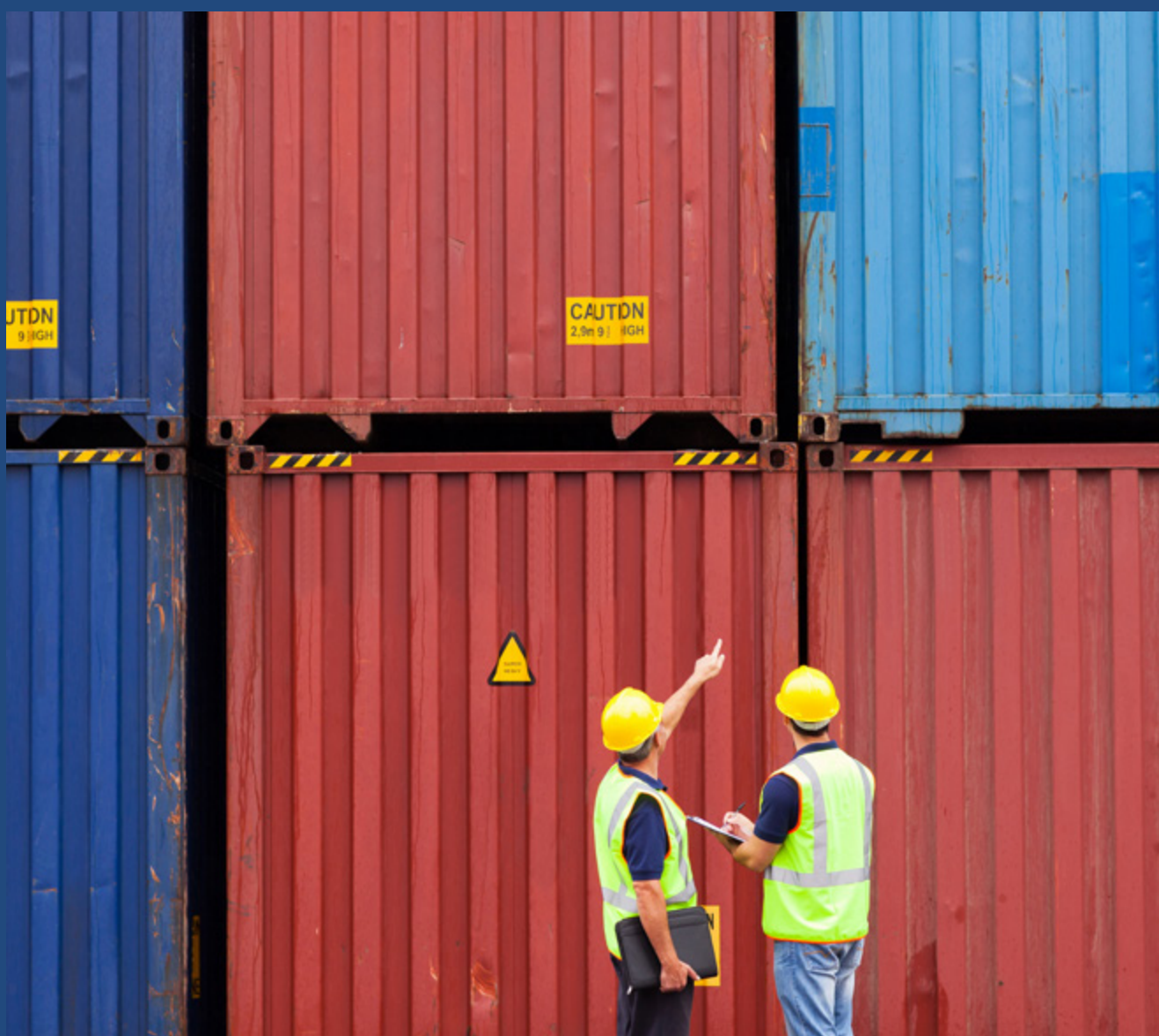


SAFE USE OF GENERAL FREIGHT CONTAINERS

ISP - ICHCA'S TECHNICAL PANEL
BRIEFING PAMPHLET #37



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Published: July 2011

ISBN Number: 978-1-85330-030-1

THE SAFE USE OF GENERAL FREIGHT CONTAINERS

1 History

- 1.1 Although wooden containers had been used for the door to door transport of goods by rail since the early years of the twentieth century, it was not until after the Second World War that the use of reusable rectangular containers for the multi modal transport of goods by sea was developed. The first purpose built container ship was built in 1951.
- 1.2 The need for the standardization of containers was soon recognised and the International Organization for Standardization (ISO) published ISO 668, its first standard for freight containers, in 1968. This defined freight container terminology, dimensions and ratings. Initially Series 1 containers were intended for international transport by sea with less robust Series 2 containers being suitable for internal domestic transport. Ultimately standards for Series 2 containers were never produced as Series 1 international containers were found to be being used for all purposes.
- 1.3 In 1967 the International Maritime Organization (IMO) agreed to carry out a study of the safety of containerisation in marine transport. A draft Convention on freight containers was prepared in co-operation with the Economic Commission for Europe (ECE). In 1972 this resulted in the adoption of the IMO Convention for Safe Containers (CSC 1972).
- 1.4 There have been many developments in connection with containerisation since 1972 and several different types of container have been developed for specialised purposes. However, the vast majority of the world fleet of some 18,000,000 containers continue to be the ubiquitous rectangular closed box general purpose containers.

