

The International Convention for Safe Containers  
(CSC), 1972

INTERPRETATIONS AND GUIDELINES

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# 1 INTRODUCTION

- 1.1 Following the rapid increase in the use of freight containers for the transport of goods by sea, the International Maritime Organisation (IMO) agreed, in 1967, to carry out a study of the safety of containerisation in marine transport. A draft Convention on freight containers was then prepared in co-operation with the Economic Commission for Europe (ECE). This was followed in 1972 by the holding of a conference, jointly convened by the United Nations and IMO, to consider the draft. The outcome of the conference was the adoption of the 1972 Convention for Safe Containers (CSC 1972).
- 1.2 When the Convention was initially drafted the world wide fleet of containers as 145,000 teu (twenty foot equivalent units). It was remarkable foresight by the authors to develop such a scheme for a transport medium which contributed such a small proportion of international freight transport undertaken at the time. Since then the global fleet has grown to 23,335,000 teu in 2006.
- 1.3 The Convention was amended in 1981, 1983 and 1991. These amendments are now fully in force and the relevant transitional arrangements have expired. The 1996 edition of the Convention, including all the amendments up to 1991, was published by IMO in 1997 in English as IMO publication IMO-282E. It will later be available in Arabic, Chinese, French, Russian and Spanish as publications 283A, 278C, 279F, 280R and 281S respectively.
- 1.4 The Convention has two annexes:
  - Annex I Regulations for the testing, inspection, approval and maintenance of containers; and,
  - Annex II Structural safety requirements and tests.
- 1.5 The Convention also has a Supplement 'Revised and consolidated recommendations on harmonised interpretation and implementation of the International Convention for Safe Containers, 1972, as amended'. The 1996 edition of the Convention includes minor textural changes made to the Supplement by CSC/Circ. 100 dated 30 June 1993.
- 1.6 By December 31<sup>st</sup> 2008 the Convention had been accepted by 80 Contracting States (Countries). These are listed in Annex 5.
- 1.7 Further amendments to the Convention were adopted by IMO as Resolution A.737(18) on 4 November 1993. The changes are minor and of a purely procedural nature. They include the substitution of units of mass for weight. These amendments are not yet in force but will come into force 12 months after the date on which they are accepted by two thirds of the Contracting States to the Convention, i.e. by some 53 States. By December 2008 only nine States had accepted the 1993 amendments.
- 1.8 These Interpretations and Guidelines are intended to combine the various circulars relating to the Convention and to provide, in plain language, a summary of the requirements of the Convention as in force on December 31<sup>st</sup> 2008. For more detailed information, particularly relating to the testing of containers, the full text of the Convention and international and national standards should be consulted.
- 1.9

## 2 INTERPRETATIONS

### 2.1 GENERAL

The various points concerning harmonised interpretation and implementation of the International Convention for Safe Containers, (CSC), 1972 as amended, on which consensus has so far been reached are given below.

### 2.2 DEFINITIONS (ARTICLE II, PARAGRAPHS 8 AND 9)

*Administration.* The Administration refers to the Government of a Contracting Party, or a party to which the Government has delegated the responsibility for approval and enforcement.

*Approving Competent Authority.* A body which has the expertise and responsibility for approving containers. It may be the Administration or a party that the Administration has delegated its responsibility, for approving containers, but for the purposes of the Convention is included in the term Administration. The IMO publishes annual CSC Circulars that lists the Organisations entrusted to Test, Inspect and Approve containers; CSC/Circ. 131 is an example of such a circular.

*Contracting Party.* A Contracting Party refers to a Government of a Country or State that has passed the necessary legislation to enact the Convention.

*Corner Fitting.* The arrangement of apertures and faces referred to in Article II includes intermediate fittings along the top rail used for lifting, usually at 20ft or 40ft positions, and along the bottom rail used for securing, which may comprise up to three fittings at each end on each side (see Figure 1). The corner fittings referred to in the definition of a container are themselves defined as an arrangement of apertures (openings) and faces at the top and/or bottom of a container for the purposes of handling, stacking and/or securing. This definition is capable of wide interpretation and at least one State has decided to restrict the application of the Convention to containers fitted with corner fittings that complies with ISO 1161 "Series 1 freight containers – Corner and intermediate fittings – Specification".

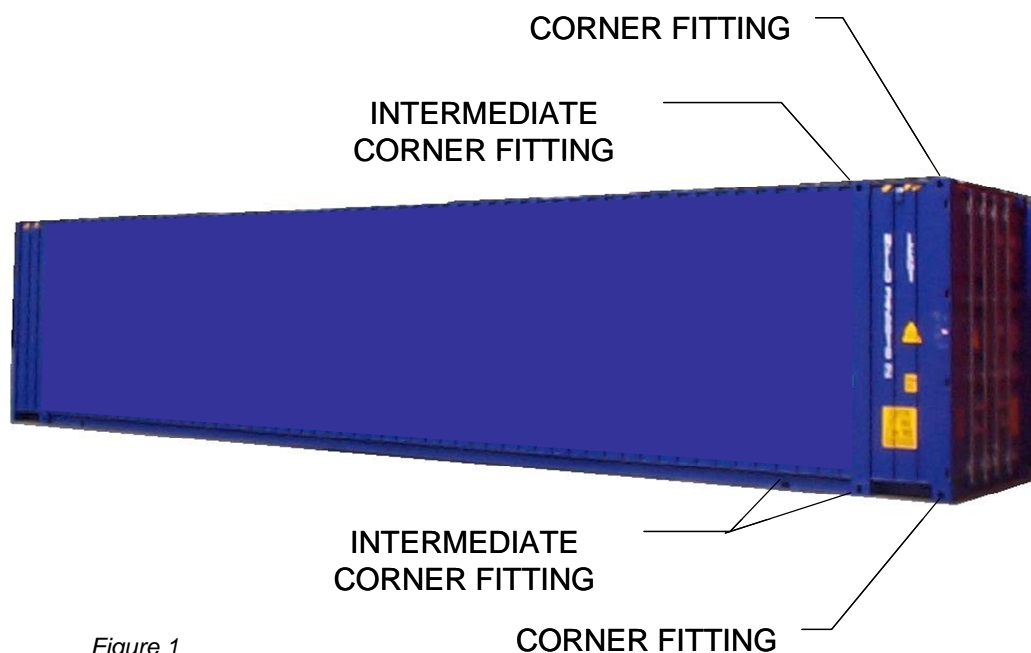


Figure 1

*New container and existing container.* Where necessary, individual Administrations should determine the date on which the construction of a container shall be deemed to have commenced for purposes of determining whether a container should be considered as "new" or as "existing", i.e. before or after the enactment of the Convention.

## **2.3 APPLICATION (ARTICLE III, PARAGRAPH 1)**

- 2.3.1 *Swap bodies / demountables.* It is agreed that the CSC does not have to be applied to containers known as swap bodies/demountables and designed and used for carriage by road only or by rail and road only and which are without stacking capability and top lift facilities.

This agreement also applies to such swap bodies/demountables transported by sea on condition that they are mounted on a road vehicle or rail wagon. It does not, however, apply to swap bodies/demountables used in transoceanic services. It should be noted that swap bodies / demountables often have a very similar appearance to those containers designed and built to meet the requirements of Annex II of the CSC, but have reduced stacking and/or racking strength. Such reductions are to be marked on the Safety Approval Plate (see paragraphs 2.10 and 3.6).

- 2.3.2 *Offshore containers.* It is agreed that the CSC 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 m<sup>2</sup> in the lower limiting definition of a container in the CSC.

Guidelines for the approval of offshore containers handled in open seas are given in paragraph 3.2.

## **2.4 ENTRY INTO FORCE (ARTICLES III AND VIII)**

All containers should be inspected and affixed with Safety Approval Plates by the Administration of the Contracting Party not less than five years from the date of entry into force of the Convention for that Party.

## **2.5 TESTING, INSPECTION AND APPROVAL (ARTICLE IV, PARAGRAPHS 1 AND 2); (SELECTION OF ORGANISATIONS ENTRUSTED TO CARRY OUT THESE FUNCTIONS)**

Administrations will require a basic description of the organisations to be entrusted with testing, inspection and approval functions, together with evidence of their technical capability to carry this out, and will have to satisfy themselves as to the financial well-being of such organisations. The Administrations will, furthermore, have to satisfy themselves that the organisations are free from undue influence by any container owner, operator, manufacturer, lessor, repairer or others concerned who may have a vested interest in obtaining container approval.

**2.6 APPROVAL OF CONTAINERS FOR FOREIGN OWNERS OR MANUFACTURERS (ARTICLE IV, PARAGRAPH 3) AND RECIPROCITY**

- 2.6.1 Where possible, Contracting Parties should make every effort to provide facilities or means to grant approvals to foreign container owners or manufacturers seeking their approval of containers in accordance with the provisions of the Convention.
- 2.6.2 Approval of containers would be facilitated if classification societies or other organisations approved by one Contracting Party could be authorised to act for other Contracting Parties under arrangements acceptable to the parties involved.

**2.7 MAINTENANCE AND STRUCTURAL MODIFICATIONS (ARTICLE IV)**

- 2.7.1 Development of detailed guidelines on standards of maintenance will create an unnecessary burden for Administrations attempting to implement the Convention as well as for owners. The interpretation of the provision "the owner of the container shall be responsible for maintaining it in safe condition" (annex I, regulation 2, paragraph 1 of the Convention) should be such that the owner of a container (as defined in article II, paragraph 10 of the Convention) should be held accountable to the Government of any territory in which the container is operated for the safe condition of that container. The owner should be bound by the existing safety laws of such a territory and such law or regulation as may implement the control requirements of article VI of the Convention. But the methods by which owners achieve under the provisions of article IV the safe condition of their containers that is the appropriate combination of planned maintenance, procedures for refurbishment, refit and repair and the selection of organisations to perform this work, should be their own responsibility.
- .1 The guidelines shown in 3.7 are provided to give owners an outline of the composition of a maintenance and examination scheme
- .2 Administrations should consider 3.7.12.2 of the guidelines when approving new schemes and ensuring ongoing compliance.
- 2.7.2 If there is clear evidence for believing that an owner is repeatedly failing to achieve a satisfactory level of safety, or should the required audit demonstrate that containers are not being maintained safely, the Administration of the territory in which the owner has his Head Office or domicile should be requested to ensure that appropriate corrective action is taken.
- 2.7.3 The responsibility of the owner to maintain his container in a safe condition includes the responsibility to ensure that any modifications carried out on an approved container do not adversely affect or render inaccurate the information recorded on the Safety Approval Plate. Under the provisions of annex I, chapter V, regulation 11, the owner of a container which has been modified in a manner resulting in structural changes shall notify the Administration or an approved organization duly authorized by it of those changes. The Administration or authorised organisation may determine whether the results of the original tests conducted in accordance with annex II for the initial container approval remain valid for the modified container.
- 2.7.4 If an owner removes a container from service requiring compliance with the Convention and does not maintain that container in accordance with the provisions of the Convention, or makes structural modifications without following the procedures in 2.7.3 above, the owner must remove the Safety Approval plate (see also 3.6.7).

**2.8 WITHDRAWAL OF APPROVAL (ARTICLE IV, PARAGRAPH 5)**

With regard to withdrawal of approval, the Administration concerned should be considered as the Administration which issued the approval. While any Contracting Party may exercise control over container movement pursuant to article VI, only the Administration which approved the container has the right to withdraw its approval. When approval has been

withdrawn, the Administration concerned should require the removal of the Safety Approval Plate (see also 3.6.7).

## 2.9 CONTROL (ARTICLE VI)

### 2.9.1 General

For the purposes of effecting control (as envisaged in article VI of the Convention) Contracting Parties should only appoint government bodies.

### 2.9.2 Containers which are not defective but which have no Safety Approval Plate or which have an incorrectly completed plate

Such containers should be stopped. However, where evidence can be produced either to the effect that such container has been approved under the terms of the Convention or to the effect that such container meets the standards of the Convention, then the authority exercising control may permit the container to proceed to its destination for unloading, with the proviso that it shall be plated as expeditiously as may be practicable and not reloaded before it has been correctly plated under the Convention.

### 2.9.3 Containers which are "out of date"

A container found to have marked on or near to its Safety Approval Plate a next maintenance examination date which is in the past should be stopped. However, the competent authority exercising control may permit the container to proceed to its destination for unloading the proviso that it should be examined and updated as expeditiously as may be practicable and not reloaded before this has been done.

**Note:** Containers marked with an ACEP reference cannot be "out of date".

### 2.9.4 Unsafe containers (ARTICLE VI, PARAGRAPH 1, THIRD SENTENCE)

- .1 The International Convention for Safe Containers (CSC), 1972, article VI stipulates that every container which has been approved under article III shall be subject to control in the territory of the Contracting Parties by officers duly authorised by such Contracting Parties. This control shall be limited to verifying that the container carries a valid Safety Approval Plate as required by the Convention, unless there is significant evidence for believing that the condition of the container is such as to create an obvious risk to safety.
- .2 The Recommendations on harmonized interpretation and implementation of the Convention, approved by the Maritime Safety Committee, at its sixty-second session (24 to 28 May 1993), and circulated as CSC/Circ.100, paragraph 9.4 Unsafe containers (article VI, paragraph 1, third sentence), stipulated that, where a container is found by the authority exercising control to have a defect which could place a person in danger, then the container should be stopped. However, if the container can be safely moved (e.g. to a place where it can be restored to a safe condition, or to its destination), the officer exercising control may permit such movement on such conditions as the officer may specify with the proviso that the container shall be repaired as expeditiously as may be practicable and not reloaded before this has been done.
- .3 The Maritime Safety Committee, at its eightieth session (11 to 20 May 2005), recognising the need for guidance to the officer exercising control under the provisions of article VI of the Convention, approved the Guidance on serious structural deficiencies in containers, prepared by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its ninth session (27 September to 1 October 2004) and circulated as in the annex to CSC/Circ 134,

- .4 Administrations were urged to widely disseminate the Guidance shown in 3.5 so as to encourage its use by the officer exercising control in the promotion of container safety. Administrations are further encouraged to provide training in the use of this Guidance to the appropriate enforcement elements within their Administration, so as to promote its use, enhance safety in container operations, and to avoid unnecessary concerns and enforcement actions with regard to containers that are damaged but, nonetheless, structurally sound and capable of safely continuing in transportation.

