



Technical Information

No. : 070- 2016

14 September 2016

To : All BKI Customers

Subject : Summary Report on IMO Sub Committee meeting for 3rd session of Carriage of Cargoes and Containers (CCC 3)

Summary

This Technical Information summarizes the result of 3rd Session of the IMO Sub Committee Carriage of Cargoes and Containers (CCC 3) that was held from the 5 to 9 September 2016, at the IMO headquarters in London.

Information

The information provided in this Technical Information is the ones which have high relevance with the work of BKI. Any information or advice provided in this document shall be no responsibility of BKI and BKI shall not be liable to any person for any loss, damage or expense cause by its reliance.

The following agenda are among those discussed during the meeting :

Agenda Number	Topic
3	Amendments to the International Gas Fuel (IGF) Code and development of guidelines for low-flashpoint fuels
4	Draft Interim Recommendations for Carriage of Liquefied Hydrogen in Bulk
5	Amendments To The IMSBC Code And Supplements
8	Suitability Of High Manganese Austenitic Steel for Cryogenic Service
9	Draft Amendments On Paragraphs 4.5.1. And 4.5.2. Of The IMSBC Code
10	Unified Interpretation of provisions of IMO safety, security and environment related conventions

The Agenda above are several technical issues discussed during the meeting. A brief coverage among the issues are expressed in the attached document.

More info

Inquiries concerning the subject of this Technical Information should be directed to:

BKI Statutory Division

Yos Sudarso 38-40

Jakarta, 14320

Indonesia

Phone : +62 21 436 1899, 436 1901, 436 1903, 436 1904

Fax : +62 21 4390 1974

Email : sta@bki.co.id

Classification Director

- SIGNED -

Capt. Iman Satria Utama

Disclaimer

Any information or advice provided in this document shall be no responsibility of BKI and BKI shall not be liable to any person for any loss, damage or expense cause by its reliance.

BRIEF INFORMATION ON IMO MEETING OF SUB COMMITTEE CARRIAGE OF CARGO AND CONTAINERS 3RD SESSION (CCC 3)

INTRODUCTION

Start from 5th to 9th September 2016, IMO Sub Committee meeting on the carriage of cargoes and containers have been held at IMO's Headquarter in London, United Kingdom. The Sub Committee, at plenary session of the opening meeting was decide, in order to enhance the result of agenda discussed in CCC 3, to dividing several problem of some agenda items to be discussed at 3 Working Groups (WG). The first elected working group was instructed to carry on discussion for Agenda Item 3 and 10 (for IGF Code). The second elected working Group have been instructed to held a discussion for Agenda Item 4, 8 and 10 (for IGC Code). Hence, the last working group having a discussion task for Agenda item 5 and 9 (for IMSBC Code). The other discussion matter which have been adopted by Sub Committee, was carried out at plenary session.

Thus, this information provide technical review regards to the discussion of the agendas adopted by Sub Committee.

A. AMENDMENTS TO THE INTERNATIONAL GAS FUEL (IGF) CODE AND DEVELOPMENT OF GUIDELINES FOR LOW-FLASHPOINT FUELS (AGENDA ITEM 3)

Taking into account the comments and decisions made in plenary, Sub Committee Chairman agreed to put high priority to the finalization of fuel cells power installation requirements before other item stipulated at Term of Reference of the working group

Requirements for Fuel Cells which not using LNG as feed fuel

Sub Committee agreed that the draft amendments to IGF Code regarding fuel cells should be developed in a generic way that it would not limited only to natural gas (e.g. LNG) as feed fuel.

This requirement provided as new Part E of IGF Code for Fuel Cells using feed fuel other than LNG, in order to avoid renumbering of subsequent part. Other equipment not being specify by this new part will be taken as the same relevant requirement stipulated at Part A (Fuel Cells made by LNG).

Several highlights to amendments to IGF Code of Fuel Cells Power Installation as follow:

- Adding set of new definition and applicability for which vessel this requirement will fall into.
- Additional requirement for exhaust system in which this system and ventilation system which serve fuel cell space cannot be combined
- Ventilation capacity and redundancy requirement are based on fuel release source of the fuel cell power installation
- Continuous monitoring of the purity of the fuel to the fuel cell should be required with regard to that different technologies have different tolerance to fuel impurities in term of power, long term degradation, and performance tolerance of the fuel cell.
- System arrangement are required not only have capability to emptied all feed fuel but also have a means to achieve safe state for maintenance situation.

