

ANNEX 5

**RESOLUTION MSC.523(106)
(adopted on 10 November 2022)**

**AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND
EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK (IGC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.5(48), by which it adopted the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk ("the IGC Code"), which has become mandatory under chapter VII of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

NOTING ALSO article VIII(b) and regulation VII/11.1 of the Convention concerning the procedure for amending the IGC Code,

HAVING CONSIDERED, at its 106th session, amendments to the IGC Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IGC Code the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2025, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK (IGC CODE)

**CHAPTER 6
MATERIALS OF CONSTRUCTION AND QUALITY CONTROL**

6.4 Requirements for metallic materials

6.4.1 General requirements for metallic materials

Table 6.3 is replaced in its entirety by the following:

"Table 6.3

PLATES, SECTIONS AND FORGINGS ^{See note 1} FOR CARGO TANKS, SECONDARY BARRIERS AND PROCESS PRESSURE VESSELS FOR DESIGN TEMPERATURES BELOW -55°C AND DOWN TO -165°C ^{See note 2} Maximum thickness 25 mm ^{See notes 3 and 4}		
Minimum design temperature (°C)	Chemical composition See note 5 and heat treatment	Impact test temperature (°C)
-60	1.5% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP ^{See note 6}	-65
-65	2.25% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP ^{See notes 6 and 7}	-70
-90	3.5% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP. ^{See notes 6 and 7}	-95
-105	5% nickel steel – normalized or normalized and tempered or quenched and tempered ^{See notes 6, 7 and 8}	-110
-165	9% nickel steel – double normalized and tempered or quenched and tempered ^{See note 6}	-196
-165	Austenitic steels, such as types 304, 304L, 316, 316L, 321 and 347 solution treated ^{See note 9}	-196
-165	High manganese austenitic steel – hot rolling and controlled cooling ^{See notes 10 and 11}	-196
-165	Aluminium alloys, such as type 5083 annealed	Not required
-165	Austenitic Fe-Ni alloy (36% nickel). Heat treatment as agreed	Not required
TENSILE AND TOUGHNESS (IMPACT) TEST REQUIREMENTS		
Sampling frequency		
◆ Plates	Each "piece" to be tested	
◆ Sections and forgings	Each "batch" to be tested	
Toughness (Charpy V-notch test)		
◆ Plates	Transverse test pieces. Minimum average energy value (KV) 27J	
◆ Sections and forgings	Longitudinal test pieces. Minimum average energy (KV) 41J	

Notes

- 1 The impact test required for forgings used in critical applications shall be subject to special consideration by the Administration.
- 2 The requirements for design temperatures below -165°C shall be specially agreed with the Administration.
- 3 For materials 1.5% Ni, 2.25% Ni, 3.5% Ni and 5% Ni, with thicknesses greater than 25 mm, the impact tests shall be conducted as follows:

Material thickness (mm)	Test temperature (°C)
25 < t ≤ 30	10°C below design temperature
30 < t ≤ 35	15°C below design temperature
35 < t ≤ 40	20°C below design temperature

The energy value shall be in accordance with the table for the applicable type of test specimen. For material thickness of more than 40 mm, the Charpy V-notch values shall be specially considered.

- 4 For 9% Ni steels, austenitic stainless steels, high manganese austenitic steels and aluminium alloys, thickness greater than 25 mm may be used.
- 5 The chemical composition limits shall be in accordance with recognized standards.
- 6 TMCP nickel steels will be subject to acceptance by the Administration.
- 7 A lower minimum design temperature for quenched and tempered steels may be specially agreed with the Administration.
- 8 A specially heat-treated 5% nickel steel, for example triple heat-treated 5% nickel steel, may be used down to -165°C, provided that the impact tests are carried out at -196°C.
- 9 The impact test may be omitted, subject to agreement with the Administration.
- 10 The use of the material shall be subject to the required conditions specified by the Administration based on the Guidelines developed by the Organization.*
- 11 The impact test may not be omitted for high manganese austenitic steel."

* Refer to the *Revised guidelines on the application of high manganese austenitic steel for cryogenic service* (MSC.1/Circ.1599/Rev.2).