2.9.5 International movement of containers under control

It is recognized that in any of the cases set out in 2.9.2, 2.9.3 and 2.9.4 the owner may wish to move his container to another country where the appropriate corrective action can be more conveniently carried out. Control officers may permit such movements, in accordance with the provisions of 2.9.2, 2.9.3 and 2.9.4 as appropriate, but should take such measures as may be reasonably practicable to ensure that the appropriate corrective action is indeed taken. In particular, the control officer permitting such a movement should consider whether it would be necessary to inform the control officer or officers in the other country or countries through which the container is to be moved. Further consideration of the practical aspects of this matter is needed.

2.9.6 Notification concerning unsafe containers of a given approved series

It is suggested that if a considerable number of containers in a given approved series are found to be unsafe as a result of defects which may have existed prior to approval (article VI, paragraph 2), it may be desirable for Administrations to notify the Organisation as well as the Contracting Party concerned.

2.10 **SAFETY APPROVAL PLATE (REGULATION 1)**

- 2.10.1 The following approaches to complying with certain of the data requirements of the Convention, listed in this section, are deemed to be in conformity therewith.

- 2.10.2 A single approval number may be assigned to each owner for all existing containers in a single application for approval which could be entered on line B of Figure 2 (or line 1 of the model Safety Approval Plate shown in the appendix to annex I of the Convention)

- 2.10.3 The example given in line 1 of the model Safety Approval Plate (see appendix to annex I of the Convention) should not be construed so as to require the inclusion of the date of approval in the approval reference.

- 2.10.4 The appendix to annex I of the Convention can be interpreted so as to allow the use of the owner's ISO alphanumeric identification codes, on either new or existing containers. This may be done even if the manufacturer's serial number is available, as long as the applicant keeps a record correlating his identification numbers with the manufacturer's serial numbers.

- 2.10.5 Where marking of the end-wall or side-wall strength on the plate is not required (e.g. a container with an end-wall or side-wall strength equal to 0.4P or 0.6P, respectively) a blank space need not be retained on the Safety Approval Plate for such marking but can be used instead to meet other data requirements of the Convention, e.g. subsequent date marks.

- 2.10.6 Where end-wall or side-wall strength is required to be marked on the Safety Approval Plate, this should be done as follows:

- .1 in the English language:

END-WALL STRENGTH

SIDE-WALL STRENGTH



.2 in the French language:

RÉSISTANCE DE LA PAROI D'EXTRÉMITÉ

RÉSISTANCE DE LA PAROI LATÉRALE.

2.10.7 In cases where a higher or lower wall strength is to be marked on the Safety Approval Plate, this can be done briefly by referring to the formula related to the payload P.

Example: SIDE-WALL STRENGTH 0.5P.

2.10.8 With respect to the material characteristics of the Safety Approval Plate (see appendix to annex I of the Convention), each Administration, for purposes of approving containers, may define *permanent*, *non-corrosive* and *fireproof* in its own way or simply require that Safety Approval Plates be of a material which it considers meets this definition (e.g. a suitable metal).

2.10.9 Regulation 1 of annex I requires that the Safety Approval Plate be affixed adjacent to any approval plate issued for official purposes. To comply with this requirement, when practicable, the CSC Safety Approval Plate may be grouped with the data plates required by other international conventions and national requirements on one base plate. The base plate should be conveniently located on the container. One example of such a grouped data plate is given in Annex 6 Figure A6.4.

2.10.10 For the purposes of this Convention, the word weight is considered to be equivalent to the word mass, and therefore can be used on the Safety Approval Plate. When the 1993 amendments to the annexes to the Convention come into force, the word MASS should replace WEIGHT on plates fitted to containers after the amendments come into force. These Interpretations and Guidelines recommend that paragraphs 1 to 7 of the annex to Resolution A.737 (18) dated November 4<sup>th</sup> 1993 are adopted by Owners without delay. These paragraphs are reproduced in Annex 2 of these Interpretations and Guidelines.

## 2.11 MAINTENANCE AND EXAMINATION PROCEDURES (REGULATION 2)

### 2.11.1 Choice of examination procedure

- .1 The Convention allows owners the option of having containers examined at intervals specified in the Convention in accordance with an examination scheme prescribed or approved by the Administration concerned, as set out in regulation 2, paragraph 2, and hereinafter referred to as "PERIODIC EXAMINATION SCHEME"; or under a continuous examination programme approved by the Administration concerned, as set out in regulation 2, paragraph 3, and hereinafter referred to as "CONTINUOUS EXAMINATION PROGRAMME".
- .2 Both procedures are intended to ensure that the containers are maintained to the required level of safety and both should be considered equal, provided the Administration is satisfied with the examination schemes submitted by the owner.
- .3 The owner should be allowed the option of having part of his fleet covered by one examination procedure and the remaining part of his fleet covered by the other procedure, and provision should be made to allow an owner to change the procedure applicable to their containers.

### 2.11.2 Elements to be included in the examination

- .1 For containers under a periodic examination scheme
  - .1 While Administrations may specify factors to be taken into account in a container examination scheme, it should not be necessary at this time to agree on a specific list of factors or minimum listing of parts of a container which should be included in an examination. However each examination should include a detailed Visual inspection for defects or other safety-related deficiencies or damage which

will render the container unsafe.

- .2 It is accepted that a visual examination of the exterior of the container will normally be sufficient. However, an examination of the interior should also be performed if reasonably practicable (e.g.. if the container is empty at the time). Furthermore, the underside of the container should be examined. This may be done either with the container supported on a skeletal chassis or, if the examiner considers it necessary, after the container has been lifted on to other supports.
- .3 The person performing the external examination should have the authority to require a more detailed examination of a container if the condition of the container appears to warrant such examination.

.2 For containers under a continuous examination programme

- .1 Under an approved continuous examination programme a container is subject to examinations and inspections during the course of normal operations. These are:
  - .2 thorough examinations, which are examinations conducted in connection with a major repair, refurbishment, or on-hire/off-hire interchange; and
  - .3 routine operating inspections, which are frequent inspections performed with the object of detecting any damage or deterioration which might necessitate corrective action.
- .4 Thorough examinations should be carried out in accordance with the requirements of 2.11.2.2.2 and care should be taken to ensure that any damaged parts or components have been adequately and safely repaired or replaced. Although Administrations may specify factors to be taken into account during routine operating inspections, normally a visual inspection of the exterior and the underside should be sufficient.

2.11.3 Personnel carrying out examinations

The examination of a container should be carried out by a person having such knowledge and experience of containers as will enable him to determine in accordance with 2.11.2.1 and 2.11.2.2 whether it has any defect which could place any person in danger.

2.11.4 Container markings for examinations

.1 For containers under a periodic examination scheme

The use of decals should be allowed to indicate the date of the first examination and subsequent re-examination of a container examined at intervals specified in the Convention provided that:

- .1 the relevant date (month and year) is shown in internationally recognizable words or figures on the decals or on the plate itself;
  - .2 the date of the first examination for new containers is shown by decals or otherwise on the plate itself as regulation 2.2 of annex I of the CSC requires; and
  - .3 the decals are coloured in accordance with the year of examination as shown in Annex 7 Figure A7.1.
- .4 Use of decals

The use of decals for containers under a periodic examination scheme should remain optional and in no way derogate from the relevant provisions of the Convention to which reference is made above. The responsibility for developing and introducing a decal system should remain with the owners.

.2 For containers under a continuous examination programme

A container examined under an approved continuous examination programme, should bear a decal showing the letters ACEP and the identification of the Administration which has granted the approval, in a similar manner to that stated in annex I, appendix 1, paragraph 1. This decal should be placed on or as close as practicable to the Safety Approval Plate.

**2.12 RECORDS OF EXAMINATIONS**

It will be desirable to require that owners keep an examination record which should include, in addition to identification of the containers, a record of the date of last examination and a means of identifying the examiner. There is no need to standardize the method by which such records should be kept and the existing record systems may be accepted at least for a transitional period. Such records should be made available within a reasonable time to the Administration on its request (see 3.7.11). There is no requirement to keep records of routine operating inspections.

**2.13 FREQUENCY OF EXAMINATIONS**

**2.13.1 For containers under a periodic examination scheme**

- .1 The Convention recognises that it may be necessary to examine containers more frequently than every 30 months when they are subject to frequent handling and transshipment. It should be borne in mind, however, that any significant reduction in the 30-month interval between examinations would create severe examination control problems. It should be noted that where containers are subjected to frequent handling and transshipment they are also liable to be subjected to frequent checking.
- .2 Therefore, in determining whether it is acceptable that the interval between examinations under the Convention should be the maximum of 30 months, proper account should be taken of intermediate examinations, having regard to their extent and to the technical competence of the persons by whom they are performed.

**2.13.2 For containers under a continuous examination programme**

Containers examined under an approved continuous examination programme are subject to a thorough examination in connection with a major repair, refurbishment or on-hire/off-hire interchange and in no case less than once every 30 months.

**2.14 MODIFICATIONS OF EXISTING CONTAINERS**

Applicants for approval of existing containers might be required to certify that, to the best of their knowledge, any modifications previously carried out do not adversely affect safety or the relevance to those containers of the information presented with the application in accordance with annex I, regulation 9, paragraph 1(d)(ii) and (iii). Alternatively, applicants should submit details of the modification for consideration.

**2.15 TEST METHODS AND REQUIREMENTS (ANNEX II)**

Containers tested in accordance with the methods described in ISO Standard 1496 should be deemed to have been fully and sufficiently tested for the purposes of the Convention, except that tank-containers provided with fork-lift pockets must be additionally tested in accordance with annex 11, test 1 (13)(1).

## 2.16 **STACKING TEST (ANNEX II, PARAGRAPH 2)**

- 2.16.1 The following can be used as guidance in interpreting paragraphs 1 and 2 of the stacking test:

For a 9-high stacking of 24-ton (24,000 kg/52,910 lb) containers the mass on the bottom container would be 8 x 24 tons (24,000 kg/52,910 lb), i.e.. 192 tons (192,000 kg/423,280 lb). Thus, in the case of a 24-ton container with 9-high stacking capability the plate should indicate: ALLOWABLE STACKING MASS FOR 1.8g: 192,000 kg/ 423,280 lb.

- 2.16.2 The following may be useful guidance for determining allowable stacking mass:

The allowable stacking mass for 1.8g may be calculated by assuming a uniform stack loading on the corner post. The stacking test load applied to one corner of the container shall be multiplied by the factor  $4/1.8$  and the result expressed in appropriate units.

- 2.16.3 The following is a useful example of how the allowable stacking mass could be varied, as prescribed in paragraph 1 of the stacking test:

If on a particular journey the maximum vertical acceleration on a container can be reliably and effectively limited to 1.2g, the allowable stacking mass permitted on that journey would be the allowable stacking mass stamped on the plate multiplied by the ratio of 1.8 to 1.2 (i.e. allowable stacking mass on the plate x  $1.8/1.2$  stacking mass permitted on the journey)

## 2.17 **LONGITUDINAL RESTRAINT (STATIC TEST) (ANNEX II PARAGRAPH 5)**

The acceleration of 2g is to be considered as the usual value for dynamic loads on containers in normal operation. The externally applied test forces of 2R prescribed for the static test for longitudinal restraint, together with the fulfilment of the criteria of the other prescribed tests, are to ensure that the structural strength of a container is sufficient to withstand the stresses resulting from normal operation.

### 3 GUIDELINES

#### 3.1 OBJECTIVES

3.1.1 The objectives of the Convention for Safe Containers are:

- .1 to maintain a high level of safety of human life in the transport and handling of containers by providing generally acceptable test procedures and related strength requirements which have proved to be adequate over the years, and,
- .2 to facilitate the international transport of containers by providing uniform international safety Regulations, which are equally applicable to all modes of surface transport. This will avoid the proliferation of divergent national safety Regulations.

3.1.2 The first of these objectives is achieved by setting out requirements to be implemented by the Contracting States to the Convention for the safety approval and maintenance of containers and for the relevant data to be included on a Safety Approval Plate on the container. The second is achieved by the reciprocal acceptance of safety-approved containers by other Contracting States to enable the containers to move in international transport with minimum safety control formalities.

#### 3.2 SCOPE

3.2.1 The Convention applies to all new and existing containers as defined (see 3.2.2), which are used in **international transport**<sup>1</sup> other than those which are specially designed for transport by air. Although the Convention does not apply to containers used solely on internal movements within a State, there is no reason why a State cannot apply the Convention to such containers and a number of states have done so. Therefore, unless specifically included by the countries' legislation, **domestic containers**<sup>2</sup> are not included within the convention.

3.2.2 A Container is defined as an article of transport equipment which is:

- .1 of a permanent character and accordingly strong enough to be suitable for repeated use;
- .2 specially designed to facilitate the transport of goods, by one or more modes of transport, without intermediate reloading;
- .3 designed to be secured and/or readily handled, having corner fittings for these purposes;
- .4 and, of a size such that the area enclosed by the four outer bottom corners is either
  - .1 at least 14 m<sup>2</sup> (150 sq ft) or
  - .2 at least 7 m<sup>2</sup> (75 sq ft) if it is fitted with top corner fittings,

**Note:** There are smaller containers manufactured which are designed to form into a 20 ft module either three or four per unit and are then transported internationally as a 20 ft unit. The area enclosed by the four bottom corner fittings is 4.5 m<sup>2</sup> and 3.5 m<sup>2</sup> respectively.