- Additional surface temperature limitation will be considered, as in relation to draft provision 10.6.3.6.5. as contained in Annex 1, temperature limitation of external surfaces requirement only address auto ignition hazard.
- Consideration have been made for possibility of ignition due to static electricity generated by ventilation.
- The adoption of Components of Typical "Fuel Cell Power Installation" boundaries diagram into the annex of the new part E in order to provide better provision for which fuel cell installation part are arranged in this section

Further Development for IGF Code

The Sub Committee, in regards to several divergent view of this matter, and also due to the time constraint for working group discussion, agreed to revisit the issue regarding to the technical provisions for the safety of ships using methyl/ethyl alcohol as fuel, including amendment of paragraph 11.3.6. and 15.2.6. into CCC 4.

B. UNIFIED INTERPRETATION OF PROVISIONS OF IMO SAFETY, SECURITY AND ENVIRONMENT RELATED CONVENTIONS (AGENDA ITEM 10)

As requested by Sub Committee, draft unified interpretation has been discussed by assigned Working Group members for the IGF Code and IGC Code

Sub Committee agreed for the unified interpretation draft and further submission to MSC 97 for approval as mentioned below:

B.1. Draft Unified Interpretation of the IGF Code

Unified Interpretation on IGF Code Part A, paragraph 2.2.15.3 in regards to Tank Connection Space located in open deck

IACS considers that the tank connection space, where appropriate, are not excluded from being applied to tanks connection space located on open deck, in which the Code imply that it would be required only on enclosed space. Moreover, by placing tank connection space on open deck, it can also provide environmental protection for essential safety equipment

IACS also intent to consider that design of tank connection space are provided with number of safety features primarily designed for safe containment of LNG and gas leaks. Hence it only allowable for equipment categorized as potential source of release and not the source of ignition.

Unified Interpretation on IGF Code Part A, paragraph 2.2.17 in regards to terms of Tank Connection Space where the special provision apply.

IACS are aware that the term "fuel preparation room" has evolved from the terms "compressor room" and "pump room" in the Interim Guidelines on safety for natural gas-fuelled engine installations in ships (resolution MSC.285(86)) and is based on the concept of compressor and pump rooms located above

deck in the IGC Code. Hence, a tank connection space, with equipment such as vaporizers or heat exchangers, installed inside is not regarded as a fuel preparation room.

Unified Interpretation on IGF Code Part A, paragraph 5.4.1. in regards to Gas Fuelled Engine arrangement on machinery space

IACS considers that this requirement are apply not only for single fuel engine but also for dual fuel engine where the premixed engine should also be located in ESD protected machinery space.

Unified Interpretation on IGF Code Part A, paragraph 6.2.1.1.and 5.8 regards to Fuel Preparation Room located in open deck

IACS considers that a fuel preparation room located on an open deck should be arranged in the same way as a fuel preparation room below deck. Protection against cryogenic leakages and control of hazardous zones are equally relevant for open deck locations

Unified Interpretation on IGF Code Part A, paragraph 8.3.1.1. in regards to special consideration within risk assessment of closed or semi closed bunkering stations

Special consideration at those risk assessment should as a minimum include, but not be restricted to, the following design features:

- segregation towards other areas on the ship
- hazardous area plans for the ship
- requirements for forced ventilation
- requirement for leakage detection
- safety action related to leakage detection
- access to bunkering station from non-hazardous area through airlocks
- monitoring of bunkering station by direct line of sight or by CCTV

Unified Interpretation on IGF Code Part A, paragraph 13.5.1. in regards to ventilation of machinery spaces

IACS consider that space enclosed in the boundaries of machinery spaces (e.g. purifier room, engine room workshop and engine room store) are considered an integral part of machinery spaces containing gas fuelled consumers. In regards to those consideration, ventilation system for such space does not need to be independent from machinery space's ventilation system.

Unified Interpretation on IGF Code Part A, paragraph 13.8.2. in regards to ventilation of double piping and gas valve unit spaces in gas safe engine room

IACS consider the double piping and gas valve unit in gas safe engine room as an integral part of the fuel system. Therefore, their ventilation does not need to be independent of other gaseous fuel supply ventilation system.

