RULES
R001CN03-2024

CHINA CLASSIFICATION SOCIETY

RULES FOR CLASSIFICATION OF SEA-GOING STEEL SHIPS

CCS RULE CHANGE NOTICE

Version: 2024. RCN No.3

Effective from 9 July 2024

Beijing

Brief Introduction

Part One Provisions Of Classification

Specialized products for ammonia-fuel-powered ships and ammonia fuel carriers were closely studied and requirements for plan approval, approval and unit/batch inspection were raised. Therefore, Appendix 1F LIST OF CERTIFICATION REQUIREMENTS FOR AMMONIA TRANSPORT AND AMMONIA FUEL SPECIALIZED PRODUCTS in Chapter 3 was developed. Harmonized revisions were made to relevant paragraphs of the Rules.

CCS Rule Change Notice For:

RULES FOR CLASSIFICATION OF SEA-GOING STEEL SHIPS

PART ONE

CONTENTS

CHAPTER 3 INSPECTIONS OF PRODUCTS

Section 2 UNIT/BATCH INSPECTIONS

3.2.1 Application

3.2.1.1 Unless otherwise provided, the unit/batch inspection procedure of this Section applies to the products with CCS marine product certificate/equivalent document.

3.2.1.2 Appendix 1A of this Chapter is the List of Certification Requirements for Classed Marine Products, as required for the ships classed with CCS.

3.2.1.3 Appendix 1B of this Chapter is the List of Certification Requirements for Statutory Marine Products, as required for the statutory services delegated to CCS.

3.2.1.4 Appendix 1C of this Chapter is the List of Certification Requirements for Lifting Appliances, as required for the issue of certificates relevant to lifting appliances by CCS.

3.2.1.5 Appendix 1D of this Chapter is the List of Certification Requirements for Liquefied Natural Gas Specialized Products, as required for the issue of certificates relevant to liquefied natural gas carriers and ships powered by natural gas as fuel by CCS.

3.2.1.6 Appendix 1E of this Chapter is the List of Certification Requirements for Methanol Fuel System Specialized Products, as required for the issue of certificates relevant to ships powered by methanol as fuel by CCS.

3.2.1.7 Appendix 1F of this Chapter is the List of Certification Requirements for Ammonia Transport and Ammonia Fuel Specialized Products, as required for the issue of certificates relevant to liquid ammonia carriers and ships powered by ammonia as fuel by CCS.

3.2.1.~~5~~8 Appendices 2A, 2B and 2C of this Chapter are list of certification requirements for material and components of products of Appendices 1A, 1B and 1C respectively. Except for diesel engines, boilers, pressure vessels and lifting appliances, certification requirements for raw material of general machinery and electrical installations are not shown in Appendices 2A, 2B and 2C.

Appendix 1F LIST OF CERTIFICATION REQUIREMENTS FOR AMMONIA TRANSPORT AND AMMONIA FUEL SPECIALIZED PRODUCTS

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
Ammonia carrier cargo containment system （membrane cargo tank）									
1	Materials/Component								
1.1	Adhesive	—	X	—	—	—	X	—	Used for bonding

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
									insulation materials and components
1.2	Glass wool	—	X	—	—	—	X	—	
1.3	Glass cloth	—	X	—	—	—	X	—	
1.4	load bearing mastic	—	X	—	—	—	X	—	
1.5	Reinforced polyurethane foam	X	—	—	—	—	X	—	
1.6	Plywood	X	—	—	—	—	X	—	
1.7	Paint for inner hull protection	—	X	—	—	—	X	—	
1.8	Thermal protection		X	—	—	—	X	—	Used for thermal insulation protection of weld backside
1.9	Stainless steel sheets	X	—	—	—	—	X	—	
1.10	Stainless steel studs, nuts& washers	—	X	—	—	—	X	—	Works approval is only for material approval. If C/E is provided for forged steel parts, approval is not required.
1.11	Secondary barrier components	X	—	—	—	—	X	X1	Three-in-one sheet, including rigid secondary barrier and flexible secondary barrier.
1.12	Aluminium for reinforcement elements	X	—	—	—	—	X	X1	
2	Prefabricated elements								
2.1	Anchor strips	X	—	—	X	—	—	X1	
2.2	Primary barrier components	X	—	—	X	—	—	X1	Include flat, corner, corner area and end stainless steel corrugated plates.
2.3	Top bridge pads prefabricated elements	X	—	—	X	—	—	X1	
2.4	Flat wall panels prefabricated elements	X	—	—	X	—	—	X1	
2.5	Corner panels prefabricated elements	X	—	—	X	—	—	X1	