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<sup>1</sup> **International Transport** means transport between points of departure and destination that are situated in the territories of two countries to which at least one of which the present Convention applies. The present Convention shall also apply when part of a transport operation between two countries takes place in a territory of a country to which the present Convention applies.

<sup>2</sup> **Domestic container** means a container that is used only within the national boundaries of a country. This can however include off shore islands that are considered part of the mainland. For example the Canaries are considered as part of the mainland of Spain.

Individually they are not covered by the CSC but do so as a combined unit

but does not include vehicles or packaging.

3.2.3 A "Container" as defined in the Convention and reproduced above can be referred to in a number of different ways, in addition to "ISO Container" and "Box" the following terms can be used to describe the "Container":

- .1 Cargo Transport Units (CTU)
- .2 Cargo Loading Unit (CLU)
- .3 Intermodal Loading Unit (ILU)
- .4 European Intermodal Loading Units (EILU)
- .5 Swap Bodies / Demountables<sup>1</sup>
- .6 Portable tank

3.2.4 A list of container types is shown in Annex 3.

### 3.3 APPROVAL AND TESTING OF CONTAINERS

3.3.1 All containers must be approved by the Government of a Contracting State to the Convention or by an organisation which has been approved for the purpose by that Government. Any approval of a container shall also be accepted by all other Contracting States.

3.3.2 To qualify for approval under the Convention all new containers should comply with the requirements of Annex II of the CSC. Containers may be approved on the basis of design type testing or individually in accordance with regulation 8 in Annex I of the Convention.

3.3.3 Existing containers may be approved in accordance with paragraph 2 of regulation 9 of Annex I. An applicant for approval of an existing container may be required to certify that to the best of his knowledge any modifications that have been made to the container do not adversely affect safety or the original design criteria.

3.3.4 Contracting States may not impose any other structural safety requirements or tests on containers covered by the Convention except for containers specifically designed for the carriage of dangerous goods, for features unique to containers carrying bulk liquids, or, for containers when carried by air.

3.3.5 The Governments of Contracting States are required to set up effective procedures for the testing, inspection and approval of containers in accordance with criteria set out in Annex I and II of the Convention. The actual testing, inspection and approval may be carried out by the Government itself or by organisations which are authorised for the purpose by that Government. Governments are required to notify the Secretary-General of IMO of the names of any organisation they approve for the purposes of the Convention so that the names may be passed on to the other Contracting States to the Convention.

3.3.6 For an organisation to be authorised to carry out testing, inspection or approval of containers, Governments will need a basic description of the organisation and evidence of its technical capability. It will also need to be satisfied of the financial well-being of the organisation and that it is free from any undue influence from any container owner, operator, manufacturer, lessor, repairer or any other person with a vested interest in the approval of containers. Matters are simplified if persons authorised by one Contracting State to carry out testing, inspection or approval of containers are also authorised by other Contracting States. Such persons could be classification societies or other

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<sup>1</sup> **Swapbodies / demountables** generally operate solely within the wider continent of Europe

competent organisations authorised by Governments.

- 3.3.7 In setting structural safety requirements for a container, the Convention assumes that the container will be restrained and that the cargo in it will be stowed in accordance with recommended practices, so that the container will not be subjected to forces that are greater than those for which it was designed. The relevant recommendations are the IMO/ILO/UN ECE Guidelines for Packing of Cargo Transport Units (CTU's) which are published by IMO (in English as IMO publication IMO-284E with French and Spanish versions to follow as publications 286's and 285F).
- 3.3.8 The structural safety requirements and tests in Annex II of the Convention relate to:
- .1 lifting from corner fittings,
  - .2 lifting by any other additional method,
  - .3 stacking,
  - .4 concentrated loads,
  - .5 transverse racking,
  - .6 static longitudinal restraint,
  - .7 end-walls, and,
  - .8 side-walls
- 3.3.9 These requirements are covered by international standard ISO 1496. Containers tested in accordance with ISO 1496 are considered to have been tested in accordance with the Convention.
- .1 Lifting by any other additional method includes lifting from fork pockets, from grapple arm positions and by other methods.
    - .1 However some lifting methods are not suitable for all containers. For example, Part 3 of ISO 1496 states that fork-lift pockets should not be provided in tank containers. The transport of tank containers by fork lifts is considered dangerous because of stability problems with loaded or partly loaded tanks and the danger of impact damage to tanks from the forks of fork-lift trucks.
  - .2 In addition ISO 3874 does not allow the top lifting of loaded containers, other than 10 ft containers, by angled slings.
  - .3 Figure 2 is provided to shows typical masses and test values for dry freight containers manufactured to ISO 1496 part 1.

### Typical test values for ISO 1496 part 1

	Max Gross Mass	Tare	Payload	Stacking		Racking	Side Wall 0.6P	End Wall 0.4P
				Minimum	Current			
20 ft	30,480	2,200	28,280	192,000	212,000	15,240	16,968	11,312
One door open <sup>†</sup>					72,000	7,620		
40 ft	32,500	3,750	28,750	192,000	212,000	15,240	17,250	11,500
One door open <sup>†</sup>					72,000	7,620		
45 ft	34,000	4,750	29,250				17,550	11,700
End posts					212,000	15,240		
Intermediate posts					68,000	15,240		

One door open<sup>†</sup> - does not form part of ISO 1496 part 1 tests

Figure 2

- 3.3.10 Approval of the design of a container should be indicated by the inclusion of the approval reference number on the first line of the Safety Approval Plate fixed to the container.
- 3.3.11 If an approved container is modified in a manner which results in structural changes, the owner of it is required to notify the approving body of the changes. The approving body may then require further testing of the container.
- 3.3.12 If it is found that an approved container does not in fact comply with the requirements in Annex I and II of the Convention, the approval may be withdrawn but this may only be done by the Government that issued the approval. If an approval is withdrawn, the Government should also require the removal of the Safety Approval Plates from the containers covered by the approval.
- 3.3.13 ISO standards which relate to freight containers are listed in Annex 4.

#### **3.4 APPROVAL OF OFFSHORE CONTAINERS HANDLED IN OPEN SEAS**

- 3.4.1 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.
- 3.4.2 Paragraph 2.3.2 states that the Convention does not apply to offshore containers that are handled in open seas and cites a number of reasons for previously not including them into the Recommendation on Harmonized Interpretation and Implementation of the International Convention for Safe Containers, 1972 (CSC).
- 3.4.3 Section 7.4.2 of the 34<sup>th</sup> Amendment to the IMDG Code, General provisions for cargo transport units states:
- .1 Cargo transport units used for transport of dangerous goods shall be of adequate strength to resist the possible stress imposed by the conditions of service in which they are employed.
  - .2 The design and testing of offshore containers shall take into account the dynamic lifting and impact forces that may occur when a container is handled in open seas in adverse weather conditions.
  - .3 The requirements for such containers should be determined by the approving competent authority.
- 3.4.4 The IMDG Code defines an "offshore bulk container" as a bulk container specially designed for repeated use in the transport of dangerous goods to, from or between offshore facilities. Offshore containers can also refer to all types of closed type or tank containers used to transport goods in the offshore environment.
- 3.4.5 **Approval**
- 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.
- 3.4.6 **Design**
- .1 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.
  - .2 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.

- .3 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.
- .4 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.
- .5 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 3.4.7 should normally be considered sufficient.
- .6 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.

#### 3.4.7 Testing

- .1 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.

3.4.8 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.

- .1 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.
- .2 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 Figure 3 represent minimum requirements.

<b>Offshore Containers</b>		
Month/Year of Manufacture:		
Identification No:		
Maximum gross mass:	kg	lb
Tare:	kg	lb
Payload:	kg	lb
Approval no.:		

Figure 3

#### 3.4.9 Inspection

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, with the date by which the next examination is due.

#### 3.4.10 Standards and rules

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:

- .1 BS 7072: British Standard Code of Practice for Inspection and Repair of Offshore Containers;
- .2 Det Norske Veritas (DNV): Certification Note 2.7-1, Offshore Containers;89
- .3 Det Norske Veritas (DNV): Certification Note 2.7-2, Offshore Service Containers; and
- .4 pr EN 12079: Offshore Containers - Design, construction, testing, inspection and marking (under preparation by the European Committee for Standardization (CEN)).

### 3.5 SERIOUS STRUCTURAL DEFICIENCIES IN CONTAINERS

#### 3.5.1 Preamble

- .1 The International Convention for Safe Containers (CSC), 1972, as amended, contains provisions whereby containers used in international transport are maintained in a sound and safe condition.
- .2 Article VI of the CSC refers to the control measures that may be taken by Contracting Parties.
- .3 Such control should be limited to verifying that the container carries a valid Safety Approval Plate unless there is significant evidence for believing that the condition of the container is such as to create an obvious risk to safety.

#### 3.5.2 Scope

- .1 This Guidance is provided to enable authorised officers to assess the integrity of structurally sensitive components of containers (defined in article II of the Convention) as provided for by article VI of the CSC and paragraph 2.9.4 of this document to help them decide whether a container is safe to continue in transportation or whether it should be stopped until remedial action has been taken.
- .2 The criteria given in Annex 1 are to be used to make immediate out of service determinations and are to be considered as a safety standard and should not be used as repair and in-service criteria under a CSC approved continuous examination programme (ACEP) or a periodic examination scheme.

#### 3.5.3 Definitions

- .1 For the purposes of this guidance, the following definitions are used:
  - *Depot* means a repair or storage facility or location.
  - *Structurally sensitive components* means those described in Annex 1 Table A1.1 and shown in Annex 1 Figures A1.2 to A1.5. These are significant in allowing the container to safely be used in transportation.

#### 3.5.4 Serious Structural deficiencies and Control Measures

Authorized officers should consider the following:

- .1 control should be exercised on those containers that create an obvious risk to safety. Authorized officers should notify the container owner and/or bailee whenever a container is placed under control;
- .2 attention should be directed to deficiencies as described in Annex 1;
- .3 it should be noted that the guidance given in Annex 1 is not exhaustive for all types of containers or all possible deficiencies or combination of deficiencies;
- .4 Annex 1 Figure A1.1 provides a safety flow chart that may be used to assess appropriate control measures;
- .5 it should be borne in mind that damage to a container may appear serious without creating an obvious risk to safety. Many damages such as holes may infringe customs requirements but may not be structurally significant; and
- .6 major damages may be the result of significant impact which could be caused by improper handling of the container or other containers, or significant movement of the cargo within the container. Therefore, special attention should be given to signs of recent impact damage.

### 3.5.5 Training of Authorised Officers

- .1 The Contracting Party exercising control should ensure that authorized officers tasked to carry out these assessments and control measures receive the necessary training. This training should involve both theoretical and practical instruction.

### 3.6 SAFETY APPROVAL PLATES

3.6.1 The Safety Approval plate is often referred to as the CSC Plate and examples are shown in Annex 6 which includes examples of a Grouped / Consolidated Plate.

3.6.2 The Convention is only concerned with the information shown in Figure 4.



Figure 4

3.6.3 Every approved container must carry a permanently fixed Safety Approval Plate in a readily visible place where it will not be easily damaged. On a closed container this is normally on one of its doors. The Safety Approval Plate should also be adjacent to any other approval plate issued for official purposes.

3.6.4 The Safety Approval Plate should be a permanent, non-corrosive, fireproof rectangular plate measuring not less than 200 mm x 100 mm. The plate should be headed CSC SAFETY APPROVAL (A) in letters at least 8 mm high and all other information on it should be in letters or figures at least 5 mm high. The information should be in at least the English or French language. The following information should be included on the Safety Approval Plate:

- .1 The country of approval and the approval reference number (B). The country of approval should be shown by means of the letters to indicate the country of registration of motor vehicles in international road traffic. The reference may also include the date of the approval but this is not mandatory. A single approval number may be assigned to each owner to cover all existing containers in a single application for approval. An example of an approval reference number might be D-HH-3137/GL 6095, where D is the country (Germany), HH is the competent authority for CSC approvals, i.e. Hamburg, 3137 is the approval reference number and GL 6095 is Germanischer Lloyds' Certificate code.
- .2 The month and year of manufacture of the container (C).
- .3 The manufacturers identification number of the container, or, if that number is unknown, the number allotted to it by the approving Government. The owner's alphanumeric identification code may also be used on both new and existing containers providing the applicant keeps a record correlating the identification number with the manufacturer's serial number (D). In this case the identification

number is the owner's container serial number.

- .4 The maximum operating gross weight in kg and lb (E).
- .5 The allowable stacking weight for 1.8g in kg and lb (F). This is the actual load that may be superimposed above the container. The test load used to approve the design will be 1.8 times the value shown on the plate (see 3.6.7)
- .6 The transverse racking test load value in kg and lb (G).
- .7 The end-wall strength of the container, unless the end-walls are designed to withstand a load of 0.4 times the maximum permissible payload ( $0.4P$ ). This may take the form: END-WALL STRENGTH  $0.3P$ .
- .8 The side-wall strength of the container, unless the side-walls are designed to withstand a load of 0.6 times the maximum permissible payload ( $0.6P$ ). This may take the form: SIDE-WALL STRENGTH  $0.5P$

Note: In the example shown in Figure 4 the end wall and side wall strength have been omitted from the plate since the container has been tested and satisfactorily passed the appropriate tests.

3.6.5 On every container all maximum gross mass markings must be consistent with the information on the maximum gross weight that is marked on the Safety Approval Plate.