Unified Interpretation on IGF Code Part A, paragraph 6.9.1.1. and 6.9.1.2. in regards to control and maintenance of pressure and temperature of liquefied gas fuel tanks after the activation of safety system

IACS has interpreted the paragraph 6.9.1.1. and 6.9.1.2. of IGF Code such that pressure and temperature control and/or maintenance of liquefied gas tanks could be done at all times after the activation of safety system, within design range for a period minimum of 15 days.

Unified Interpretation on IGF Code Part A, paragraph 13.8.3. in regards to ventilation inlet for double wall piping or duct

In accordance with those relevant paragraph at IGF Code, the ventilation for double wall piping located in machinery space shall always be located in a non-hazardous area in open air away from ignition source. This consideration made by IACS, also have been supported by the second sentence of paragraph 13.8.3. which required the ventilation inlet to be guarded from ingress water. Moreover, machinery space for vessel using gas fuel already contains multiple source of ignition.

B.2. Draft Unified Interpretations of the IGC code, as amended by resolution MSC.370 (93)

Following the instruction by the Sub-Committee, draft unified interpretations have been prepared for:

1. paragraph 8.4.1.2 and figure 8.1 of the IGC Code, as amended by resolution MSC.370 (93), based on document CCC 3/10/5; and
2. paragraph 11.3.6 of the IGC Code, as amended by resolution MSC.370 (93), based on document CCC 3/10/8.

The unified interpretation for above mentioned draft have been approved for submission to MSC 97 for approval. With regard to above mentioned task, the result of the working discussion were highlighted as follow:

- Above Unified Interpretation draft should also applied to section 6.7.3.1.1.2. and figure 6.7.1. of the IGF Code.
- With regard to oxygen deficiency monitoring, it only applied to hold spaces surrounding type A and B independent tanks by the previous version of the IGC Code, as amended by resolution MSC.220 (82). However, the application of that requirement to hold spaces for type C cargo tanks was considered inappropriate.
- Following above consideration, the text of paragraph 13.6.4 of the IGC Code should be corrected to read as follows:
"13.6.4 Where indicated in column "f" in the table of chapter 19 ships certified for carriage of non-flammable products, oxygen deficiency monitoring shall be fitted in cargo machinery spaces and cargo tank hold spaces for independent tanks other than type C tanks. Furthermore, oxygen deficiency monitoring equipment shall be installed in enclosed or semi-enclosed spaces containing equipment that may cause an oxygen deficient environment such as nitrogen generators, inert gas generators or nitrogen cycle refrigerant systems."

Unified Interpretation on IGC Code, paragraph 3.2.6. in regards to Closing devices for air intakes

In accordance with those above mentioned paragraph, the interpretation made by IACS stipulated that for vessel carrying toxic product, the closing device for air intakes serving unmanned space may be located in centralized position and should be accessible from all spaces protected by the closing devices.

Where for both manned and unmanned space regardless of the carriage, the closing devices shall be operable outside of the space as stipulated by SOLAS Chapter II-2, 5.2.1.1.

Unified Interpretation on IGC Code, paragraph 3.5.3.1.2. and 3.5.3.1.3. in regards to Cargo tank clearance

The minimum clear opening of 600 x 600 mm may have corner radii up to 100 mm maximum. In such case where as a consequences of structural analysis, the stress around the opening is to be reduced, it is considered appropriate to reduce the stress such as making the opening larger with increased radii, e.g. 600 x 800 mm with 300 mm radii as mentioned in paragraph 3.5.3.1.3. in which a clear opening of 600 x 600 mm with corner radii up to 100 mm maximum fits.

An opening of 600 mm in height x 800 mm in width may be accepted in vertical structures depending on the structural strength aspects.

C. DRAFT INTERIM RECOMMENDATIONS FOR CARRIAGE OF LIQUEFIED HYDROGEN IN BULK (AGENDA ITEM 4)

Following the instruction by the Sub-Committee, the Group, firstly, reviewed 13 issues listed in paragraph 89.3 of document CCC 3/4; secondly, considered the proposals set out in documents CCC 3/4/1 and CCC 3/4/2; thirdly, went through the draft Interim recommendations, as set out in the annex to document CCC 3/4, with a view to deciding on the texts remaining in square brackets; and, finally, prepared the draft MSC resolution clarifying the application of the Interim recommendations, i.e. only to a pilot ship carrying liquefied hydrogen in bulk, and confirming the need for further revisions if they should be applied to ships other than the pilot ship. Highlight Points of amendments draft for above discussion are as follow:

- Requirement of Risk assessment at design stage, which includes the reference to SAE ARP 5580-2001 "Recommended failure modes and effects analysis (FMEA) practices for non-automobile applications" in Special Requirement No.25.
- Capacity of Relief valves for cargo tanks which considered to undertake most severe scenario in Special Requirement No.26.
- Hazard of liquefied hydrogen to be considered especially on vacuum insulation evaluation should be specified for the normal range or upper limit of cold vacuum pressure (CVP), and loss of vacuum

should be defined with respect to this value.

