RUSSIAN MARITIME REGISTER OF SHIPPING

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ANNEXES

TO THE RULES

FOR THE CLASSIFICATION AND CONSTRUCTION OF SHIPS CARRYING LIQUEFIED GASES IN BULK

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ANNEXES TO THE RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SHIPS CARRYING LIQUEFIED GASES IN BULK

The Annexes being a part of the Rules for the Classification and Construction of Ships Carrying Liquefied Gases in Bulk of Russian Maritime Register of Shipping have been approved in accordance with the established procedure and come into force on 1 January 2023.

The Annexes are based on the 2022 edition taking into account the amendments developed immediately before publication.

REVISION HISTORY

(purely editorial amendments are not included in the Revision History)

For this version, there are no amendments to be included in the Revision History.

ANNEX 1

TABLE OF TECHNICAL REQUIREMENTS

Explanatory notes to the Table of Technical Requirements

1. Product names (column 1) are listed in alphabetic order of their Latin names.

2. Chemical formula (column 2) is given for information only.

3. Density (column 3) is given for information only and shall be refined according to the shipper's data.

4. Type of LG carrier (column 4) according to the definition in Part I "Classification" of the Rules for the Classification and Construction of Ships Carrying Liquefied Gases in Bulk[1].

5. Definition of the type C independent tank (column 5) is given in Section 23, Part IV "Cargo Containment".

6. Requirements for control of vapour space within cargo tanks (column 6) are given in Part V "Fire Protection":

Inert = inert gas;

Dry = dry air.

7. Vapour detection system (column 7):

F = flammable vapour detection;

T = toxic vapour detection;

O = oxygen detection (oxygen analyzer);

F+T = flammable and toxic vapor detection.

8. Gauge type (column 8):

R = restricted type;

C = closed type;

I = indirect type (see 2.2, Part VIII "Instrumentation and Automation Systems").

9. MFAG (Medical First Aid Guide (MFAG) of the International Maritime Organization (IMO)) numbers (column 9) are provided for information on the emergency procedures in accidents associated with the products covered by the LG Rules requirements.

Where any of the products listed are carried at the low temperature from which frostbite may occur, MFAG No. 620 is also applicable.

10. Special requirements (column 10), unless otherwise specified, see chapters and sections of Part X "Special Requirements".

11. Products marked "*" are also covered by the requirements of the Rules for the Classification and Construction of Chemical Tankers.

[1] Hereinafter referred to as "the LG Rules".

Product name	Chemical formula	Density (kg/m^3) at temperature in brackets	Ship type	Type C independent tank requuired	System for control of vapour space within cargo tanks	Cargo vapour detection system	Gauge type	MFAG table No.	Special requirements
Acetaldehyde	CH3CHO	780 (20,8°C)	2G/2PG	–	Inert	F+T	C	300	2.1, 4.7.1 of Part V, 5.1, Section 8
Ammonia Anhydrous	NH3	771 (–33,4°C)	2G/2PG	–	–	T	C	725	Section 2, Section 3, Section 19
Butadiene	$CH_2CHCHCH_2$	646 (0°C)	2G/2PG	–	–	F+T	R	310	Section 2, 3.2, 5.2, 5.3, Section 8, Section10
Butane	C_4H_{10}	600 (0°C)	2G/2PG	–	–	F	R	310	
Butane/Propane mixture (LPG)			2G/2PG	–	–	F	R	310	
Butylenes	$CH_3CH_2CHCH_2$	670 (0°C)	2G/2PG	–	–	F	R	310	
Chlorine	Cl_2	1560 (–34°C)	1G	Yes	Dry	T	I	740	Section 2, 4.2, 5.1, Section 7, Section 9, Section 15 Section 22
Diethyl Ether*	$(C_2H_5)_2O$	640 (34,6°C)	2G/2PG	–	Inert	F+T	C	330	2.1, 3.6, 4.1, Section 8, Section 22, Section 23, 29.2, 29.3
Dimethylamine	$(CH_3)_2NH$	680 (0°C)	2G/2PG	–	–	F+T	C	320	Section 2, Section 3
Ethane	CH_3CH_3	550 (–88°C)	2G	–	–	F	R	310	
Ethyle Chloride	CH_3CH_2Cl	921 (0°C)	2G/2PG	–	–	F+T	R	340	
Ethylene	C_2H_4	560 (–104°C)	2G	–	–	F	R	310	
Ethylene Oxide	CH_2CH_2O	882 (10°C)	1G	Yes	Inert	F+T	C	365	Section 2, 3.2, 4.2, 5.1, Section 7, Section 8, Section 12
Ethylene Oxide/Propylene Oxide mixture with Ethylene Oxide content of not more than 30 % by weight*			2G/2PG	–	Inert	F+T	C	365	2.1, 4.1, 5.1, Section 8, Section 18, Section 22, Section 23
Isoprene*	$CH_2CHC(CH_3)CH_2$	680 (34°C)	2G/2PG	–	–	F	R	310	2.1, Section 10, Section 22, 29.1
Isopropylamine*	$(CH_3)_2CHNH_2$	710 (34°C)	2G/2PG	–	–	F+T	C	320	2.1, 3.4, Section 6, Section 22, Section 23, 29.1
Methane (LNG)	CH_4	420 (–164°C)	2G	–	–	F	C	620	
Methylacetylene/ Propadiene mixture			2G/2PG	–	–	F	R	310	Section 13
Methyl Bromide	CH_3Br	1730 (0°C)	1G	Yes	–	F+T	C	345	Section 2, 3.3, 4.2, 5.1, Section 7
Methyl Chloride	CH_3Cl	920	2G/2PG	–	–	F+T	C	340	3.3
Monoethylamine* (Ethylamine)	$C_2H_5NH_2$	706 (0°C)	2G/2PG	–	–	F+T	C	320	Section 2, Section 3, 4.1, Section 6, Section 22, Section 23, 29.1