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
2.6	Stainless steel corners	X	—	—	X	—	—	X1	
2.7	Single legs prefabricated elements	X	—	—	X	—	—	X1	
Ammonia carrier cargo containment system (independent cargo Tank type A)									
3.1	Cargo containment material	X	—	—	—	—	X	—	Such as carbon manganese steel, aluminum alloy, stainless steel etc.
3.2	Welding consumables	—	X	—	—	—	X	—	
3.3	Bearer	—	X	—	—	—	X	—	
3.4	Epoxy resin	—	X	—	—	—	X	—	
3.5	Foam board	X	—	—	—	—	X	—	Such as polyurethane material
3.6	Insulating structure	—	X	—	X	O	—	X1	
3.7	Dome seals	—	X	—	—	—	X	—	
3.8	Rupture discs	—	X	—	X	O	—	X	
3.9	Domes, fluid well	X	—	—	—	—	—	X1	As purchased parts
3.10	Electrical penetrations	—	X	—	X	—	—	X	Airtight electrical penetrations for submersible pump cables
3.11	Safety valve	X	—	—	X	O	—	X	
Ammonia carrier cargo containment system (independent cargo Tank type B)									
4.1	Cargo containment material	X	—	—	—	—	X	—	Such as carbon manganese steel, aluminum alloy, stainless steel etc.
4.2	Welding consumables	—	X	—	—	—	X	—	
4.3	Bearer	—	X	—	—	—	X	—	
4.4	Epoxy resin	—	X	—	—	—	X	—	
4.5	Insulating material	—	X	—	—	—	X	—	
4.6	Foam board	X	—	—	—	—	X	—	Such as polystyrene foam
4.7	platen	X	—	—	—	—	X	X1	
4.8	Adhesive strips	—	X	—	—	—	X	—	
4.9	Insulating structure	—	X	—	X	O	—	X1	
4.10	Dome seals	—	X	—	—	—	X	—	
4.11	Rupture discs	—	X	—	X	O	—	X	
4.12	Domes, fluid well	X	—	—	—	—	—	X1	As purchased parts
4.13	Electrical penetrations	—	X	—	X	—	—	X	Airtight electrical penetrations for submersible pump cables
4.14	Safety valve	X	—	—	X	O	—	X	
Ammonia carrier cargo containment system (independent cargo Tank type C)									
5.1	Rolled steel	X	—	—	—	—	X	—	
5.2	Forgings	X	—	—	—	—	X	—	