- Additional of Special Requirement for personal protective equipment with the consideration at invisibility of hydrogen fire.
- Additional tightness testing option, as to include mixture of 5% Hydrogen and 95% Nitrogen may be used as alternative tightness test medium.
- Revision of paragraph 15.4. that allowed increase of filling limit above 98% under certain circumstances, in which, for Liquid Hydrogen should not be permitted until sufficient experience has been gained to handling such cargo due to its novelty.
- The prohibition of hydrogen venting as a means of normal boil-off control due to safety considerations. Therefore, Thermal Oxidation equipment could be permitted either in Gas Combustion Unit (GCU) or Hydrogen Fuel cell. In any case Hydrogen is prohibited in machinery space category A as defined at Section 1.2.7. of IGC Code. Space containing this equipment shall be consider as cargo machinery space.

D. SUITABILITY OF MATERIALS FOR CRYOGENIC SERVICE (AGENDA ITEM 8)

Suitability of high manganese austenitic steel for cryogenic service

Following the instruction by the Sub-Committee, the Group further considered the suitability of high manganese austenitic steel for cryogenic service.

Among the suitable material that applicable to LNG tanks, metallic material with FCC structure (austenitic steel) are favorable because they can maintain high toughness at cryogenic temperature. At present, such properties can only be achieved with 9% Nickel Steel. However, as stated at Paper submitted by Republic of Korea, high manganese austenitic steel for cryogenic services has been developed as an alternative that overcomes the disadvantage of FCC-structured metallic materials, namely low yield strength, and leverages the economic, feasibility of manganese.

Having carefully considered the information presented by the Republic of Korea and Japan at the working group session, and noted the answers provided by the experts of the delegation of the Republic of Korea to questions, comments and concerns raised by participants, the Sub Committee agreed that to confirm the suitability of high manganese austenitic steel for cryogenic service further consideration of experimental/test data, to be provided by the Republic of Korea, and information on approval of such materials by classification societies, to be provided by IACS, should be carried out by a correspondence group, with a view to reporting to CCC 4.

Correspondence Group establishment of Suitability of high manganese austenitic steel for cryogenic service (Under coordination of Korea)

Taking into account the decision regarding establishment of correspondence group for suitability of high manganese austenitic material for cryogenic service, Sub Committee agreed to the Term of Reference in which this group have assigned for, as follows:

1. Develop test acceptance criteria for high manganese austenitic steel for cryogenic service,
2. Further consider the suitability of high manganese austenitic steel for cryogenic service, taking into account the information in annex 1 to document CCC 3/8 and documents CCC 3/8/1 and CCC 3/J/7;
3. Develop draft amendments to the IGC and IGF Codes to include high manganese austenitic steel for cryogenic service, if appropriate, based on annex 2 to document CCC 3/8; and
4. Submit a report to CCC 4.

E. AMENDMENTS TO THE IMSBC CODE AND SUPPLEMENTS (AGENDA ITEM 5)

Amendments to the individual schedule for COAL

In accordance with the discussion at plenary, the draft amendment to the individual schedule of COAL has been made in particular to the comments made on paragraphs 45.11 and 45.16 of documents CCC 3/5/1

The draft amendment which submitted into Sub Committee, stated that coal shall be classified as Group A & B unless classified as Group B only by a test determined by the appropriate authority or where it has particle size distribution as follows:

1. Not more than 10% by weight of particles less than 1 mm ($D_{10} > 1$ mm); and
2. Not more than 50% by weight of particles less than 10 mm ($D_{50} > 10$ mm).

The draft also included about the inclusion of generic precaution on moisture migration of blended coals, i.e. "due consideration shall be given to moisture migration and formation of dangerous wet base when blended coals are loaded" in the section of "Loading"

Thus Sub Committee has agreed to forward them to E&T 26 for inclusion in draft amendment 04 -17

Establishment of a correspondence group for Evaluation of Properties of Bauxite and revision of individual schedules for SEED CAKE (under coordination of Japan)

Taking into account the comments and decisions made at CCC 3 and comments related to the revision of individual schedules for SEED CAKE made at E&T 26, the Sub Committee instructed to prepare draft terms of reference for the Correspondence Group under coordination of Japan.

