



Circular

China Classification Society

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To: CCS Ship Surveyors and Plan Approval Centers, Design Companies, Shipyards, Shipping Companies and Relative Product Companies

Requirements for the Design, Testing and Location of Devices to Prevent the Passage of Flame into Cargo Tanks in Chemical Tankers

MSC.1/Circ.1324 which was adopted at the 86th Session of IMO Maritime Safety Committee (hereinafter referred to as “the circular”) amended MSC/Circ.677 to clarify the requirements for the design, testing and location of devices to prevent the passage of flame into cargo tanks in chemical tankers (hereinafter referred to as “device”).

I. Main clarified content of the circular

Device on chemical and oil/chemical tankers carrying the cargoes of chapter 17 of the IBC Code with a MESG (Maximum Experimental Safety Gap) less than 0.9mm is to be tested with the following testing media:

1. for the carriage of cargoes which are required to follow the apparatus group IIB in column (i”) of the IBC Code, chapter 17, device is to be tested with ethylene (MESG=0.65mm).
2. for the carriage of cargoes which are required to follow the apparatus group IIC in column (i”) of the IBC Code, chapter 17, device is to be tested with hydrogen (MESG=0.28mm).
3. for the carriage of cargoes without any description of apparatus group in column (i”) of the IBC Code, chapter 17, device is required same as those for apparatus group IIB, i.e. it is to be tested with ethylene (MESG=0.65mm).

Accordingly, device installed on chemical tankers is to be suitable for the cargoes of fitness for carriage.

II. Application of the circular

1. New ships

The circular is applied to the ships constructed on or after 1 January 2013.

2. Existing ships

For the existing ships constructed before 1 January 2013, requirements of the circular are to be met no later than the first scheduled dry-docking carried out on or after 1 January 2013.

III. For the purpose of ensuring the efficient implementation of the circular, requirements are hereby stated as follows:

1. For new ships:

- (1) Where a ship is under design or construction, its design company is to choose the device which is suitable to MESH in accordance with the cargoes which the ship is intended to carry, and specify MESH maximum value and/or minimum anti-explosion grade on relative plans as far as possible; Where a ship is under construction, its shipyard or owner is to pay attention to choosing, purchasing and installing the device complying with requirements of this Circular and holding the type-approved certificate and product certificate of the Society.
- (2) In the process of plan approval, ship's plan approval unit of the Society is to notice the type of cargoes which the ship is intended to carry, and verify whether MESH and/or anti-explosion grade of the above device comply(s) with the requirements. If the requirements are not met or specific, explicit suggestion for plan approval is to be given.
- (3) In the process of verification and survey, ship surveyor is to pay attention to verifying whether MESH or anti-explosion grade marked on the type-approved certificate and product certificate of device complies with the requirements of fitness for the carriage of cargoes intended to be carried in accordance with specific requirements clarified by this Circular.

Specific verification requirements are as follows:

- (1) Where it is indicated on the product certificate or type-approved certificate of device, for the device intended to be fitted on a ship, the anti-explosion grade is to be equal to or more than the one assigned for apparatus group in list of cargoes:
 - For a chemical tanker carrying a list of cargoes that only includes cargoes assigned for apparatus group IIA of column (i'') of the IBC Code, chapter 17, anti-explosion grade of device intended to be fitted on the ship is at least IIA;
 - For a chemical tanker carrying a list of cargoes that includes cargoes assigned for apparatus group IIA and IIB (including no description of apparatus group) of column (i'') of the IBC Code, chapter 17, anti-explosion grade of device intended to be fitted on the ship is at least IIB;
 - For a chemical tanker carrying a list of cargoes that includes any cargo assigned for apparatus group IIC of column (i'') of the IBC Code, chapter 17,

anti-explosion grade of device intended to be fitted on the ship is at least IIC;

- (2) Where on the product certificate or type-approved certificate of device it is MESH to make out applicable cargo medium, verification approach is as follows:
- If on the certificate it indicates that the product only applies to the cargo medium of MESH not less than 0.5mm, the device may match with the cargoes which follow the apparatus group IIA and IIB (including no description of apparatus group) of column (i'') of the IBC Code, chapter 17 in the list of cargoes.
 - If on the certificate it indicates that the product only applies to the cargo medium of MESH not less than 0.9mm, the device may only match with the cargoes which follow the apparatus group IIA of column (i'') of the IBC Code, chapter 17 in the list of cargoes.

However, it is to be noticed that so far no product company related to the device applies to the Society for an approval basing on standard IIC. Therefore, prior to the possession of any approved device of such kind, the Society may accept the device to be fitted on a ship for use provided that it has been approved and certified with type-approved certificate and product certificate by an IACS member society.

2. For existing ships:

Ship owner or manager is to apply to site survey unit of the Society for carrying out a survey for the above device that has been already fitted on board no later than the first scheduled dry-docking carried out on or after 1 January 2013 to confirm whether it complies with requirements of this Circular. Specific requirements are as follows:

- (1) Where applicable medium, MESH or anti-explosion grade is indicated on its product certificate, type-approved certificate or other documents confirmed by the Society, installed device on board is to be verified by a surveyor to confirm its compliance with requirements of this Circular. The verification approach is same as the one for new ships.
- (2) Where applicable medium, MESH or anti-explosion grade is not indicated in its product certificate, type-approved certificate or other documents confirmed by the Society, ship owner is to ask product company for its type testing report and provide the report to site surveyor of the Society for audit and verification. Specific requirements of verification are as follows:
- For a chemical tanker carrying a list of cargoes that only includes cargoes assigned for apparatus group IIA of column (i'') of the IBC Code, chapter 17, test medium for installed device on board is to be propane, ethane or petrol;
 - For a chemical tanker carrying a list of cargoes that includes cargoes of apparatus group IIA and IIB (including no description of apparatus group) of column (i'') of the IBC Code, chapter 17, test medium for installed device on board is to be ethylene (MESH=0.65mm);
 - For a chemical tanker carrying a list of cargoes that includes any cargo of apparatus group IIC of column (i'') of the IBC Code, chapter 17, test medium

for installed device on board is to be hydrogen (MESG=0.28mm).