3.6.6 One door off / open operation

- .1 Due to the nature of some cargoes, shippers have required that significant ventilation is provided which can be achieved by shipping the container with the right hand door open and secured safely, or removed entirely.
- .2 Containers with one door removed have a significant reduction in their ability to withstand racking loads and, potentially, a reduction in stacking strength.
- .3 The removal of a door on a container in operation is considered a modification of the container. Approval should be sought from the Contracting Party concerned for the one door off operation. This can be done at the time of initial approval prior to manufacture, or as a modification as required by 2.14, see also Annex 6 Figure A6.3.
- .4 Approved containers operated with one door off will typically be restricted to the upper tiers of a stow with, usually, no more than two superimposed containers.

3.6.7 Removal or neutralisation of the Safety Approval Plate

- .1 Regulation 1(c) of annex I to the CSC states that the owner shall remove the Safety Approval Plate from the container if:
  - .1 the container has been modified in a manner which would void the original approval
  - .2 the container is removed from service or not being maintained in accordance with the Convention
  - .3 the approval has been withdrawn
- .2 A modification to a container that would require an owner to seek re-approval would be one that significantly affects the strength of one or more of the major structural components or an increase to the rated maximum gross mass.
- .3 A container that is removed from service refers to a container that is:
  - .1 no longer used for international transport, although local regulations may require the Safety Approval Plate to be retained for domestic transport;

- .2 converted into a storage or static container; or
- .3 sold by the original owner for purposes unknown;
- .4 The data on the Safety Approval Plate can be owner specific:
  - .1 the owner's serial number if used on line D of Figure 4
  - .2 the ACEP reference

Where the owner of the container changes, these items should be removed irrespective of the intended use of the container.

- .5 If the container is sold and is to be used for international transport, then the seller must confirm that the buyer will be operating it under the terms of the CSC prior to making a decision about removing the Safety Approval Plate (see also 3.9)

#### 3.6.8 Material characteristics of CSC Safety Approval Plates

- .1 The appendix to the CSC Convention stipulates that the Safety Approval Plate should take the form of a permanent, non corrosive, fire-proof rectangular plate.
- .2 The Recommendations on harmonized interpretation and implementation of the CSC Convention, approved by the Maritime Safety Committee at its sixty-second session (24 to 28 May 1993) and circulated as CSC/Circ.100, paragraph 10.8 (see 2.10.8), stated that each Administration may define such material characteristics "permanent, non-corrosive and fire-proof" in its own way or simply require that the Safety Approval Plate be of a material which it considers meets this definition (e.g. a suitable metal).
- .3 The Maritime Safety Committee, at its seventy-fifth session (15 to 24 May 2002), considered the proposal by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers at its sixth session, and agreed that information on the implementation of the requirements for material characteristics of the CSC Safety Plates be circulated to all Contracting Parties to the CSC Convention.
- .4 Governments concerned are invited to provide the Secretariat with information on whether they have defined the material characteristics of the Safety Approval Plate in their own way and, if so, provide relevant detailed information.
- .5 Otherwise Governments are invited to provide the Secretariat with information about the material which from their point of view meets the requirements laid down in the definition; as well as information on any problems they have experienced in the application of this circular.

#### 3.6.9 Allowable Stacking Weight

- .1 The allowable stacking weight represents the maximum superimposed load that any container can be subjected to and is often referred to as the stacking capability or stack height (when converted to a number of containers).
- .2 The stacking capability of a container can also be found on the Safety Approval Plate fitted on the rear of the container and generally forms part of a larger plate as arrowed in Figure 5.
- .3 The Safety Approval Plate will carry important data which is provided to assist in the safe handling of containers. Firstly the Maximum Gross Weight (Max Gross Mass, Max Gross, MGW) will be shown. In Figure 5 the door



Figure 5

marking shows 24,000 kg and this value must be duplicated on the Safety Approval Plate.

- .4 The second piece of important data on the Safety Approval Plate is the allowable stacking weight, which is shown as 72,000 kg in the example (Figure 6). Annex II of the CSC does not set any value for the allowable stacking weight, but after testing the container is rated for the allowable superimposed static mass. Containers built to meet the provisions of ISO 1496 (all parts) will require that the container is built to withstand a superimposed load of at least 192,000 kg which is the equivalent of eight containers with an average mass of 24,000 kg.

Figure 6

- .5 Figure 7 shows the stacking configuration for a container with an allowable superimposed static mass of 192,000 kg with a selection of average container masses. Note the mass of the bottom container is not taken into account when calculating the superimposed average mass.

Average gross mass (kg) of containers	24,000	30,480	32,500	34,000	36,000
Stack height	8 over 1	6 over 1	5 over 1	5 over 1	5 over 1
Laden container stack					

Figure 7

- .6 The increased width associated with swap bodies and the need to use common handling equipment means that the top fittings are inset to the 8 ft width. The consequences of which is that the corner posts need to have a "step" and that the step can adversely affect the stacking capability of the container. Figure 8 shows an example of the step in a swap tank corner post.

Figure 8



- .7 Containers with a step of this nature or which have reduced stacking capabilities (i.e. have a allowable stacking mass of less than 192,000 kg) should be conspicuously marked with the words "REDUCED STACKING" in letter at least 100 mm (4 inches) high. Such marking should be applied centrally near the top rail on both sides and on the roof so that it is visible to crane and other container handling device operators.

- .8 It is also recommended that the Allowable Stacking Mass is marked on the shipping documentation so that the ships planners are aware of containers' stacking capability.

### 3.7 MAINTENANCE AND EXAMINATION PROCEDURES

#### 3.7.1 General

- .1 The owner of every container is responsible for maintaining it in a safe condition.
- .2 The safety laws of the State in which a container is being operated should hold the owner of the container accountable to the Government of that State for the safe condition of the container. However, the methods by which the safety of the container is ensured should remain the responsibility of the owner. Such methods will include arrangements for examination, repair and maintenance of the container and the selection of competent organisations to carry out such work. For owners operating under the ACEP scheme, these methods will be set out in a document approved by their approving country.
- .3 The Convention requires that every container must be examined at intervals that are appropriate to the conditions under which it is operated. The examination procedure followed must be prescribed or approved by the relevant Contracting State. This is the State in which the owner lives or has his head office. However, if the Government of that State has not produced any statutory instruments for prescribing or approving an examination scheme, until it does so the owner may use a procedure prescribed or approved by the Government of any other Contracting State to the Convention which is willing to allow him to do so. Some Governments are only prepared to approve examination schemes of organisations who maintain an office in their own State.
- .4 If permitted by the national law of a Contracting State, the owner's duties may be undertaken by a lessee or bailee in accordance with an agreement between the owner and lessee<sup>1</sup> or bailee<sup>2</sup>. The Lessee shall be responsible for the compliance of containers on lease and for any container transferred via Direct Interchange.
- .1 Once the owner's duties have been passed from the lessor to the lessee, the markings on the container should reflect this change by indicating how the container is to be maintained whilst on lease.
- .2 Containers which are operated under an ACEP by the lessor and marked with the owner's ACEP reference and leased to a lessee who also maintains containers under an ACEP should replace the Owner's reference with the Lessee's reference. However the replacement of one ACEP reference with another will not change the way that the container is viewed by the Control Officers. Therefore custom and practice permits the retention of the Owner's reference.
- .3 Containers which are operated under an ACEP by the lessor and marked with the owner's ACEP reference and leased to a lessee who operates under a periodic examination scheme should remove the Owner's ACEP reference and replace it with a Next Examination Date (NED) mark which is 30 months after the date of the lease.

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<sup>1</sup> A lessee is a person or organisation who has an interest in a container for a period of time specified in a lease

<sup>2</sup> A bailee is a person to whom the possession of a container is entrusted by the owner without the intention of transferring ownership, eg a truck driver.



- .4 Containers which are operated under a periodic examination scheme and marked with a NED and leased to a lessee who also operates under a periodic examination scheme need take no action apart from ensuring that the container is examined and remarked with an appropriate NED.
- .5 Containers which are operated under a periodic examination scheme and marked with a NED and leased to a lessee who operated under an ACEP need take no action until the NED or until the container is subject to a major repair (see 2.13.2).
- .5 Containers may be examined under a periodic examination scheme (PES) or under an approved continuous examination programme (ACEP). Each owner needs to decide which regime is most suitable for his operations. Most containers are now examined under an ACEP programme. The Convention does not require all the containers operated by an owner to be examined under the same regime. However, if the country in which the owner resides does not have a statutory instrument to enable them to approve an ACEP, the container owner must either apply to another country, or operate a PES.

### 3.7.2 Periodic Examination Schemes

- .1 Under a periodic examination scheme a container must be first examined within five years of the date on which it was manufactured and thereafter within 30 months of the date of the last examination. The date before which a container should next be examined must be clearly marked on the Safety Approval Plate of the container or as close as practicable to it. If it is considered necessary by the examiner, this date can be less than 30 months after the date of the last examination. It should however be noted that many offshore containers are marked with the date of their last examination and that this may lead to some confusion (see 3.4.9).
- .2 The date before which a container must first be thoroughly examined or next examined under a periodic examination scheme may be indicated by a decal (adhesive label), provided that the month and year when the first or next examination of the container will be due is clearly shown in internationally recognisable words or figures on the decal on or as near the Safety Approval Plate as practicable, and the decal is coloured in accordance with the year of examination as shown in Annex 7.

### 3.7.3 Approved Continuous Examination Programmes

- .1 Under an approved continuous examination programme, a container must undergo thorough examinations in connection with a major repair, refurbishment or on-hire/off-hire interchange. Frequent routine operating inspections should also be carried out to detect any damage or deterioration which might necessitate repair or other corrective action. The thorough examinations should be carried out in the same manner as those, carried out under a periodic examination scheme. The first thorough examination of a container under an approved continuous examination programme must be carried out within 30 months of the date on which it was manufactured. Thereafter the intervals between thorough examinations must not exceed 30 months.
- .2 A container which is examined under an approved continuous examination programme should carry a decal as close as is practicable to the Safety Approval Plate. The decal should show the letters ACEP and the approval identification reference of the Government that granted the approval, an example of which might be ACEP-BDA-01 where BDA is the country (Bermuda) and 01 is the approval number. The decal does not have to be coloured in accordance with Annex 7. However, many containers now have their ACEP approval reference permanently

marked on the Safety Approval Plate.

#### 3.7.4 Examination Procedure

- .1 Although IMO does not propose to specify matters to be covered by an examination scheme, individual Governments may do so. The authority approved by individual Government, such as the HSE in the UK, must approve each container examination scheme or programme. In an approved scheme, owners do not have to specify the actual criteria to which they examine and maintain their containers.
- .2 Many owners operate one of the accepted container inspection criteria which have been produced by organisations within the container industry. These include the 'Container Inspection Criteria' (CIC) endorsed by the Container Owners Association, The International Chamber of Shipping Unified Container Inspection and Repair Criteria (UCIRC) and the Institute of International Container Lessors' Guide for Container Equipment Inspection, IICL V.
- .3 All three criteria set the inspection criteria that are to be used as part of an interchange of one or more containers. Since all three examples include some elements relating to cosmetic inspection criteria the documents **must not** be considered as safety criteria.<sup>1</sup>
- .4 The Convention states that a container should be subjected to examination and inspection during the course of normal operation. While it specifies that these should be used in conjunction with an ACEP, it applies just as well to the PES.
  - .1 *thorough examinations*, which are examinations conducted in connection with major repair, refurbishment, or on-hire/off-hire interchange; and
  - .2 *routine operating inspections*, which are frequent inspections performed with the object of detecting any damage or deterioration which may necessitate corrective action.
- .5 Detailed below are the elements required to complete a successful *thorough examination*.

#### 3.7.5 Competent person

Every examination of a container, or part of a container, must be carried out by a person appointed for the purpose (subsequently referred to as a competent person)<sup>2</sup> who may authorise another suitable individual to carry out on his behalf and under his supervision any part, but not the whole, of the examination.

#### 3.7.6 Manner of carrying out examinations

In any examination of a container –

- .1 insofar as the competent person carrying out the examination may require, the container must, within a reasonable time before the examination, be emptied, cleaned and prepared,
- .2 suitable means of lifting and supporting the container must be made available, if required by the competent person, so that the whole of the underside is accessible to him,
- .3 there must, at all material times, be provided safe means of access and egress, a safe place of work, sufficient lighting and other facilities necessary to allow the

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<sup>1</sup> See 3.7.7 - Factors to be considered in the examination.

<sup>2</sup> A competent person is a person who has sufficient knowledge and experience of containers to enable him to perform his duties satisfactorily, so as to be capable of determining whether the container has defects which could place any person in danger.

examination to be carried out safely and effectively, and

- .4 the competent person may require the use of any appropriate method of non-destructive testing including the application of appropriate tests in accordance with Annex II of the International Convention for Safe Containers (CSC) or, if applicable, International Standard ISO 1496.

It should be noted that the presence of a valid Safety Approval Plate on a container does not necessarily indicate that the container will be in a safe condition when seen. Although the Plate will show that the container is subject to an approved examination regime, damage or deterioration may have occurred since the last thorough examination.

### 3.7.7 Factors to be considered in the examination

- .1 The competent person shall carry out a detailed visual examination of the exterior, and if reasonably practicable (e.g. if the container is empty at the time) of the interior of the container. All load bearing parts, including the base structure, should be examined. If, in the view of the competent person, the external condition of a loaded container warrants, he may require a container to be unloaded. Exceptionally he may call for the removal of insulation where he has reason to believe that this may be covering significant defects. This removal of insulation should be no more than may be required to uncover the suspected defect. The underside of the container should be examined either when the container is resting on a skeletal trailer or, if the competent person considers it necessary, after the container has been lifted onto other supports.
- .2 The competent person must consider at least the following factors:
  - .1 corrosion
  - .2 the condition of any welding
  - .3 the condition of any riveting or similar method of fastening
  - .4 the presence of mechanical damage
  - .5 the condition of at least the following structural components where fitted –

i)	Corner fittings	Wear and tear to castings and weld joints between castings and posts
ii)	End frames	Dents and damage
iii)	Door and hatch closure gear	Operation and fixing of door gear, weld joints of cam keepers
iv)	Upper and lower side rails	Dents and damage, weld joints to corner castings
v)	Grappler arm positions	Damage and dimensional compliance
vi)	Fork-lift pockets	Damage and/or missing components
vii)	Cross members	Distortion, dents and or missing components
viii)	Floor	Fixing and integrity
  - .6 the validity of the safety approval plate
- .3 The amount of damage and/or deformation permitted is set down in one of the industry standard accepted interchange inspection criteria. The choice of which interchange inspection criteria is adopted for the maintenance of the containers shall be made by the owner or lessee.
- .4 The above factors take no account of examinations required by other national or international provisions relating to the tank body or shell of tank containers.

