

**PART II RULES FOR THE CONSTRUCTION
AND CLASSIFICATION OF SHIPS
IDENTIFIED BY THEIR MISSION**

TITLE 34 LIQUEFIED GAS CARRIERS

**INTERNATIONAL CODE FOR THE
CONSTRUCTION AND EQUIPMENT OF SHIPS
CARRYING LIQUEFIED GASES IN BULK, 2006, AS
AMENDED**

ANNEX II OPERATION REQUIREMENTS

CHAPTERS

A OPERATION REQUIREMENTS

CONTENTS

CHAPTER A	5
OPERATING REQUIREMENTS	5
A1. 18 OPERATION REQUIREMENTS	5
100. 18.1 Cargo information.....	5
200. 18.2 Compatibility	5
300. 18.3 Personnel training*	5
400. 18.4 Entry into spaces	5
500. 18.5 Carriage of cargo at low temperature...	6
600. 18.6 Protective equipment	6
700. 18.7 Systems and controls.....	6
800. 18.8 Cargo transfer operations	6

CHAPTER A OPERATING REQUIREMENTS

CHAPTER CONTENTS

A1. OPERATION REQUIREMENTS

A1. 18 OPERATION REQUIREMENTS

100. 18.1 Cargo information

101. 18.1.1 Information should be on board and available to all concerned, giving the necessary data for the safe carriage of cargo. Such information should include for each product carried:

- a. 1 a full description of the physical and chemical properties necessary for the safe containment of the cargo;
- b. 2 action to be taken in the event of spills or leaks;
- c. 3 counter-measures against accidental personal contact;
- d. 4 fire-fighting procedures and fire-fighting media;
- e. 5 procedures for cargo transfer, gas-freeing, ballasting, tank cleaning and changing cargoes;
- f. 6 special equipment needed for the safe handling of the particular cargo;
- g. 7 minimum allowable inner hull steel temperatures; and
- h. 8 emergency procedures.

102. 18.1.2 Products required to be inhibited should be refused if the certificate required by 17.8 is not supplied.

103. 18.1.3 A copy of this Code or national regulations incorporating the provisions of this Code should be on board every ship covered by this Code.

200. 18.2 Compatibility

201. 18.2.1 The master should ascertain that the quantity and characteristics of each product to be loaded are within the limits indicated in the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk provided for in 1.5 and in the Loading and Stability Information booklet provided for in 2.2.5 and that products are listed in the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk as required under section 3 of the Certificate.

202. 18.2.2 Care should be taken to avoid dangerous chemical reactions if cargoes are mixed. This is of particular significance in respect of:

- a. 1 tank cleaning procedures required between successive cargoes in the same tank; and
- b. 2 simultaneous carriage of cargoes which react when mixed. This should be permitted only if the complete cargo systems including, but not limited to, cargo pipe work, tanks, vent systems and refrigeration systems are separated as defined in 1.3.32.

300. 18.3 Personnel training*

* Reference is made to the provisions of the International Convention on standards of Training, Certification and Watchkeeping for Seafarers, 1978, and in particular to the "Mandatory minimum requirements for the training and qualifications of masters, officers and ratings of liquefied gas tankers" - reg. V/3, chapter V of the Annex to that Convention and to resolution 12 of the International Conference on Training and Certification of Seafarers, 1978.

301. 18.3.1 Personnel involved in cargo operations should be adequately trained in handling procedures.

302. 18.3.2 All personnel should be adequately trained in the use of protective equipment provided on board and have basic training in the procedures, appropriate to their duties, necessary under emergency conditions.

303. 18.3.3 Officers should be trained in emergency procedures to deal with conditions of leakage, spillage or fire involving the cargo, based on the guidelines developed by the Organization*, and a sufficient number of them should be instructed and trained in essential first aid for cargoes carried.

* Refer to the Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG), which provides advice on the treatment of casualties in accordance with the symptoms exhibited as well as equipment and antidotes that may be appropriate for treating the casualty, and to the relevant provisions of the STCW Code, parts A and B.

400. 18.4 Entry into spaces

401. 18.4.1 Personnel should not enter cargo tanks, hold spaces, void spaces, cargo handling spaces or other enclosed spaces where gas may accumulate, unless:

- a. 1 The gas content of the atmosphere in such space is determined by means of fixed or portable equipment to ensure oxygen sufficiency and the absence of toxic atmosphere; or

b. 2 Personnel wear breathing apparatus and other necessary protective equipment and the entire operation is under the close supervision of a responsible officer.

402. 18.4.2 Personnel entering any space designated as gas-dangerous on a ship carrying flammable products should not introduce any potential source of ignition into the space unless it has been certified gas-free and is maintained in that condition.

403. 18.4.3.1 For internal insulation tanks, special fire precautions should be taken in the event of hot work carried out in the vicinity of the tanks. For this purpose, gas absorbing and de-absorbing characteristics of the insulation material should be taken into account.

404. 18.4.3.2 For internal insulation tanks, repairs should be carried out in accordance with the procedures provided for in paragraph 4.4.7.6.

500. 18.5 Carriage of cargo at low temperature

501. 18.5.1 When carrying cargoes at low temperatures:

a. 1 if provided, the heating arrangements associated with cargo containment systems should be operated in such a manner as to ensure that the temperature does not fall below that for which the material of the hull structure is designed;

b. 2 loading should be carried out in such a manner as to ensure that unsatisfactory temperature gradients do not occur in any cargo tank, piping, or other ancillary equipment; and

c. 3 when cooling down tanks from temperatures at or near ambient, the cool-down procedure laid down for that particular tank, piping and ancillary equipment should be followed closely.

600. 18.6 Protective equipment

601. Personnel should be made aware of the hazards associated with the cargo being handled and should be instructed to act with care and use the appropriate protective equipment as mentioned in 14.1 during cargo handling.

700. 18.7 Systems and controls

701. Cargo emergency shutdown and alarm systems involved in cargo transfer should be tested and checked before cargo handling operations begin. Essential cargo handling controls should also be tested and checked prior to transfer operations.

800. 18.8 Cargo transfer operations

801. 18.8.1 Transfer operations including emergency procedures should be discussed between ship personnel and the persons responsible at the shore facility prior to commencement and communications maintained throughout the transfer operations.

802. 18.8.2 The closing time of the valve referred to in 13.3.1 (i.e. time from shutdown signal initiation to complete valve closure) should not be greater than:

$$(3600 \times U)/LR \text{ (s)}$$

where:

U = ullage volume at operating signal level (m³)

LR = maximum loading rate agreed between ship and shore facility (m³/h).

803. The loading rate should be adjusted to limit surge pressure on valve closure to an acceptable level taking into account the loading hose or arm, the ship and the shore piping systems where relevant.

900. 18.9 Additional operating requirements

901. Additional operating requirements will be found in the following paragraphs of the Code:

3.8.4, 3.8.5, 7.1.1.5, 8.2.5, 8.2.7, 9.4.2, 12.1.1, 12.1.10, 13.1.4, 14.2.5, 14.2.6, 14.3.1, 15.1, 15.2, 16.2.2, 17.4.2, 17.4.3, 17.6, 17.7, 17.12, 17.13, 17.14, 17.15, 17.16, 17.17, 17.18, 17.20.

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