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
5.3	Pipes, forgings, castings and fittings(bend, three-way, pipe nipple and tapered pipe, etc.) for ammonia piping	X	—	—	—	—	X	—	Applicable to cargo and process piping for design temperature below 0℃
5.4	Heads	X	—	—	—	—	X	X1	As purchased parts
5.5	Welding consumables	—	X	—	—	—	X	—	
5.6	Insulating material	—	X	—	—	—	X	—	
5.7	Bearer	—	X	—	—	—	X	—	
5.8	Structural adhesives	—	X	—	—	—	X	—	
5.9	Domes, fluid well	X	—	—	—	—	—	X1	As purchased parts
5.10	Electrical penetrations	—	X	—	X	—	—	X	Airtight electrical penetrations for submersible pump cables
5.11	Safety valve	X	—	—	X	O	—	X	
Cargo and fuel operation system structure									
6.1	Pump tower	X	—	—	—	—	—	X1	For membrane cargo tank. If the shipyard has a subcontract agreement with the product factory, the product is inspected by CCS newbuilding surveyor, and C/E may not be required
6.2	Pump tower lower guiding unit (pump tower support)	X	—	—	—	—	—	X1	For membrane cargo tank. If the shipyard has a subcontract agreement with the product factory, the product is inspected by CCS newbuilding surveyor, and C/E may not be required
6.3	Gas dome	X	—	—	—	—	—	X1	For membrane cargo tank. If the shipyard has a subcontract agreement with the product factory, the product is inspected by CCS newbuilding surveyor, and C/E may not be required
6.4	Vent mast	X	—	—	—	—	—	X1	Fire net or safety cover at vent mast
Cargo operation system and cargo as fuel supply system of ammonia carrier									
7.1	Cargo pump	X	—	—	X	O	—	X	
7.2	Stripping/spray pump	X	—	—	X	O	—	X	
7.3	Fuel pump	X	—	—	X	O	—	X	

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
7.4	Emergency pump	X	—	—	X	O	—	X	
7.5	Vacuum pump for barrier	X	—	—	X	O	—	X	
7.6	Flexible hose assembly	X	—	—	X	O	—	X	For reliquefaction device，nitrogen purging，Shielding layer space clean，Cargo lightening, etc.
7.7	Cargo pipe insulation and external protection materials	—	X	—	—	—	X	—	
7.8	Valve	X	—	—	X	—	—	X	Applicable to valves for ammonia
7.9	Safety valve	X	—	—	X	—	—	X	
7.10	High velocity valve	X	—	—	X	O	—	X	
7.11	Pipes, forgings, castings and fittings (bend, three-way, pipe nipple and tapered pipe, etc.) for ammonia piping	X	—	—	—	—	X	—	Applicable to cargo and process piping for design temperature below 0℃
7.12	Flowmeter	—	X	—	X	—	—	X	Applicable to valves for ammonia
7.13	Expansion joint	X	—	—	X	—	—	X	
7.14	Flange gasket	—	X	—	—	—	X	—	Applicable to valves for ammonia
7.15	HD compressor	X	—	—	X	—	—	X	
7.16	Ammonia fuel compressor	X	—	—	X	—	—	X	
7.17	BOG compressor	X	—	—	X	—	—	X	For reliquefaction device
7.18	Ammonia evaporator	X	—	X	O	O	—	X	
7.19	Forced evaporator	X	—	X	O	O	—	X	
7.20	Warming up heater	X	—	X	O	O	—	X	
7.21	Ammonia heater	X	—	X	O	O	—	X	
7.22	Ammonia buffer tank	X	—	—	—	—	X	X	

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
7.23	Ammonia treatment plant	X	—	—	—	—	—	X	
7.24	Inert gas generator	X	—	—	X	O	—	X	
7.25	Nitrogen generator	X	—	—	X	—	—	X	
7.26	Nitrogen buffer tank	X	—	—	—	—	O	X	
7.27	Glycol water heater (steam)	X	—	X	O	O	—	X	
7.28	Electrical glycol water heater	X	—	—	—	—	—	X	
7.29	Water sprinkler and cooling sprinkler	—	X	—	X	—	—	X	
7.30	Gas combustion unit	X	—	—	—	—	—	X	
7.31	Gas valve unit	X	—	O	—	—	—	X	Gas valve unit，Gas valve train
7.32	Reliquefaction device	X	—	—	O	—	—	X	Contains cryogenic device
7.33	Double walled pipe for ammonia	X	—	—	—	—	—	X	
7.34	Vacuum insulated double walled pipe	X	—	—	X	—	—	X	
7.35	Integrated gas pressure regulation	X	—	O	—	—	—	X	
7.36	Filter	X	—	—	—	—	—	X	Applicable to valves for ammonia
Ammonia fuel supply and related systems for dual fuel ships									
8	Ammonia fuel supply system								
8.1	Vaporizer and heater skid	X	—	—	—	—	—	X	Applicable to supply in skid mode
8.2	Ammonia treatment unit	X	—	—	—	—	—	X	
8.3	Ammonia fuel supply system skid	X	—	—	—	—	—	X	Applicable to supply in skid mode
8.4	Pressure vessel	X	—	—	—	—	X	X	Including buffer tank, mist separator and knock-out drum, etc.

