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GUIDELINES FOR THE APPROVAL OF OFFSHORE CONTAINERS HANDLED IN OPEN SEAS

- 1 The Maritime Safety Committee, at its sixty-ninth session (11 to 20 May 1998), considered and approved draft revised Guidelines for the approval of offshore containers handled in open seas, as set out in the annex to this circular.
- 2 These Guidelines are based on the provisions contained in the annex to MSC/Circ.613, which have been updated to reflect more clearly the relevant provisions in the Recommendation on Harmonized Interpretation and Implementation of the International Convention for Safe Containers (CSC), 1972, as amended (CSC/Circ.100) and the IMDG Code and recent practice in the design of offshore containers.
- 3 Member Governments are invited to bring these Guidelines to the attention of all parties concerned with the approval, manufacture, inspection and operation of offshore containers.
- 4 This Circular replaces MSC/Circ.613 dated 18 June 1993.

ANNEX**GUIDELINES FOR THE APPROVAL OF OFFSHORE CONTAINERS
HANDLED IN OPEN SEAS**

- 1 The Maritime Safety Committee, at its sixty-second session, approved amendments to the Recommendation on Harmonized Interpretation and Implementation of the International Convention for Safe Containers, 1972 (CSC). The revised Recommendation was circulated as CSC/Circ.100 dated 30 June 1993 and has been included as a supplement in the 1996 edition of the CSC.
- 2 Paragraph 3.3 of the revised Recommendation on Harmonized Interpretation and Implementation of the CSC states that the Convention does not apply to offshore containers that are handled in open seas. There are several reasons for applying special design and testing parameters to offshore containers:
 - .1 the tests set out in Annex II to the CSC are designed to cover the forces on containers encountered in general marine transport, loading and unloading in ports and in inland transport. However, offshore containers are used to supply offshore installations and are typically shipped on the open deck of purpose-built supply vessels and are lifted onto and off the offshore installation by cranes on the installations. Such operations may often take place in very unfavourable weather and sea conditions;
 - .2 spreader beams, as used for lifting ordinary containers, cannot be used when lifting offshore containers; and
 - .3 the types of offshore containers used are often purpose-built and include closed and open dry cargo containers, dry bulk cargo containers and portable tanks. Offshore containers, unlike ISO containers, are not standardized with regard to sizes or gross mass; many have a smaller base area than the 7 m² in the lower limiting definition of a container in the CSC.
- 3 Sections 12 and 13 of the General Introduction to the International Maritime Dangerous Goods (IMDG) Code recognize the special nature of offshore containers and portable tanks. These sections state that the design and testing of offshore containers and offshore tank-containers should take into account the dynamic lifting and impact forces that may occur when a container or tank is handled in open seas in adverse weather and sea conditions and that the requirements for such containers and tanks should be determined by the approving competent authority.
- 4 For the purposes of these guidelines, "offshore containers" should be taken to mean portable units specially designed for repeated use in the transport of goods or equipment to, from or between fixed and/or floating offshore installations and ships. Such units include containers and portable tanks for dangerous goods as defined in sections 12 and 13 of the General Introduction to the IMDG Code.
- 5 These guidelines are intended to assist approving competent authorities in developing detailed requirements for offshore containers. For the purposes of these guidelines, the "approving competent authority" includes organizations duly authorized by the Administration.

Approval

- 6 Approving competent authorities should base their approval of offshore containers both on calculations and on testing, taking into account the dynamic lifting and impact forces that may occur when handling in open seas.