Product name	Chemical formula	Density (kg/m^3) at temperature in brackets	Ship type	Type C independent tank requuired	System for control of vapour space within cargo tanks	Cargo vapour detection system	Gauge type	MFAG table No.	Special requirements
Nitrogen	N_2	808 (–196°C)	3G	–	–	O	C	620	Section 14
Pentanes (all isomers)*	$CH_3(CH_2)_3CH_3$	626 (0 °C)	2G/2PG	–	–	F	R	310	Section 22, Section 29
Pentene (all isomers)*			2G/2PG	–	–	F	R	310	Section 22, Section 29
Propane	$CH_3CH2CH3$	590 (–42,3 °C)	2G/2PG	–	–	F	R	310	
Propylene	CH_3CHCH2	860	2G/2PG	–	–	F	R	310	
Propylene Oxide*	CH_3CHOCH_2	830	2G/2PG	–	Inert	F+T	C	365	2.1, 4.1, 5.1, Section 8, Section 18, Section 22, Section 23
Refrigerant gases:			3G	–	–	–	R	350	
Dichlodifluoromethane	CCl_2F_2	1490 (–30 °C)							
Dichloromonofluoromethane	$CHFCl_2$	1480 (8,9 °C)							
Dichlorotetrafluoroethane	C_2F4Cl_2	1510 (3,8 °C)							
Monochlorodifluoromethane	$CHClF_2$	1420 (–42 °C)							
Monochlorotetrafluoroethane	C_2HF_4Cl								
Monochlorotrifluoromethane	CF3Cl	1520 (–81,4 °C)							
Sulphur Dioxide	SO_2	1460 (–10°C)	1G	Yes	Dry	T	C	635	Section 2, 4.2, 5.1, Section 7, Section 9
Vinyl Chloride*	CH_2CHCl	970 (–13,9 °C)	2G/2PG	–	–	F+T	C	340	2.1, 3.2, 3.3, 4.1, Section 8, Section 16
Vinyl Ethyl Ether	$CH_2CHOC_2H_5$	755	2G/2PG	–	Inert	F+T	C	330	2.1, 3.2, 4.1, Section 8, Section 10, Section 22, Section 23, 29.2, 29.3
Vinylidene Chloride*	$C_2H_2CCl_2$	1250	2G/2PG	–	Inert	F+T	R	340	2.1, 3.5, Section 8, Section 10, Section 22, Section 23
Dimethyl Ether	C_2H_6O	1,716	2G/2PG	–	–	B+T	C	–	
Mixed cargoes C4			2G/2PG			B+T	3. K		Section 2, 3.2, 5.2, 5.3, Section 8, Section 26
Carbon dioxide (high purity)	CO_2	771	3G			O	3		Section 27
Carbon dioxide (high purity)	CO_2	771	3G			O	3		Section 28

ANNEX 2

INTERNATIONAL CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK

Refer to Chapter 18 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).

ANNEX 3

NON-METALLIC MATERIALS

Refer to Appendix 4 to the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).

ANNEX 4

STANDARD FOR THE USE OF LIMIT STATE METHODOLOGIES IN THE DESIGN OF CARGO CONTAINMENT SYSTEMS OF NOVEL CONFIGURATION

Refer to Appendix 5 to the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).

Russian Maritime Register of Shipping

Annexes to the Rules for the Classification and Construction of Ships Carrying Liquefied Gases in Bulk

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