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
8.5	Heat exchanger	X	—	X	O	O	—	X	Including vaporizer, heater and cooler, etc.
8.6	Fuel pump	X	—	—	X	O	—	X	Including submerged pump, deep well pump and booster pump, etc.
8.7	BOG compressor	X	—	—	X	—	—	X	
8.8	Fan	X	—	X	O	O	—	X	For double walled pipe
8.9	Ammonia fuel pump pool	X	—	—	—	—	—	X	Including pumps and pump pool
8.10	Emergency shut-down valve	X	—	—	X	—	—	X	
8.11	Master ammonia valve	X	—	—	X	—	—	X	
8.12	Tank master valve	X	—	—	X	—	—	X	
8.13	Gas valve unit	X	—	O	—	—	—	X	Gas valve unit，Gas valve train
8.14	Integrated gas pressure regulation	X	—	O	—	—	—	X	
8.15	Tank connection space	X	—	—	—	—	—	X	
8.16	Safety valve	X	—	—	X	O	—	X	For ammonia piping and pressure vessel
9	Ammonia bunkering and storage system								
9.1	Bunkering station skid	X	—	—	—	—	—	X	Applicable to supply in skid mode
9.2	Type A,B,C independent tanks	X	—	—	—	—	X	X	See ammonia carrier cargo containment system independent cargo Tank type A,B, C for certification requirements
9.3	Membrane tanks	—	—	—	—	—	—	X	See ammonia carrier cargo containment system membrane tanks for certification requirements
9.4	Safety valve	X	—	—	X	O	—	X	For ammonia piping and pressure vessel
9.5	Emergency shut-down valve	X	—	—	X	—	—	X	
9.6	Hydraulic power plant	X	—	—	—	—	—	X	For driving emergency shut-down valve

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
10	Glycol water heater system								
10.1	Glycol water heater skid	X	—	—	—	—	—	X	Applicable to supply in skid mode
10.2	Glycol water pump	X	—	—	X	O	—	X	
10.3	Glycol water heat exchanger	X	—	X	O	O	—	X	
10.4	Electrical glycol water heater	X	—	—	—	—	—	X	
10.5	Glycol water balancing vessel	X	—	—	—	—	X	X	Applicable to equipment belonging to pressure vessel
11	Nitrogen generator and supply system								
11.1	Nitrogen generator skid	X	—	—	—	—	—	X	Applicable to supply in skid mode
11.2	Nitrogen generator	X	—	—	X	—	—	X	
11.3	Nitrogen tank	X	—	—	—	—	O	X	
11.4	Air compressor	X	—	X	O	O	—	X	
12	Piping, valve and fittings								
12.1	Valve	X	—	—	X	—	—	X	Applicable to valves for ammonia
12.2	Pipes, forgings, castings and fittings (bend, three-way, pipe nipple and tapered pipe, etc.) for ammonia piping	X	—	—	—	—	X	—	Applicable to fuel and process piping for design temperature below 0℃
12.3	Double walled pipe for ammonia	X	—	—	—	—	—	X	
12.4	Vacuum insulated double walled pipe	X	—	—	X	—	—	X	
12.5	Filter	X	—	—	—	—	—	X	For ammonia piping
12.6	Flowmeter	—	X	—	X	—	—	X	For ammonia piping
12.7	Vent mast	X	—	—	—	—	—	X	
12.8	Flange gasket	—	X	—	—	—	X	—	For ammonia piping