### 3.7.8 Duties of a competent person after completing a satisfactory examination

As soon as practicable after a competent person has carried out an examination and if he is satisfied that the container is free of any defects which could place any person in danger, he must

- .1 sign a statement that in his opinion the container was, at the time of his examination, in a safe condition and free from any defects which could place any person in danger and that the information notified in accordance with sub-paragraph .2 is, to the best of his knowledge and ability, correct,
- .2 make a notification to the owner or lessee of the container, including at least the following information:
  - .1 the identification number of the container as marked on line 3 of the safety approval plate;
  - .2 the date on which the examination was carried out;
  - .3 details of any test carried out, the method of testing and the results of such tests;
  - .4 the date before which, having regard to the condition of the container, the container must, in the opinion of the competent person, next be examined. This date must be determined in accordance with the criteria laid down in paragraph 0; and
  - .5 sufficient information to identify the competent person and his employer.

**Note:** Items .1 & .2 above may be made by use of a single electronic message in a format which satisfies all the requirements.

- .3 ensure, for containers under an approved continuous examination programme, that a ACEP decal is fixed on or near to the safety approval plate affixed to the container to which the notification relates.

### 3.7.9 Criteria for determining the date before which a container must next be examined

The date for next examination<sup>1</sup> to be notified to the owner or lessee in accordance with 3.7.8.1.4 must be:

- .1 a date not more than 30 months from the date of examination, or
- .2 such earlier date as is nominated by the owner or lessee for his administrative convenience, or
- .3 such earlier date as is determined by the competent person having regard to the condition of the container.

**Note:** If the owner operates an ACEP and therefore no date is set, then it is to be taken that the container will be examined within the next 30 months.

### 3.7.10 Container found on examination to be defective

When a competent person, in the course of carrying out an examination, forms the opinion that the container has a defect which could place any person in danger, he should determine whether the container is unsafe for use or whether, although unsafe for certain categories of use, it is capable of proceeding to its destination<sup>2</sup>. He should immediately inform the user (and also, when it is practicable for him to do so, the owner where the owner is not the user) of his decision. No new date for next examination should be marked on the container.

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<sup>1</sup> As required by a Periodic Examination Scheme.

<sup>2</sup> An example of which would be if a container is being moved empty or with a very light payload, such that the container will be stowed at or near the top of ship's stacks

#### 3.7.11 Keeping records

The person notified in accordance with 3.7.8 must ensure that a record of the details notified is

- .1 kept until such time as he receives a subsequent notification of examination in respect of that container, and it must be readily available for inspection within a reasonable time of any request to inspect it, and
- .2 provided or copied to any subsequent owner or lessee of that container and made available on request to any bailee or lessee of that container. On or before the termination of a bailment, the bailee must have given the owner or lessee a record of the details contained in any current notification made to him.

#### 3.7.12 Administrative procedures

- .1 Container owners or lessees must set up suitable administrative procedures ensuring the maintenance of adequate records. This should include the due date of all examinations if required by the PES.
- .2 The records should be made available to the approving Government on its request

### 3.8 MAINTENANCE AND EXAMINATION SCHEME APPROVAL AND CONTROL

3.8.1 In order to ensure consistent examination of containers the Administration concerned shall consider the elements identified in 3.7 are covered in each prescribed or approved periodic or continual examination program, in particular:

- .1 Methods, scope and criteria to be used during examinations;
- .2 Frequency of examinations if more than once every 30 months is deemed necessary;
- .3 Qualifications of personnel to carry out examinations;
- .4 System of keeping records and documents;
- .5 Conditions and procedures for putting additional containers into an already approved program; and,
- .6 Notification requirements when containers are withdrawn from or added to an approved program.

3.8.2 The Administration should takes sufficient action prior to the approval of a maintenance and examination scheme to ensure that the Owner is able to fulfil the requirements of the scheme from the onset.

3.8.3 To ensure the on-going operational safety of prescribed or approved periodic or continual examination program, Administrations shall:

- .1 set a period of validity of the approval; as a minimum approved programs should be reviewed once every ten (10) years to ensure their continued viability;
- .2 carry out periodic audits of approved programs to ensure compliance with the provisions approved by the Contracting Party;

### 3.9 SALE CONTAINERS

#### 3.9.1 Action required when a container is sold

- .1 Once a container is sold then all markings appertaining to the original owner should be removed and this process is generally referred to as “neutralising”.
- .2 To correctly neutralise a container the following marks should be removed:
  - .1 All container prefix codes. There are seven locations for container serial numbers: two on the side walls, one each on the front and rear ends, one either end on the roof and one at the rear of the right hand inside wall. The container is also likely to be marked with the container serial number on a rear corner casting or a rear corner post. The prefix should also be removed from this number;
  - .2 The removal of all identification system check digits from the container serial numbers as described above.
  - .3 The prefix code and check digit on the safety Approval Plate where the container identification number has been used as the Identification Number.
  - .4 The full name and address of the owner (if present) on the container and the data plate.

Where there is a manufacturer's reference instead of, or in addition to, the container serial number, this is to be left as it is marked.

- .3 In addition the owner may require that any decal, logo or other symbol that represents the owner should be removed although these do not constitute an established identification as defined by the Customs Convention for Containers, 1972.
- .4 Where fitted the ACEP marking should also be removed since the container is no longer maintained under that programme.

#### 3.9.2 Action required when a container is bought

- .1 When a container is brought into a fleet there are a number of requirements that need to be fulfilled to in order that the owner complies with the Convention.
- .2 Safety Approval Plate

If the container is to be used for international Transport the Safety Approval Plate must be present. If the plate is not present then the buyer may request the information for it from the seller. A new plate must be applied with the appropriate markings before the container can be used.

The Convention requires that there is a link back to the manufacturer's serial number and in the case of a container that has been sold by the original (or subsequent) owner it may be found that after neutralising the prefix and the check digit has been removed the correlation to the manufacturer's number is broken. To ensure that the correlation is maintained the buyer should request the manufacturer's serial number from the seller and either mark that onto the Safety Approval Plate or retain it as a record against the new owner's alphanumeric identification number for the container.

- .3 Maintenance and Examination

When the container is sold, it is the responsibility of the buyer to maintain the container in line with their own container maintenance and inspection programme. All responsibility for the safe condition of the container passes from the seller to the buyer irrespective of the condition of the container. Once the title of the container has passed to the buyer and the buyer wishes to use the container for international

transport the buyer must ensure compliance with the CSC.

- .1 If the buyer has an approved ACEP the container should be marked accordingly with the buyer's ACEP reference number.
- .2 If the buyer does not operate an approved ACEP, then the container must be marked with a Next Examination Date (NED) as required under the Periodic Examination Scheme.

The date of the next examination should reflect the condition of the container and it is the responsibility of the competent person where the container is sold to identify a next examination date that reflects the condition. Typically the competent person can issue a NED up to a maximum of 30 months ahead, or one that permits the container to be moved one way to its new destination, often three or six months.

By so marking the containers, the owner is indicating that it is, and will be, examined and maintained in compliance with CSC to maintain a high level of safety of human life in the handling, stacking and transportation of containers.

### 3.9.3 Marking Containers

- .1 ISO states that "In order that owner codes are unique it is necessary for all codes to be registered with the International Container Bureau (BIC – Bureau International des Conteneurs<sup>1</sup>)". It should be noted that the standard is not mandatory and so there is no legal requirement to register the code with BIC. However failure to do so could result in either:
  - .1 another company using the same code or codes and the containers confused between the two owners, or
  - .2 another company registering the same owner code with BIC and then demanding that all other containers using that code have their owners code changed to another one.
- .2 Therefore although registering the owner code with BIC is not mandatory many owners do so register their code to ensure the uniqueness of their owner identification numbers.
- .3 The check digit should be removed from the containers when it is neutralised since it is calculated using the four alpha and six numeric characters preceding it and the likelihood of it remaining the same is small. A new check digit for each container should be recalculated once the owner code has been selected.

### 3.9.4 Operating Containers

- .1 Owners of containers used for international transport are required under CSC to maintain their containers in a safe manner using either a Periodic Examination Scheme or a Continuous Examination Programmes (ACEP). If the owner decides that they would like to operate an ACEP in preference to or in addition to a Periodic Examination Scheme then they would need to apply to the organisation that the Contracting Party concerned (National Government) has delegated the role.

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<sup>1</sup>

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176, Rue de Courcelles, FR 75017 Paris, France

Tel: + 33 1 47 66 03 90

Fax: + 33 1 47 66 08 91

email: [bic@bic-code.org](mailto:bic@bic-code.org)

Web: [www.bic-code.org](http://www.bic-code.org)

- .2 The Convention for Safe Containers is an umbrella document requiring each individual country to enact their own statutory instrument (regulation) to put the Convention into force. Only once the country has passed such a regulation which includes the right to approve continuous examination programmes can that country actually carry out this task. For those countries without this capability, owners can select another country with the required national regulation to carry out that approval.

### **3.10 ONE-WAY TRIP CONTAINERS**

It is not uncommon for containers approaching the end of their working life to be used for a final one way trip to another state. Such containers are sometimes referred to as 'one trip' containers. There is an impression in some quarters that lower standards are permissible for containers on such journeys. This is not so. The Convention and national legislation implementing it apply in full to such containers and it is essential that they continue to have a valid Safety Approval Plate and are properly maintained until they have been unloaded at their final destination.

### **3.11 RATIFICATION**

When a State ratifies, accepts, approves or accedes to the Convention, it will enter into force in that State twelve months after the date of such ratification. The Convention will then apply fully to any containers built after the date of its coming into force. All existing containers should then be inspected and fitted with Safety Approval plates within five years of the coming into force of the Convention for that State. Acceptance of the Convention by a succession State does not require replacement of Safety Approval Plates on existing containers as the approval by the original State remains valid.

### **3.12 CONTROL**

- 3.12.1 Containers approved under the Convention should be subject to control by authorised officers of government bodies of Contracting States. Control should be limited to verifying that containers in the territory of the Contracting State carry valid Safety Approval Plates unless there is significant evidence for believing that the condition of the container creates an obvious risk to safety. In such a case the officer should only exercise his powers of control to the extent that it is necessary to ensure that the container is restored to a safe condition before it continues in service.
- 3.12.2 When a container is found by a control officer to have a defect that could place a person in danger, the container should be stopped. However if it can be safely moved to its destination or to a place where it can be repaired, this may be permitted subject to any conditions the control officer may specify and that the container will be repaired as soon as is practicable. The container may not be reloaded until the necessary repairs have been carried out.
- 3.12.3 When a container is found by a control officer to be marked on or near its Safety Approval Plate with a date for its next examination which is before the date on which it is seen, the container should be stopped. However it may be permitted to continue to its destination for unloading provided that it will then be examined and the Safety Approval Plate updated as soon as is practicable. The container may not be reloaded until this has been done. Similarly if a control officer discovers that a container operated under an ACEP programme has not been examined within the preceding 30 months, the container should be stopped but again it may be permitted to continue to its destination for unloading provided that it will then be examined as soon as practicable and before it is reloaded.
- 3.12.4 When a container is found to have no Safety Approval Plate or one that has been incorrectly completed, the container should be stopped. However if the container is not defective and evidence can be produced that the container has been approved under the Convention or that it meets the standards of the Convention, it may be permitted to



continue to its destination for unloading provided that it will then be correctly plated as soon as is practicable. The container may not be reloaded until this has been done.

- 3.12.5 The owner of a container that has been stopped may wish to move it to another State for the necessary corrective action to be carried out. This may be permitted subject to the conditions already described, but the control officer permitting such a movement should also take such measures as may be reasonably practicable to ensure that the necessary corrective action is in fact taken. In particular the officer should consider whether it may be necessary to inform control officers in States through which the container will be moved and the State of its final destination.
- 3.12.6 If there is clear evidence that an owner is repeatedly failing to achieve a satisfactory level of safety, the Government of the State in which the owner has his head office or lives should be asked to ensure that appropriate corrective action is taken.
- 3.12.7 If a considerable number of containers in a given approved series are found to be unsafe as a result of defects which may have existed prior to approval, it may be desirable for Governments to notify IMO as well as the Contracting State concerned.
- 3.12.8 Only containers that have been approved under the Convention are subject to control in the territory of a Contracting State. However most of the main maritime States are Contracting States to the Convention (see Appendix 1) and most containers are owned by shipping lines or leasing companies resident in Contracting States. Containers of countries which are not Contracting States will not have a valid Safety Approval Plate. They may, however be within the scope of national legislation in Contracting States or other controls. Many shipping lines require a container which does not have a valid Safety Approval Plate to be subject to an inspection by the line before it can be accepted for shipment.