Hence this Correspondence Group is instructed to:

1. Consider the draft report of the research conducted by Global Bauxite Working Group (GBWG) by end of March 2017 and consider the final report, which is to be submitted to the Correspondence

- Group by end of April 2017.
2. Consider the adequacy of the current methods for determining the transportable moisture limit (TML) for Bauxite and develop, as necessary, new and/or amended existing methods to be included in appendix 2 of the IMSBC Code.
 3. Prepare a draft individual schedule for BAUXITE as group A cargo and review the existing BAUXITE schedule, taking into account annexes 1 and 2 to document CCC 3/5/1.
 4. Prepare individual MHB and nonhazardous schedules for SEED CAKE AND OTHER RESIDUES OF PROCESSED OILY VEGETABLES and SEED CAKE AND OTHER RESIDUES OF PROCESSED OILY VEGETABLES (non-hazardous), based on annexes 1 and 2 to document CCC 35/11 and taking into account document CCC 3/5/18.
 5. Prepare draft amendments to IMSBC Code for the classification of SEED CAKE cargoes, based on annex 3 to document CCC 3/5/11.
 6. Consider the possible amendments to individual schedules for SEED CAKE UN 1368(a), SEED CAKE UN 1386(b) and SEED CAKE UN 2217 and the consequential amendments to the IMDG and IMSBC Codes taking into account documents CCC 3/5/11 and CCC 3/5/18.
 7. Consider the possible harmonization within the IMDG, IMSBC Codes and UN Model Regulations with regard to SEED CAKE UN 1368 and SEED CAKE UN 2217, taking into account the document CCC 3/6/2 and
 8. Submit a report to CCC 4.

F. DRAFT AMENDMENTS ON PARAGRAPHS 4.5.1. AND 4.5.2. OF THE IMSBC CODE (AGENDA ITEM 9)

According to discussion on plenary, the draft amendment on paragraph 4.5.1. and 4.5.2. of the IMSBC Code have been considered based on document CCC 3/5/20. Sub Committee agreed the amendments and this amendment will be proceed to be submitted to MSC 97 for approval. At those discussion several highlight must be addressed as follows:

- In particular to the provisions should indicates the shipper's responsibility to conducting the tests for TML and moisture content, in which shown by the amendments of paragraphs 4.5.1. and 4.5.2. by specifying that the "shipper shall be responsible for ensuring that a test to determine the TML" and "shipper shall be responsible for ensuring that sampling and testing for moisture content".
- The terms "significant rain or snow" consider as relatively subjected term, hence
- Regards to standard text in the weather precaution for Group A schedules, the amended draft must reflected that if the cargo has been exposed to significant rain or snow, it would be shippers responsibility to ensure that the moisture is less than TML, and appropriate evidence form for such matter will not be limited.

Transportability test of nickel ore from New Caledonia

The Subcommittee agreed to encouraged the interested Member States and International Organizations to provide comments (if any) and communicate directly to the delegation of France.

Mandatory requirements for classification and declaration of solid bulk cargoes as Harmful to the Marine Environment (HME)

As instructed by Sub Committee, general discussion regards to mandatory requirements for classification and declaration of solid bulk cargoes as harmful to marine environment has been set out and produce several highlight as follow:

Regarding to the decision of MEPC 69 that agreed only to make criteria for the classification of solid bulk cargoes as HME and the shipper's classification and declaration mandatory under MARPOL Annex V without specifying the means for making such declaration. However, the discussion leads to the needs of providing additional information into mandatory cargo information whether the cargoes are classified as harmful to marine environment or not.

Amendments Draft to 2012 Guidelines for the implementation of MARPOL Annex V

Regarding to the decision of MEPC 69, discussion on paragraph 3.2. and 3.4. of 2012 Guidelines have been carried out. The discussion leads into the elimination of classification criteria for HME and to provide a link between amended MARPOL Annex V and the 2012 Guidelines, instead of deleting paragraph 3.2. On the other hand, regards to paragraph 3.4, related requirements as contained in amended MARPOL Annex V are reproduced, in order to provide general guidance for the user of 2012 Guidelines.

Sub Committee has been agreed and then will proceed for further submission to MEPC 71.