- There is no requirement for ships carrying cargoes that are assigned as “Open” (open venting) in column g of the IBC Code, chapter 17.

If it is confirmed that the device on board does not comply with requirements of this Circular, it is to be replaced. The replacing device is to be verified to satisfaction by site surveyor of the Society prior to its installation on board. Surveyors of ship in service are to inspect its installation. Certification and site survey requirements for the replacing device are same as the one for new ships. Relative plans related to device replacement are to be submitted to a plan approval center of the Society for re-approval, such as

- Cargo Tank Venting System (including newly installed device’s manufactory name, type, MESG, P/V valve flow);
- Calculation of the pressure losses created by ducting, piping, cargo tank inlets and outlets (if any);
- VCS Manual (if any);
- VOC Management Plan (if any);

Whether the materials used for newly installed device can be compatible with cargoes intended to be carried in future? According to requirements of CCS Rules, ship owner and cargo owner are to be responsible for the judgment of compatibility between the materials and medium.

- (3) Where there is no evidence as the above to indicate the compliance of the device with requirements of this Circular, ship owner is to replace it by a new device to meet those requirements..
- (4) After verification, if the fitted device on board does not comply with the requirement of fitness of partial cargoes listed in International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk and also there is no intention to replace it, the owner is to be required to provide site survey unit with an application in written for no longer carrying the partial cargoes. The survey unit is to reissue the certificate in accordance with the application.

In the process of the above survey, if necessary, surveyor is to revise the Procedures and Arrangements Manual, VCS Manual and VOC Management that have been approved or verified by the Society and stamp them with revision seal; for the above documents not approved by the Society, it is to inform the relative owner to contact the Administration for revision or re-approval. Upon the completion of survey, the surveyor is to detail the verification, confirmation and survey in RA report.

3. Product survey

From the entry-into-force date of this Circular, in the case of survey for the device of such kind, product surveyor is to carry out a type testing to the device not inspected and certified yet in accordance with requirements of this Circular strictly and indicate MESG and/or anti-explosion grade and necessary restricted condition for use (such as P/V valves-using

materials with a possibility of touching with medium, or whether it has requirements for cargo tank inerting, etc.) on the issued type-approved certificate and product certificate. For specific requirements, please follow CCS Circular (2010) Circ. No. 13 Total No.13 “About Pressure/Vacuum Valves and Flame Arrester Approval and Certificate”.

This Circular will enter into force on issue date.

Attachment: IMO Circular No. MSC.1/Circ.1324

This Circular is published on CCS website (www.ccs.org.cn) and is to be forwarded by CCS Branches to relevant Design Companies, Shipyards, Shipping Companies and Relative Product Companies in relevance to their business area.

Please contact Ship Business Operation Dept. of the Headquarters in case of any unclarity during the implementation of this Circular.

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MSC.1/Circ.1324
10 June 2009

AMENDMENTS TO THE REVISED STANDARDS FOR THE DESIGN, TESTING AND LOCATION OF DEVICES TO PREVENT THE PASSAGE OF FLAME INTO CARGO TANKS IN TANKERS (MSC/CIRC.677, AS AMENDED BY MSC/CIRC.1009)

1 The Maritime Safety Committee, at its eighty-sixth session (27 May to 5 June 2009), noting that the provisions in paragraphs 1.2.3 and 4.1.4 of the Revised standards for the design, testing and location of devices to prevent the passage of flame into cargo tanks in tankers (MSC/Circ.677), needed clarification to ensure that the Maximum Experimental Safe Gap (MESG) value for the medium to be used to test the device is appropriate for the product certified to be carried in the tank fitted with such a device, approved the following amendments to MSC/Circ.677:

.1 Paragraph 1.2.3 is replaced with the following:

“1.2.3 These Standards are intended for devices protecting cargo tanks containing crude oil, petroleum products and flammable chemicals. In the case of the carriage of chemicals, the test media referred to in section 3 can be used for products having an MESG of 0.9 mm and greater. However, devices for chemical tankers certified for the carriage of products with an MESG* less than 0.9 mm should be tested with the following media based on the apparatus group assigned as per column i” of the IBC Code, chapter 17:

- .1 Apparatus Group II B – ethylene (MESG = 0.65 mm); and
- .2 Apparatus Group II C – hydrogen (MESG = 0.28 mm).

Where no apparatus group is assigned in column i”, the device should be tested in accordance with the requirements for Apparatus Group II B.”

.2 Subparagraph .4 of paragraph 4.1 is replaced with the following:

“.4 approved location for installation, including maximum or minimum length of pipe, if any, between the device and the atmosphere and the apparatus group assigned to the tested device;”.

2 Member Governments are invited to apply the amendments to the Revised standards, as amended, to ships constructed on or after 1 January 2013 and to ships constructed before 1 January 2013, no later than the first scheduled dry-docking carried out on or after 1 January 2013.

3 Member Governments are also invited to bring the above amendments to the Revised Standards to the attention of masters, ship operators, shipowners, cargo manufacturers and other parties involved in the design, construction and operation of tankers.

* Reference is made to IEC – Publication 79-1.