### 3.13 **DISPUTES**

- 3.13.1 In the event of a dispute between two or more of the Contracting States which cannot be settled by negotiation or other means, the dispute should be referred to an arbitration panel at the request of any of them. The panel will then consist of an arbitrator appointed by each of the parties to the dispute and a further Chairman appointed by the arbitrators. If any of the parties fail to appoint an arbitrator within three months or the arbitrators fail to appoint a Chairman within three months, the Secretary-General of IMO may make the necessary appointments.
- 3.13.2 The decision of any arbitration panel appointed will be binding on the parties to the dispute

## Annex 1 SERIOUS STRUCTURAL DEFICIENCIES IN CONTAINERS

A1.1 The following components are structurally sensitive and should be examined for serious deficiencies. The criteria given are to be used to make immediate out of service determinations. *It is to be considered as a safety standard and should not be used as repair and in-service criteria under a CSC ACEP or a periodic examination scheme.*

STRUCTURALLY SENSITIVE COMPONENT	SERIOUS STRUCTURAL DEFICIENCY
Top Rail	Local deformation to the rail in excess of 60 mm in the rail material in excess of 45 mm
Bottom Rail	Local deformation perpendicular to the rail in excess of 100 mm or in the rail's material in excess of 75 mm
Header	Local deformation to the header in excess of 80 mm or cracks or tears in excess of 80 mm in length
Sill	Local deformation to the sill in excess of 100 mm or cracks or tears in excess of 100 mm in length
Corner Posts	Local deformation to the post exceeding 50 mm or tears or cracks in excess of 50 mm in length
Corner and intermediate Fittings (Castings)	Missing corner fittings, any through cracks or tears in the fitting, any deformation of the fitting that precludes full engagement of securing or lifting fittings, any deformation of the fitting beyond 5 mm from its original plane, any aperture width greater than 66.0 mm, any aperture length greater than 127.0 mm, any reduction in thickness of the plate containing the top aperture that makes it less than 23.0 mm thick or any weld separation of adjoining components in excess of 50 mm in length.
Understructure	No more than two adjacent cross members missing or detached from the side rails <sup>11</sup>
Locking Rods <sup>12</sup>	No more than one inner locking rods to be non functional

Table A1.1

A1.2 Loaded containers with damages equal to, or in excess of, the above criteria are deemed to place a person in danger and under paragraph 2.9.4 the authorised officer should stop those containers. However, the authorised officer may permit the onward movement of the container, if it is to be moved to its ultimate destination without lifting from the current means of transport.

A1.3 The safety flow chart, shown in Figure A1.1 provides additional guidance on the decision process for allowing onward movement.

A1.4 Empty containers are typically repositioned for repair at an owner-selected depot provided they can be safely moved; this can involve either a domestic or an international move under paragraph 2.9.5. Any damaged container being repositioned should be handled and transported with due regard to its structural deficiency

<sup>11</sup> For continuing transportation, it is essential that detached cross members are precluded from falling free

<sup>12</sup> Some containers are designed and approved (and so recorded on the CSC Plate) to operate with one door open or removed.

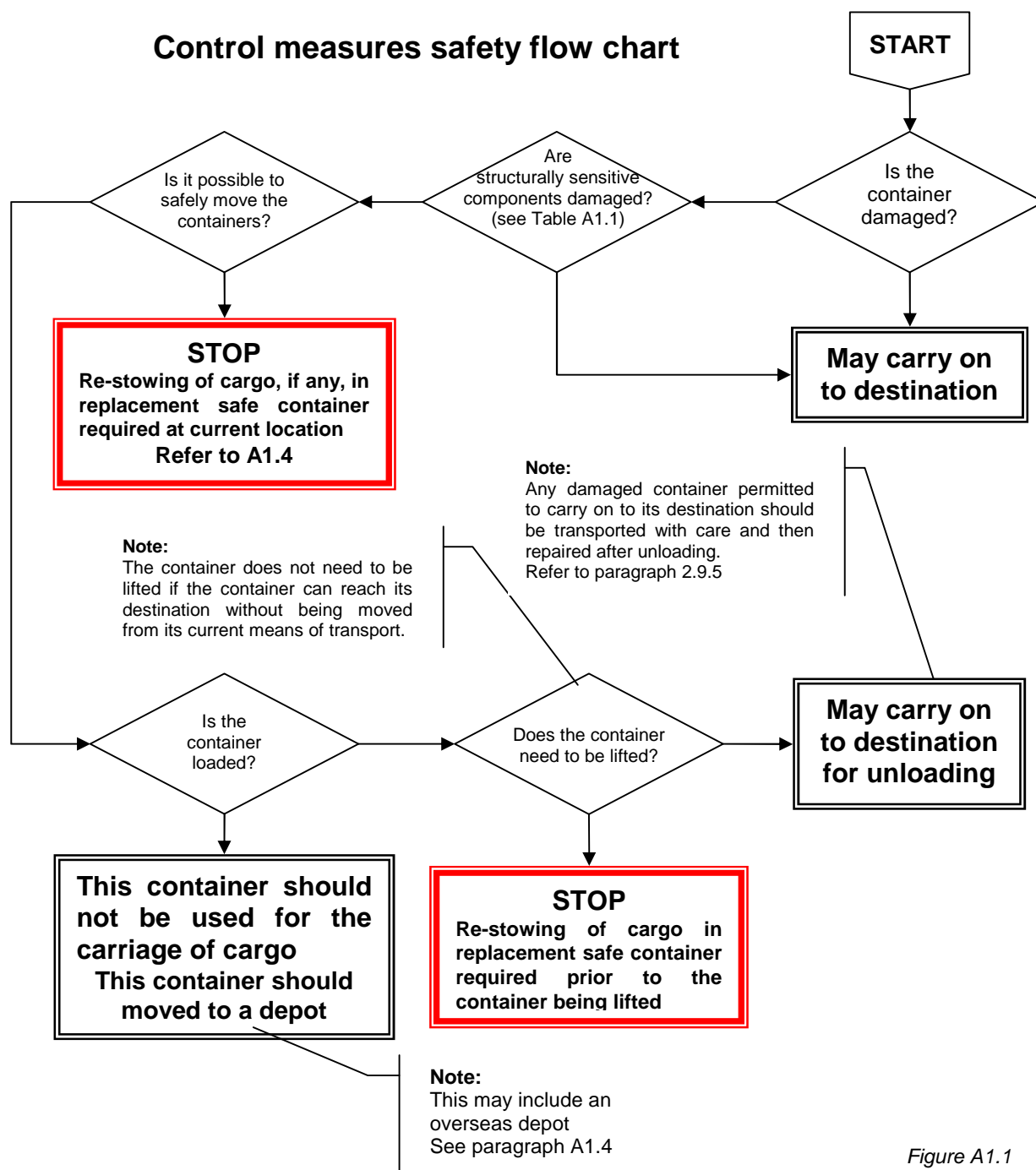


Figure A1.1

- A1.5 The effect of two or more incidents of damage in the same structurally sensitive component, even though each is less than in the above table, could be equal to, or greater than, the effect of this single damage noted in the table. In such circumstances, the authorised officer may stop the container and seek further guidance from the Contracting Party.
- A1.6 For tank containers, the attachment of the vessel to the container frame should also be assessed for any readily visible damage comparable to that noted in the table. If such damage is found in these components, the container may be stopped and further instructions obtained from the Contracting Party.
- A1.7 For platform containers with folding end frames, the end frame locking mechanism and the hinge pins about which the end frame rotates are structurally sensitive and should also be inspected for damage.

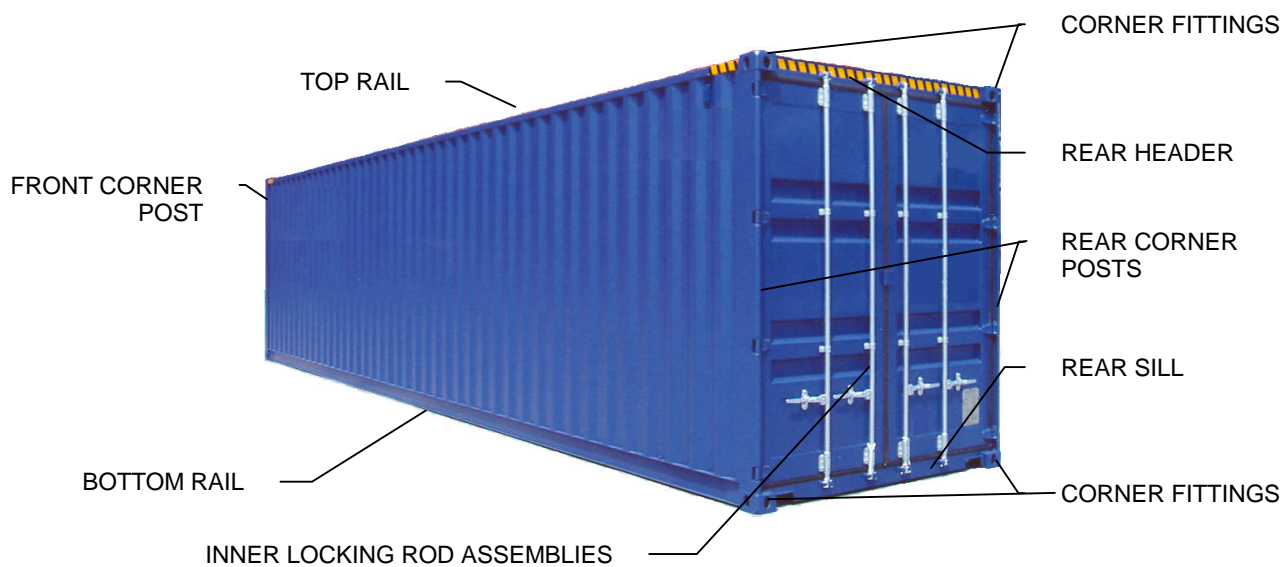


Figure A1.2

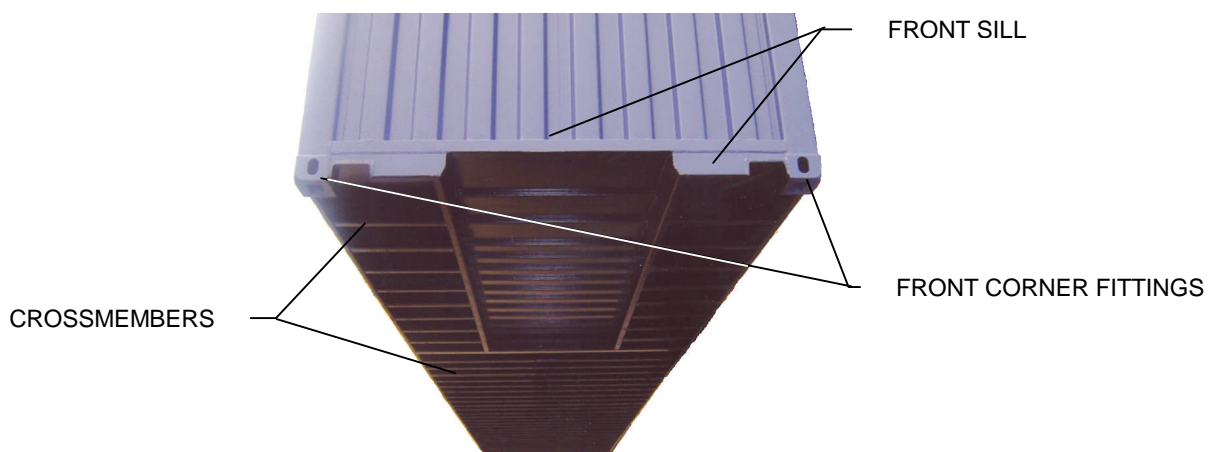


Figure A1.3



Figure A1.4



<sup>†</sup> Treat as corner post

Figure A1.5

## Annex 2 Resolution A.737 (18) adopted on November 4<sup>th</sup> 1993

The following paragraphs are extracted from the Annex to Resolution A.737 (18) Amendments to the Convention for Safe Containers (CSC), 1972 and refer to changes proposed to the Convention and Annex I of the CSC.

A2.1 Paragraphs 14 to 16 of article II (Definitions) are amended to read:

- 14 *Maximum operating gross mass or Rating* or R means the maximum allowable sum of the mass of the container and its cargo. The letter R is expressed in units of mass. Where the annexes are based on gravitational forces derived from this value, that force, which is an inertial force, is indicated as *Rg*.
- 15 *Tare* means the mass of the empty container, including permanently affixed ancillary equipment.
- 16 *Maximum permissible payload* or P means the difference between maximum operating gross mass or rating and tare. The letter P is expressed in units of mass. Where the annexes are based on the gravitational forces derived from this value, that force, which is an inertial force, is indicated as *Pg*."

New paragraphs 17 to 19 are added as follows:

- "17 The word *load*, when used to describe a physical quantity to which units may be ascribed, signifies mass.
- 18 The word *loading*, for example, as in *internal loading*, signifies force.
- 19 The letter *g* means the standard acceleration of gravity; *g* equals 9.8 m/s<sup>2</sup>."

A2.2 Annex I, subparagraph 1(b) of regulation 1 is amended to read:

- "(b) On each container, all maximum operating gross mass markings shall be consistent with the maximum operating gross mass information on the Safety Approval Plate."

Subparagraph 2(a) is amended to read:

- "(a) The plate shall contain the following information in at least the English or French language:

"CSC SAFETY APPROVAL"

Country of approval and approval reference

Date (month and year) of manufacture

Manufacturer's identification number of the container or, in the case of existing containers for which that number is unknown, the number allotted by the Administration

Maximum operating gross mass (kg and lbs)

Allowable stacking load for 1.8g (kg and lbs)

Transverse racking test force (newtons)"

A new paragraph 5 is added as follows:

- "5 A container, the construction of which was completed prior to \_\_\_\_\_<sup>13</sup> may retain the Safety Approval Plate as permitted by the Convention prior to that date as long as no structural modifications occur to that container."

