Sub-Committee to consider the proposed changes against the existing provisions.

2 The amendments are presented below as revisions to the relevant provisions of the annex to MSC.1/Circ.1621, in the order in which they appear. In each case, the existing text is reproduced, and the proposed change is shown using grey strikethrough for deletions and grey shading for insertions. Paragraph references follow the numbering of the annex to MSC.1/Circ.1621. The proposed amendments are deliberately confined to the provisions that

the technical analysis identifies as being calibrated to the hazard profile of a single substance; the goal-based and functional requirements of the Interim Guidelines remain unchanged.

3 The unifying principle of the proposed amendments is that a requirement derived from a substance-specific hazard applies only to that substance, and that structural measures are calibrated to the vessel's certification envelope while operational measures are calibrated to the fuel in use, consistent with the risk assessment required by paragraph 4.2 of MSC.1/Circ.1621.

Amendment 1 – Segregation function of the cofferdam (paragraphs 2.2.3.2 and 5.3.2)

4 To make explicit that the cofferdam performs a dedicated barrier function and that equivalent arrangements are not automatic, the definition in paragraph 2.2.3.2 is amended, and a new paragraph is added after paragraph 5.3.2, as follows:

"2.2.3.2 Cofferdam is a structural space surrounding a fuel tank which provides an added layer of gas and liquid tightness protection against external fire, and toxic and flammable vapours between the fuel tank and other areas of the ship. By virtue of performing that dedicated barrier function, an alternative arrangement is not automatically equivalent to it and requires demonstration of equivalence."

"5.3.2bis Acceptance of an arrangement equivalent to the cofferdam should be conditional on demonstration of an equivalent level of safety through a specific design and risk assessment under paragraph 4.2, including equivalent leak detection by pressure or temperature monitoring where gas detection is not suitable, analogous to secondary enclosures in the IGF Code, subject to approval by the Administration and the classification society."

Amendment 2 – Risk assessment and calibration to the fuel in use (paragraph 4.2.1)

5 To anchor the proportional, risk-based application in the existing risk-assessment provision, the distinction between the structural and operational layers should be recognized, and it should be made explicit that any calibration applies only to ships operating exclusively on ethanol or on diesel-ethanol blends and that its acceptability rests with the Administration. Therefore, paragraph 4.2.1 is amended as follows:

"4.2.1 A risk assessment should be conducted to ensure that risks arising from the use of methyl/ethyl alcohol fuels affecting persons on board, the environment, the structural strength, or the integrity of the ship are addressed. Consideration should be given to the hazards associated with physical layout, operation and maintenance, following any reasonably foreseeable failure. The risk assessment may take into account that ethanol and methanol present distinct profiles of toxicity, fire behaviour, flame visibility and combustion behaviour, so that a requirement derived from a substance-specific hazard need apply only to that substance. Where the assessment supports it, detection, ventilation, protection and segregation measures may be calibrated to the hazard that effectively governs them: structural measures to the envelope of fuels for which the vessel is certified, and operational measures to the fuel effectively in use within that envelope. Any such calibration applies only to ships certified to operate exclusively on ethanol, or on diesel-ethanol blends; a ship certified to also operate on methanol should retain the requirements at the level of the most stringent admissible fuel. In a dual-fuel arrangement, the ignition pilot fuel alone does not govern the calibration of these measures. The acceptability of any such calibration should be determined by the Administration, or by the organization recognized by it for that purpose."

Amendment 3 – Material and arrangement of piping and containment (paragraph 7.4)

6 To make explicit that the material and arrangement of piping and containment are a structural measure calibrated to the vessel's certification envelope, paragraph 7.4 is amended as follows:

"7.4 Due consideration should be taken with respect to the corrosive nature of fuel when selecting materials, as well as to the electrical conductivity and electrostatic charge accumulation, the compatibility of seals, gaskets and coatings, and the water content of the fuel and blend in use, the compatibility, material and arrangement of piping and containment being determined by the most hazardous fuel admissible within the vessel's certification envelope, independently of the fuel in use at any given moment."

Amendment 4 – Fire detector selection (paragraph 11.6.6)

7 To reflect that the detectability of both alcohols' flames is conditioned and variable, and that no single detection technology should be imposed or waived by default, paragraph 11.6.6 is amended as follows:

"11.6.6 Suitable detectors should be selected based on the fire characteristics of the fuel effectively in use and the characteristics of the space. Smoke detectors should be used in combination with detectors which can more effectively detect methyl/ethyl alcohol fires, the selection being made by an installation-specific risk assessment under paragraph 4.2."

Amendment 5 – Hazardous-area classification and definition of zones (paragraph 12.4.2)

8 To reflect that the flammability properties of the fuel should be considered as a whole when area classification is applied, and that the two fuels cannot be compared on a single one-dimensional scale of hazard, paragraph 12.4.2 is amended as follows:

"12.4.2 In order to facilitate the selection of appropriate electrical apparatus and the design of suitable electrical installations, hazardous areas are divided into zones 0, 1 and 2, according to 12.5. In cases where the prescriptive provisions in 12.5 are deemed to be inappropriate, area classification according to IEC 60079-10-1:2015/2020 should be applied with special consideration by the Administration. When area classification according to IEC 60079-10-1 is applied, the flammability properties of the fuel should be considered as a whole, recognizing that a lower flammability limit and a wider flammability range each bear on the hazard but favour different fuels. The two fuels should therefore not be compared on a single one-dimensional scale of hazard."

Amendment 6 – Ventilation of fuel preparation spaces (paragraph 13.4.1)

9 The prescription of a fixed continuous ventilation rate under normal operation is not optimal for early leak detection, since an excessive ventilation rate may disperse a leak and delay alarm activation. The normal regime should therefore be established by considering the effect of the ventilation rate on leak detection, supported by a gas-dispersion analysis and accepted by the Administration and the classification society, while the full ventilation capacity is retained under emergency. The technical basis for this approach is set out in document CCC 12/INF.15 (Brazil). Accordingly, paragraph 13.4.1 is amended as follows:

"13.4.1 Fuel preparation spaces should be provided with an effective mechanical forced ventilation system of extraction type. ~~During normal operation the ventilation should be at least 30 air changes per hour.~~ The ventilation regime under normal operation should be established considering the effect of the ventilation rate on leak detection, since an excessive continuous rate may disperse a leak and delay the alarm, the regime being supported by a gas-dispersion analysis and accepted by the Administration and the classification society. Under emergency, the ventilation should in all cases be capable of at least 30 air changes per hour, automatically activated upon detection."

Amendment 7 – Gas-detection alarm thresholds and dermal protection (paragraph 15.7.4)

10 To key the occupational-protection function of the detection system and the associated personal protective equipment to the exposure limit and route of absorption of the fuel in use, while preserving the existing flammability-based thresholds, paragraph 15.7.4 is amended as follows:

"15.7.4 An audible and visible alarm should be activated at a fuel vapour concentration of 20% of the lower explosion limit (LEL). The safety system should be activated at 40% of LEL at two detectors. Special consideration should be given to toxicity in the design process of the detection system, the occupational-protection alarm thresholds and the associated personal protective equipment being keyed to the occupational exposure limit and route of absorption of the fuel effectively in use, the dermal protection corresponding to the dermal-absorption hazard of that fuel."

Action requested of the Sub-Committee

11 The Sub-Committee is invited to consider the proposed amendments to MSC.1/Circ.1621 set out in paragraphs 4 to 10 above, together with the technical reasoning presented in document CCC 12/INF.15, and to take action as appropriate.