No.	Product name	Document		Approval mode				Document	Remark
		C/E	W	DA	TA-B	TA-A	WA	PA	
12.9	Flexible hose assembly	X	—	—	X	O	—	X	For ammonia piping
12.10	Expansion joint and corrugated pipe	X	—	—	X	—	—	X	
12.11	Pipe insulation and external protection materials	—	X	—	—	—	X	—	
Electrical installations and automatic equipment									
13.1	Cargo switchboard	X	—	—	—	—	—	X	
13.2	Pressure control and monitoring, alarm system	X	—	—	X	O	—	X	Applicable to inert gas system
13.3	Integrated automatic system	X	—	—	X	O	—	X	Refer to the definition of CCS Rules For Construction and Equipment of ships carrying liquefied gases in bulk, "IAS" for short
13.4	Fuel tank monitoring and control system	X	—	—	X	O	—	X	
13.5	Ammonia fuel supply electrical control system	X	—	—	X	O	—	X	Including control, alarm and safety system
13.6	Electrical control box	X	—	—	—	—	—	X	Electrical control box of the fan, water glycol pump/electric heater, water glycol emergency pump, Ammonia pump, compressor, etc.
13.7	Fixed gas detection system	X	—	—	X	O	—	X	Applicable to flammable gas detection, toxic gas detection, oxygen levels detection, carbon dioxide gas detection. Including controller and detector
13.8	Ship-Shore/Ship Link-System	X	—	—	—	—	—	X	If the product is included in the Integrated Automatic System (IAS), there is no duplicate requirement to hold the certificate
13.9	Emergency shutdown system	X	—	—	—	—	—	X	If the product is included in the Integrated Automatic System (IAS), there is no duplicate requirement to hold the certificate

Symbols:

1) C – Marine Products Certificate; E – Equivalent document; W – Manufacturer's document; X – Applicable; — – Not Applicable; O – Optional.

2) DA – Design approval; TA-B – Type approval B; TA-A – Type approval A; WA – Works approval; PA – Plan approval

3) X1: Inspection is to be carried out according to approved integral product/system (ship, product) drawing.

4) Membrane cargo tanks mean MARK III and NO96 membrane cargo tanks with GTT patented technology.

CHAPTER 4 SURVEYS DURING CONSTRUCTION[1]

Section 2 SURVEYS AND TESTS

4.2.1 General requirements

4.2.1.1 The Surveyor is to carry out surveys according to approved plans (including comments) and confirm the actions taken by the shipyard to implement the plans, and feed different opinions of the shipyard on the implementation of approved plans and associated comments back to the plan approval department in time.

4.2.1.2 The shipyard is to prepare, as required by the rules, lists of certified products for the ship intended to be built, according to Appendices 1A, 1B, 1C, 1D, 1E and 1F ~~to 2C~~ of Chapter 3 of this PART and submit them to the attending Surveyor for confirmation.

4.2.1.3 For ships engaged on international voyages and contracted for construction on or after 1 January 2008, the hull survey during construction is additionally to be in accordance with the requirements in Appendix 1 of this Chapter.

4.2.1.4 New installation of materials containing asbestos is to be prohibited for all ships as from 1 January 2011.

4.2.1.5 For newly constructed dual class ships, the scope of survey is to be in accordance with the bilateral agreement adopted by the two Societies or the trilateral agreement adopted by the two Societies and the shipyard.

4.2.1.6 Unless otherwise specified, the survey of all watertight cable transits installed on all ships contracted for construction on or after 1 July 2024 is to comply with the requirements of Appendix 3 of this Chapter.

1 The requirements for initial classification surveys of ships under construction are given in 5.14.2 of Section 14 of Chapter 5.