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<sup>13</sup> Date of entry into force of the amendments

A2.3 Annex I, subparagraphs 1(c) and 1(e) of regulation 9 are amended to read:

"(c) maximum operating gross mass capability;"

"(e) allowable stacking load for 1.8g (kg and lbs); and"

A2.4 Annex I, subparagraphs (c) and (e) of regulation 10 are amended to read:

"(c) maximum operating gross mass capability;"

"(e) allowable stacking load for 1.8g (kg and lbs); and"

A2.5 Annex I, the fourth, fifth and sixth lines of the model of the Safety Approval Plate reproduced in the appendix are amended to read:

"MAXIMUM OPERATING GROSS MASS ..... kg ..... lbs

ALLOWABLE STACKING LOAD FOR 1.8g ..... kg ..... lbs

TRANSVERSE RACKING TEST FORCE ..... newtons"

A2.6 Annex I, items 4 to 8 of the appendix are amended to read:

"4 Maximum operating gross mass (kg and lbs).

5 Allowable stacking load for 1.8g (kg and lbs).

6 Transverse racking test force (newtons).

7 End-wall strength to be indicated on plate only if end-walls are designed to withstand a force of less or greater than 0.4 times the gravitational force by maximum permissible payload, i.e.  $0.4Pg$ .

8 Side-wall strength to be indicated on plate only if the side-walls are designed to withstand a force of less or greater than 0.6 times the gravitational force by maximum permissible payload, i.e.  $0.6P_g$ ."

## Annex 3 MAIN TYPES OF CONTAINERS

### A3.1 Definitions

A3.1.1 Series 1 freight containers are defined in ISO 830 as containers designed to ISO standards which are intended for intercontinental freight transport. Most containers are now built to these standards. Series 2 containers were intended to be larger containers for use in both international and domestic traffic but were found not to be necessary.

A3.1.2 Swap bodies are designed to meet the requirements of EN XXXX. In general they have:

- .1 a mechanical strength designed only for rail and road vehicle transport by land or by ferry, and therefore not needing to fulfil the same requirements as series 1 ISO containers;
- .2 a width and/or a length exceeding those of series 1 ISO containers of equivalent basic size, for better utilisation of the dimensions specified for road traffic;
  - .1 swap bodies are generally 2.5 m or 2.55 m wide although thermal swap bodies can be up to 2.6 m wide.
  - .2 swap bodies generally fall into three length categories:
    - Class A: 13.6 or 13.712 m (45 ft) long
    - Class B: 9.1 m (30 ft) long
    - Class C: 7.15, 7.45 or 7.8 m long. The accepted *de facto* length in this class is 7.45 m
- .3 same corner fittings as those of series 1 ISO containers: for this reason, such devices are fixed as specified in ISO 668 and ISO 1161, but owing to the size difference, are not always located at the swap body corners, Stackable swap bodies with top castings that are 2.438 m (8 ft) when measured across the unit to the external faces of the castings. They will also a distance of 2.259 m between aperture centres when measured across the unit.

A3.1.3 Containers fall into two broad categories, General Cargo and Specific Cargo containers.

### A3.2 GENERAL CARGO CONTAINERS

A general cargo container is any type of container which is not intended for use in air mode transport and which is not primarily intended for the carriage of a particular category of cargo, such as cargo requiring temperature control, a liquid or gas cargo, dry solids in bulk, cars or livestock. General cargo containers include the following types:

A3.2.1 General purpose containers: A general purpose container is a container which is totally enclosed and weather-proof, has a rigid roof, rigid side walls, rigid end walls at least one of which is equipped with doors, and a floor. It is intended to be suitable for the transport of cargo in the greatest possible variety. A general purpose container having an opening roof may be used for the same specific purpose as an open top container.

A3.2.2 Specific purpose containers: A specific purpose container is one which has constructional features specifically for the purpose of facilitating packing or emptying the container other than by means of doors at one end of the container, or constructional features, for other specific purposes such as ventilation. Closed vented or ventilated containers, open top containers, platform containers and platform based containers are all types of specific purpose containers.

- .1 *Closed vented or ventilated containers*: A closed vented or ventilated container is a closed type of container similar to a general purpose container but designed to allow air exchange between its interior and the outside atmosphere. Vented containers are containers which have passive vents at the upper part of their cargo space. Ventilating



containers are containers which have a ventilating system designed to accelerate and increase the natural convection of the atmosphere within the container as uniformly as possible, either by non-mechanical vents at both the upper and lower parts of their cargo space, or by internal or external mechanical means.

- .2 *Open top containers*: An open top container is similar to a general purpose container in all respects except that it has no rigid roof. It may have a flexible and moveable or removable cover, e.g. of canvas, plastic or reinforced plastic material. The cover is normally supported on movable or removable roof bows. Open top containers may have movable or removable end transverse members (known as removable headers) above their end doors.
- .3 *Platform containers*: A platform container is a loadable platform that has no superstructure whatsoever but is the same length and width as a container of the same series. It is equipped with top and bottom corner fittings which are located in plan view as on series 1 containers so that the same securing and lifting devices can be used.
- .4 *Platform based containers*: A platform based container is an open sided container with no side walls but has a base similar to that of a platform container. It may have a complete superstructure with a permanent fixed longitudinal load-carrying structure between the two ends at the top or it may have an incomplete superstructure without such a longitudinal structure at the top. A platform based container which incorporates a complete superstructure may have a rigid roof and rigid end walls, an open top and rigid end walls or an open top and open ends (a skeletal container). A platform based container which incorporates an incomplete superstructure may have fixed ends or folding ends. The latter are often referred to as flatracks.

### A3.3 SPECIFIC CARGO CONTAINERS

A specific cargo container is a container primarily intended for the carriage of particular categories of cargo. Specific cargo containers include the following types:

- A3.3.1 *Thermal containers*: A thermal container is a container that has insulating walls, doors, floor and roof. Thermal containers may be: insulated - with no device for cooling and/or heating, refrigerated - using expendable refrigerants such as ice, 'dry ice' (solid carbon dioxide), or liquefied gasses, and with no external power or fuel supply,
  - .1 *mechanically refrigerated* - served by a refrigerating appliance such as a mechanical compressor unit or an absorption unit. These containers are often known as reefers,
  - .2 *porthole* - refrigerated by cold air from an external source introduced through a porthole,
  - .3 *heated* - served by heat-producing appliances, or,
  - .4 *refrigerated and heated*.
- A3.3.2 *Tank containers*: A tank container is a container which includes two basic elements, the tank or tanks, and the framework.
- A3.3.3 *Dry bulk containers*: A dry bulk container is a container which consists of a cargo carrying structure for the carriage of dry solids in bulk without packaging and which is firmly secured within an ISO series 1 framework.
- A3.3.4 *Named cargo containers*: Named cargo types of containers are containers built in general accordance with ISO standards either solely or principally for the carriage of named cargo such as cars or livestock.

#### **Annex 4 ISO STANDARDS RELATING TO CONTAINERS**

ISO 668	Series 1 freight containers - Classification, dimensions and ratings.
ISO 830	Freight containers - Terminology. Trilingual edition.
ISO 1161	Series 1 freight containers - Corner fittings - Specification.
ISO 1496	Series 1 freight containers - Specification and testing
Part 1:	General cargo containers for general purposes.
Part 2:	Thermal containers.
Part 3:	Tank containers for liquids, gasses and pressurised dry bulk.
Part 4:	Non-pressurised containers for dry bulk.
Part 5:	Platform and Platform - based containers.
ISO 3874	Series 1 freight containers - handling and securing.
ISO 6346	Freight containers - Coding, identification and marking.
ISO 8323	Freight containers - Air/surface (intermodal) general purpose containers Specification and tests.
ISO 9669	Series 1 freight containers - Interface connections for tank containers
ISO 9711	Freight containers - Information related to containers on board vessels.
Part 1:	Bay plan system.
Part 2:	Telex data transmission.
ISO 9897	Freight containers - Container equipment data exchange (CEDEX).
Part 1:	General communication codes.
Part 3:	Message types for electronic data interchange.
ISO 10368	Freight thermal containers - remote condition monitoring.
ISO 10374	Freight containers - Automatic identification.
ISO/TR 15070	Series 1 freight containers - Rationale for structural test criteria.

## Annex 5 SIGNATORY STATES TO THE CONVENTION

Part 1: Convention fully in force for all containers as of December 2008

Afghanistan	Jordan
Angola	Kazakhstan
Argentina	Kenya
Australia	Latvia
Austria	Lebanon
Bahamas	Liberia
Barbados	Lithuania
Belarus	Luxembourg
Belgium	Marshall Islands
Benin	Mexico
Bolivia	Montenegro
Brazil	Morocco
Bulgaria	Netherlands
Canada	New Zealand
Cape Verde	Nigeria
Chile	Norway
China	Pakistan
Croatia	Peru
Cuba	Poland
Cyprus	Portugal
Czech Republic	Republic of Korea
Dem. People's Rep. Korea	Romania
Denmark	Russian Federation
Estonia	Saudi Arabia
Finland	Serbia
France	Slovakia
Georgia	Slovenia
Germany	South Africa
Greece	Spain
Guinea	Sweden
Guyana	Syrian Arab Republic
Honduras	Tonga
Hungary	Tunisia
Iceland	Ukraine
India	United Kingdom <sup>†</sup>
Indonesia	United States
Iran (Islamic Republic of)	Vanuatu
Israel	Yemen
Italy	Hong Kong, China (Associate Member)
Japan	Macao, China

<sup>†</sup> Ratification also covers Bermuda, Guernsey, Jersey and Isle of Man

## Annex 6 SAFETY APPROVAL PLATE

A6.1 This annex shows examples of Safety Approval Plates in use

A6.2 Figures A6.1 and A6.2 show examples of a safety Approval Plate for containers which are covered by a Periodic Examination scheme.

A6.2.1 Figure A6.1 shows a unit manufactured in September 1989 which was required to be examined on or before September 1994, (five years after the container was built), February 1997 and August 1999.



Figure A6.1

**Note:** The allowable stacking weight shown in Figure A6.1 is marked as 92,000 kg, although the imperial equivalent 423,285 lb related to 192,000 kg. Therefore this can be considered as a typographical error that should have been amended.

A6.2.2 Figure A6.2 shows a second example of a Safety Approval Plate for a container that was covered by a Periodic Examination Scheme. The container was built in September 2002 and due its first examination on or before September 2007.

The Container that the plate is fitted on is a 45 ft long container built with central 40 ft intermediate frames and fittings and shows:

- .1 That the allowable stacking mass for the 45 ft corner posts is 170,000 kg, which is below the minimum value and the container should be marked with "REDUCED STACKING" as required by **Error! Reference source not found.**



Figure A6.2

A6.3 Figure A6.3 shows an example of a Safety Approval Plate for a container covered by the approved continuous examination programme “ACEP USA 0006”. At the time of approval the container was also approved for “one door off” operation and includes the allowable stacking mass of 72,000 kg and a reduced transverse racking load of 7,000 kg.

CSC SAFETY APPROVAL			
USA/AB-045/99-21			
DATE MANUFACTURED	/2003		
IDENTIFICATION NO.	S67		
MAXIMUM GROSS WEIGHT	30,480 KGS	67,200 LBS	
ALLOW. STACK. WT. FOR 1.8G	192,000 KGS	423,280 LBS	
RACKING TEST LOAD VALUE	15,240 KGS	33,600 LBS	
<div>ACEP</div> <div>U.S.A.</div> <div>0006</div> <div>INTERPOOL</div>			
ONE DOOR - OFF OPERATION			
ALLOWABLE STACKING WEIGHT FOR 1.8G	72,000 KGS	158,730 LBS	
RACKING TEST LOAD VALUE	7,000 KGS	15,430 LBS	

Figure A6.3

A6.4 Figures A6.4 shows an example of the consolidated data plate for a container covered by the approved continuous examination programme “ACEP BDA - 001”.

APPROVED FOR TRANSPORT UNDER CUSTOMS SEAL	
D/GL-4850-131/2001	
TYPE	MANUFACTURER'S NO.
NT-S-233G	NCSE01S 09200
GE SEACO SRL. BRIDGETOWN, BARBADOS	MANUFACTURED BY:  <b>CIMC</b> NANTONG CIMC SPECIAL TRANSPORTATION EQUIPMENT MANUFACTURE CO., LTD.
TIMBER TREATMENT	
IM/BASILEUM SI-84/2001	
CSC SAFETY APPROVAL	
D-HH-2999/GL 6088	
DATE MANUFACTURED	12 /2001
IDENTIFICATION NO.	GESU 221 43-2
MAXIMUM GROSS WEIGHT	30,480 KGS 67,200 LBS
ALLOW STACK. WT. FOR 1.8G	192,000 KGS 423,280 LBS
RACKING TEST LOAD VALUE	15,240 KG 33,600 LBS
ACEP-BDA 01	

Figure A6.4

## Annex 7 ANNUAL DECAL COLOURS

Decals should be coloured in accordance with the year of examination as follows:

BROWN	2004	2010	2016	2022
BLUE	2005	2011	2017	2023
YELLOW	2006	2012	2018	2024
RED	2007	2013	2019	2025
BLACK	2008	2014	2020	2026
GREEN	2009	2015	2021	2027

*Figure A7.1*

## 3.2 PERIODIC EXAMINATION SCHEMES

- 3.3 Under a periodic examination scheme a container must be first examined within five years of the date on which it was manufactured and thereafter within 30 months of the date of the last examination. The date before which a container should next be examined must be clearly marked on the Safety Approval Plate of the container or as close as practicable to it. If it is considered necessary by the examiner, this date can be less than 30 months after the date of the last examination. It should however be noted that many offshore containers (see section 10) are marked with the date of their last examination and that this may lead to some confusion.
- 3.4 The date before which a container must first be thoroughly examined or next examined under a periodic examination scheme may be indicated by a decal (adhesive label), provided that the month and year when the first or next examination of the container will be due is clearly shown in internationally recognisable words or figures on the decal on or as near the Safety Approval Plate as practicable, and the decal is coloured in accordance with the year of examination as shown in Appendix 4.