Design

- 7 Offshore containers should be fitted with special pad eyes, suitable for the attachment of purpose-built slings connected with shackles. Where ISO corner fittings are mounted in conjunction with pad eyes, these corner fittings are not intended for lifting offshore.
- 8 In order to facilitate handling in open seas, offshore containers should be pre-slung. Such slings should be permanently attached to the container and considered to be part of the container. The dynamic forces which occur when handling containers in open seas will be higher than those encountered during normal quayside handling. This should be taken into account when determining the requirements for slings on offshore containers by multiplying the normal safety factor for slings by an additional factor. The fact that light containers will be subject to relatively higher dynamic forces than heavier containers should also be taken into account. Minimum material requirements for impact toughness should be specified when high strength steel is used in e.g. chains, links and shackles.
- 9 Since offshore containers may not always be secured on supply vessels, such containers should be designed so as to withstand 30° tilting in any direction when fully loaded. Cargo may normally be assumed to be evenly distributed with the centre of gravity at the half height of the container, but on containers for dedicated transport (e.g. special bottle rack containers for gas bottles in fixed positions) the actual centre of gravity should be used.
- 10 Protruding parts on an offshore container that may catch on other containers or structures should be avoided. Doors and hatches should be secured against opening during transport and lifting. Hinges and locking devices should be protected against damage from impact loads.
- 11 Strength calculations should include lifting with the attached lifting sling and any other applicable means of handling (e.g. lifting with fork lift trucks). Impact loads on the sides and bottom of containers should also be considered in these calculations and impact properties should be included in the requirements for structural steel materials. However, calculations, including static equivalency of point loads in combination with the tests as set out in paragraph 13 should normally be considered sufficient.
- 12 Containers are sometimes temporarily used on floating or fixed offshore installations as storage space, laboratories, accommodation or control stations, etc. When used this way, the container will also be subject to the regulations applicable for the offshore installation in addition to transport related requirements based on these guidelines.

Testing

- 13 At least one offshore container of each design type should be subjected to the following tests:
- .1 **4-point lifting test**

Internal load: a uniformly distributed load such that the total mass of the container and test load is equal to 2.5R, where R is the maximum allowable combined mass of the container and its cargo. The container should be lifted with a lifting sling attached to each of its four pad eyes with an angle to the vertical equal to the design angle.
 - .2 **2-point lifting test**

Internal load: a uniformly distributed load such that the total mass of the container and test load is equal to 1.5R. A container fitted with four pad eyes should be lifted from only two pad eyes situated diagonally opposite each other.
 - .3 **Vertical impact test**

Internal load: a uniformly distributed load such that the total mass of the container and test load is equal to R. The container should be suspended at an inclined angle with the lowest corner at least 50 mm above a rigid floor. The container should then be quickly released so that it will have a speed of at least 1 m/s on initial impact.
 - .4 **Other tests**

Other tests, designed to demonstrate the ability of a container type to withstand other handling or transport forces, such as those described in relevant standards or the CSC, may also be required by the approving competent authority.
- 14 The tested offshore container should suffer no permanent damage or deformation in any of the tests which would render it incapable of being used for its designed purpose.
- 15 In order to ensure that offshore containers of the same design type are manufactured to the approved design, the approving competent authority should examine and test as many units as it considers necessary.
- 16 Offshore containers that have been designed, manufactured, tested and approved according to these guidelines should be clearly marked "Offshore Container" on an approval plate in accordance with the appendix. The details shown in the appendix represent minimum requirements.

Inspection

- 17 Offshore containers should be inspected at least annually, as deemed appropriate, by the approving competent authority. The date of inspection and the mark of the inspector should be marked on the container, preferably on a plate fitted for this purpose. The inspection plate may be combined with the approval plate (paragraph 16) and any other official approval or data plates on a single base plate. It should be noted that the inspection plates on offshore containers commonly show the date of the last inspection unlike Safety Approval Plates on containers subject to the CSC which are marked with the date when the first periodic examination is due and in the case of containers covered by a periodic examination scheme (PES), with the date by which the next examination is due.

Standards and rules

- 18 The following standards and rules on offshore containers, not all of which cover all aspects of the design and testing in these guidelines, are known to exist or be under preparation and should be consulted as appropriate:
- BS 7072: British Standard Code of Practice for Inspection and Repair of Offshore Containers;
 - Det Norske Veritas (DNV): Certification Note 2.7-1, Offshore Containers;
 - Det Norske Veritas (DNV): Certification Note 2.7-2, Offshore Service Containers; and
 - pr EN 12079: Offshore Containers - Design, construction, testing, inspection and marking (under preparation by the European Committee for Standardization (CEN)).

APPENDIX

OFFSHORE CONTAINER		
Name of manufacturer:		
Month/year of manufacture:		
Identification No:		
Maximum gross mass:	Kg	lb
Tare-mass:	Kg	lb
Payload:	Kg	lb
Approval No:		

Approval Plate