## 3.5 APPROVED CONTINUOUS EXAMINATION PROGRAMMES

- 3.6 Under an approved continuous examination programme, a container must undergo thorough examinations in connection with a major repair, refurbishment or on-hire/off-hire interchange. Frequent routine operating inspections should also be carried out to detect any damage or deterioration which might necessitate repair or other corrective action. The thorough examinations should be carried out in the same manner as those, carried out under a periodic examination scheme. The first thorough examination of a container under an approved continuous examination programme must be carried out within 30 months of the date on which it was manufactured. Thereafter the intervals between thorough examinations must not exceed 30 months.
- 3.7 A container which is examined under an approved continuous examination programme should carry a decal as close as is practicable to the Safety Approval Plate. The decal should show the letters ACEP and the approval identification reference of the Government that granted the approval, an example of which might be ACEP-NL -749 where NL is the country (the Netherlands) and 749 is the approval number. The decal does not have to be coloured in accordance with Appendix 4. However, many containers now have their ACEP approval reference permanently marked on the Safety Approval Plate.

## 3.8 EXAMINATION PROCEDURE

- 3.9 Although IMO does not propose to specify matters to be covered by an examination scheme, individual Governments may do so. The examination should however include a detailed visual examination of the container for defects or other safety-related deficiencies or damage that will make the container unsafe. The exterior and underside of the container should always be examined as well as the interior whenever it is reasonably practicable. An example of when it would not be reasonably practicable to make a detailed examination of the interior of a container would be during an in service ACEP examination of a loaded container.
- 3.10 All examinations should be carried out by persons having sufficient knowledge and experience of containers to enable them to decide whether a container has any defect which could place a person in danger.
- 3.11 Owners should keep examination records of all containers. These should include the identification of the container, the date of the last thorough examination and a means of identifying the examiner. If records are kept on a computer, the system should include the ability to validate a record. The records should be made available to the approving Government on its request.

- 3.12 Although each container examination scheme or programme must be approved by the relevant Government, container inspection criteria have also been produced by organisations such as shipping lines. These include the 'Seaworthy Repair Criteria' of Sea Containers Ltd. The Institute of International Container Lessors and the International Chamber of Shipping have published a Guide for Container Equipment Inspection, IICL - 5, which contains industry interchange inspection criteria, but these are NOT safety criteria.
- 3.13 It should be noted that the presence of a valid Safety Approval Plate on a container does not necessarily indicate that the container will be in a safe condition when seen. Although the Plate will show that the container is subject to an approved examination regime, damage or deterioration may have occurred since the last thorough examination.
- 3.14 .
- 3.15 OFFSHORE CONTAINERS



***Appendix 1***

***Appendix 2***

.

## ***Appendix 3***

#### Appendix 4.

and are designed and used for transport by road only or by road and rail only, or which are transported by sea mounted on a road vehicle or rail wagon are not covered by the Convention. Swap bodies used in transoceanic services are, however, covered by the Convention. The majority of swap bodies generally operate solely within the wider continent of Europe.

For information - the IMO has stated that the Convention does not apply to offshore containers that are handled in open seas. The Convention does however apply to normal ISO containers which are handled in open seas occasionally whilst being used to transport cargo to or from an offshore installation.

## 4.0

## 5.0 Maintenance and Inspection

### 5.1 General

The owner of every container is responsible for maintaining it in a safe condition.

The Convention requires that every container must be examined at intervals that are appropriate to the conditions under which it is operated. The examination procedure followed must be prescribed or approved by the relevant Contracting State (country in which the Owner resides or has its head office).

If permitted by the national law of a Contracting State, the owner's duties may be undertaken by a lessee or bailee in accordance with an agreement between the owner and lessee<sup>14</sup> or bailee<sup>15</sup>. The Lessee shall be responsible for the compliance of containers on lease and for any container transferred via Direct Interchange. Under the terms and conditions of GESeaco lease agreements, the lessor assumes responsibility for the examination once the container is in their control.

Containers may be examined under a periodic examination scheme (PES) or under an approved continuous examination programme (ACEP). Each owner needs to decide which regime is most suitable for his operations. Most containers are now examined under an ACEP programme. The Convention does not require all the containers operated by an owner to be examined under the same regime. However, if the country in which the owner resides does not have a statutory instrument to enable them to approve an ACEP, the container owner must either apply to another country, or operate a PES.

#### Periodic Examination Schemes (PES)

Under a periodic examination scheme a container must be first examined within five years of the date on which it was manufactured and thereafter within 30 months of the date of the last examination. The date before which a container should next be examined must be clearly marked on the Safety Approval Plate of the container or as close as practicable to it. If it is considered necessary by the examiner, this date can be less than 30 months after the date of the last examination.

The date before which a container must first be thoroughly examined or next examined under a periodic examination scheme may be indicated by a decal (adhesive label), provided that the month and year when the first or next examination of the container will be due is clearly shown in internationally recognisable words or figures on the decal on or as near the Safety Approval Plate as practicable, Decals should be coloured in accordance with the year of examination as follows:

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<sup>14</sup> A lessee is a person or organisation who has an interest in a container for a period of time specified in a lease

<sup>15</sup> A bailee is a person to whom the possession of a container is entrusted by the owner without the intention of transferring ownership, eg a truck driver.

CSC SAFETY APPROVAL			
F/BV/5934/96			
DATE MANUFACTURED	09 / 89		
IDENTIFICATION No	SCZU 49700-1		
MAXIMUM GROSS WEIGHT	24000 kg	52910 lb	
ALLOWABLE STACKING WEIGHT FOR 1.8g	92000 kg	423285 lb	
RACKING LOAD TEST VALUE	15240 kg	33600 lb	
EXAMINATION DUE DATE	09.94	02.97	08.99

Latest Examination Due Date

Above is an example of a Safety Approval Plate found on a container covered by a PES. The information is identical to that shown in 4.1 with the exception that in this picture there is the words "Examination Due Date" rather than an ACEP mark along the bottom line. The three boxes to the right of the Examination Due Date show the sequence of dates (in the format MM.YY) when the container should be inspected. The new date is added when the periodic examination is completed.

A container with the Examination Due Date in the past, as is the case in this example, would be defined as "out of date". The container found that is out of date shall be examined as soon as possible. If the container does not present a risk to life, then the container may be permitted to continue its journey to the destination, so long as this does not involve movement across a National border. However an loaded out of date container must be examined prior to being lifted.

Containers marked with "Examination Due Date" or "Next Examination Date" but also fitted with an ACEP decal shall be considered to be covered by the ACEP.

Approved Continuous Examination Programmes (ACEP)

CSC SAFETY APPROVAL	
D-HH-3133/GL 6095	
DATE MANUFACTURED	11 / 2002
IDENTIFICATION NO.	GESU 445000-0
MAXIMUM GROSS WEIGHT	34,000 KGS 74,960 LBS
ALLOW STACK. WT. FOR 1.8G	216,000 KGS 476,190 LBS
RACKING TEST LOAD VALUE	15,240 KGS 33,600 LBS
ACEP-BDA-01	

ACEP Approval identification

Under an approved continuous examination programme, a container must undergo thorough examinations in connection with a major repair, refurbishment or on-hire/off-hire interchange. Frequent routine operating inspections should also be carried out to detect any damage or deterioration that might necessitate repair or other corrective action. The thorough examinations

should be carried out in the same manner as those, carried out under a periodic examination scheme. The first thorough examination of a container under an approved continuous examination programme must be carried out within 30 months of the date on which it was manufactured. Thereafter the intervals between thorough examinations must not exceed 30 months.

A container which is examined under an approved continuous examination programme should carry a mark or decal as close as is practicable to the Safety Approval Plate. The mark or decal should show the letters ACEP and the approval identification reference of the Government that granted the approval, in the example above, ACEP-BDA-001, where BDA is the country (Bermuda) and 001 is the approval number. Where used, the decal does not have to be coloured in accordance the table shown in 5.2.2. The picture above shows GESeaco's normal and current practice of permanently marking the ACEP approval reference on the Safety Approval Plate.

Safety Approval Plates marked with an ACEP approval number are subjected to examinations in connection with a major repair, refurbishment or on-hire/off-hire interchange. In GESeaco's case, containers are thoroughly examined at the time of on-hire and so the lessor need not carry out another one examination for up to 30 months from that date. However, like all examination regimes should the container be in need of repair, the lessor then is required to undertake the thorough examination for the purpose of their Programme once the container is returned to service.

Containers covered by an ACEP do not require a Next Examination Decal and as such cannot be considered as "out of date".

## **Annex 1      Container Types**

### **1.0   Series 1 Freight Containers**

#### **1.1   General**

1.1.1 Series 1 freight containers are defined in ISO 830 as containers designed to ISO standards that are intended for intercontinental freight transport. Most containers are now built to these standards. Series 2 containers were intended to be larger containers for use in both international and domestic traffic but were found not to be necessary.

1.1.1.1 Series 1 freight containers will be 8 ft (2.438 m) wide

1.1.1.2 Series 1 freight containers will be 10 ft, 20ft , 30ft, 40 ft or 45 ft long

1.1.1.3 Series 1 freight containers will be 8 ft, 8ft 6in or 9 ft 6in high.

1.1.2 Freight containers may be general cargo containers or specific cargo containers.

#### **1.2   General Cargo Containers**

A general cargo container is any type of container that is not intended for use in air mode transport. It is primarily intended for the carriage of a particular category of cargo, such as cargo requiring temperature control, a liquid or gas cargo, dry solids in bulk, cars or livestock. General cargo containers include the following types:

1.2.1 **General purpose containers:** A general purpose container is a container which is totally enclosed and weather-proof, has a rigid roof, rigid side walls, rigid end walls at least one of which is equipped with doors, and a floor. It is intended to be suitable for the transport of cargo in the greatest possible variety. A general purpose container having an opening roof may be used for the same specific purpose as an open top container.

1.2.2 **Specific purpose containers:** A specific purpose container is one which has constructional features specifically for the purpose of facilitating packing or emptying the container other than by means of doors at one end of the container, or constructional features, for other specific purposes such as ventilation. Closed vented or ventilated containers, open top containers, platform containers and platform based containers are all types of specific purpose containers.

1.2.2.1 *Closed vented or ventilated containers:* A closed vented or ventilated container is a closed type of container similar to a general purpose container but designed to allow air exchange between its interior and the outside atmosphere. Vented containers are containers that have passive vents at the upper part of their cargo space. Most containers built now are fitted with two or more vents fitted in the front or side walls. Ventilated containers are containers which have a ventilating system designed to accelerate and increase the natural convection of the atmosphere within the container as uniformly as possible, either by non-mechanical vents at both the upper and lower parts of their cargo space, or by internal or external mechanical means. An example of the non mechanical ventilated container is the SeaVent designed for the carriage of cargoes such as coffee beans. The Fantainer built by P&O Containers is an example of the mechanical ventilated container.

1.2.2.2 *Bulk capable:* A general purpose container with the capability of carrying dry bulk cargoes. It may be fitted with one or more round or rectangular loading hatches in the roof and "cat flap" or "letter box" discharge hatches in the rear and/or front ends. This unit is tested to the requirements of ISO 1496/1.

1.2.2.3 *Open top containers:* An open top container is similar to a general purpose container in all respects except that it has no permanent rigid roof. It may have a

flexible and moveable or removable cover, e.g. of canvas, plastic or reinforced plastic material. The cover is normally supported on movable or removable roof bows. In some cases the removable roof is fabricated from steel that can be fitted or slid off the top of the open top container. Containers thus built have been known as 'solid top' containers. Open top containers may have movable or removable end transverse members (known as swinging headers) above their end doors.

1.2.2.4 *Platform containers*: A platform container is a loadable platform that has no superstructure whatsoever but is the same length and width as a container of the same series. It is equipped with top and bottom corner fittings which are located in plan view as on series 1 containers so that the same securing and lifting devices can be used.

1.2.2.5 *Platform based containers*: A platform based container is an open sided container with no side walls but has a base similar to that of a platform container. It may have a complete superstructure with a permanent fixed longitudinal load-carrying structure between the two ends at the top or it may have an incomplete superstructure without such a longitudinal structure at the top. A platform based container which incorporates a complete superstructure may have a rigid roof and rigid end walls, an open top and rigid end walls or an open top and open ends (a skeletal container). A platform based container which incorporates an incomplete superstructure may have fixed ends or folding ends. The latter are often referred to as flatracks.

### 1.3 Specific Cargo Containers

A specific cargo container is a container primarily intended for the carriage of particular categories of cargo. Specific cargo containers include the following types:

**1.3.1 Thermal containers:** A thermal container is a container that has insulating walls, doors, floor and roof. Thermal containers may be: insulated - with no device for cooling and/or heating, refrigerated - using expendable refrigerants such as ice, 'dry ice' (solid carbon dioxide), or liquefied gasses, and with no external power or fuel supply,

1.3.1.1 *mechanically refrigerated* - served by a refrigerating appliance such as a mechanical compressor unit or an absorption unit. These containers are often known as reefers,

1.3.1.2 *porthole* - refrigerated by cold air from an external source introduced through a porthole,

1.3.1.3 *heated* - served by heat-producing appliances, or,

1.3.1.4 *refrigerated and heated*.

1.3.1.5 *insulated* – a thermal container with no built in heating or refrigeration means.

**1.3.2 Tank containers:** A tank container is a container that includes two basic elements, the tank or tanks, and the framework.

**1.3.3 Dry bulk containers:** A dry bulk container is a container which consists of a cargo carrying structure for the carriage of dry solids in bulk without packaging and which is firmly secured within an ISO series 1 framework. This unit is tested against the requirements of ISO 1496/4

**1.3.4 Named cargo containers:** Named cargo types of containers are containers built in general accordance with ISO standards either solely or principally for the carriage of named cargo such as cars or livestock.



## **2.0   *Swap Bodies***

### **2.1   An item of transport equipment:**