2 Scope

- 2.1 This pamphlet is intended to give simple guidance for the safe use of Series 1 general purpose freight containers for the international carriage of goods by sea. References to guidance on the safe use of a number of specialist types of containers are included in the bibliography at the end of this guidance. More detailed guidance on IMO's International Convention for Safe Containers can be found in ICHCA International Safety Panel Briefing Pamphlet No. 11.
- 2.2 Although the main part of an international journey of a container may be by sea its safe use may be affected by the actions of a number of parties along the transport chain. The main parties concerned are the
 - container owner
 - consignor, shipper or freight forwarder
 - container packer
 - road and / or rail operators between the packer and the export port and the import port and final destination
 - ports that hold containers prior to and following the voyage and load and unload them to or from ships
 - recipient at the final destination that discharges the container.

3 The container

- 3.1 The CSC requires that all containers are of a design that has been approved by a contracting state to the Convention or by a body that has been authorised for the purpose by the government of such a state. The necessary approvals are usually type approvals rather than individual approvals for the design of a container. These approvals are obtained by the maker of the container.
- 3.2 All containers must be maintained in a safe condition. The CSC requires that all containers are periodically thoroughly examined in accordance with a scheme that has been prescribed or approved by the relevant contracting state to the Convention. This may be by under a Periodic Examination Scheme (PES) or an Approved Continuous Examination Program (ACEP).
- 3.3 A PES requires a thorough examination of the container to be carried out within five years of the date on which it was made and subsequently within thirty months of the date of the last thorough examination. The date before which a container must next be thoroughly examined under a PES scheme must be clearly marked on the Safety Approval Plate (commonly known as the CSC Plate) or on a decal (adhesive label) on or as close as is practicable to it. The marking must clearly show, in internationally recognisable words or figures, the month and year by which the next examination of the container must be made.
- 3.4 An ACEP requires containers to be thoroughly examined in connection with a major repair, refurbishment or on/off-hire interchange. The first such examination must be within thirty months of the date when the container was made and subsequent examinations must be within thirty months of the date of the previous thorough examination. Most containers are now periodically examined under an ACEP scheme. A container that is examined under an ACEP should carry a decal on or as close as is practicable to the CSC Plate. The decal should show the letters ACEP and the approval identification reference of the contracting state that granted the approval. Many containers have their ACEP approval reference permanently marked on their CSC Plate.
- 3.5 All CSC containers must carry a valid Safety Approval Plate in a readily visible place where it will not be easily damaged. The Plate is usually fixed to one of the doors of a container. It should be adjacent to any other approval plate issued for official purposes. All official plates may be grouped on a single base plate.
- 3.6 The Plate should be a permanent, non-corrosive, fireproof rectangular plate measuring not less than 200 mm x 100 mm and be in the format shown in figure 1.

CSC SAFETY APPROVAL	
1	(GB-L/749/2/7/75)
2	DATE MANUFACTURED
3	IDENTIFICATION No.
4	MAXIMUM GROSS WEIGHTkglb
5	ALLOWABLE STACKING WEIGHT FOR 1.8gkglb
6	RACKING TEST LOAD VALUEkglb
7	
8	
9	

>200 mm

>100 mm

Figure 1 Format of Safety Approval Plate

3.7 The plate should be headed CSC SAFETY APPROVAL in letters at least 8 mm high. All other information on the plate should be in letters or figures at least 5 mm high. The information should be in at least English or French. The following information should be included on the Safety Approval Plate:

- 1 The country of approval and the approval reference. The country of approval should be shown by means of the letters that 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. An example of an approval reference might be GB-L/749/2/7/75 where GB is the country (Great Britain and Northern Ireland), L/749 is the approval reference and 2/7/75 is the date of the approval.
- 2 The month and year of manufacture of the container.
- 3 On existing containers, the manufacturer's identification number of the container, or, if that number is unknown, the number allotted to it by the approving government. The owner's ISO alphanumeric identification code may also be used on existing containers providing a record correlating the identification number with the manufacturer's serial number is kept. Only the manufacturer's serial number should be included on the Safety Approval Plates of containers approved after 14 June 2010.
- 4 The maximum operating gross weight or mass in kg and lb.
- 5 The allowable stacking weight or mass for 1.8g in kg and lb.
- 6 The transverse racking test load value in kg and lb.
- 7 The end-wall strength of the container, unless the end-walls are designed to withstand a load of at least 0.4 times the maximum permissible payload (0.4P). For example, this may take the form: END-WALL STRENGTH 0.3P in English or RÉSISTANCE DE LA PAROI D'EXTREMITÉ 0.3P in French. This line may be left blank if the end wall can withstand a force of at least 0.4P
- 8 The sidewall strength of the container, unless the sidewalls are designed to withstand a load of at least 0.6 times the maximum permissible payload (0.6P). For example, this may take the form: SIDE-WALL STRENGTH 0.5P in English or RÉSISTANCE DE LA PAROI LATÉRALE 0.5P in French. This line may be left blank if the end wall can withstand a force of at least 0.6P

- 9 On new containers the month and year when the first periodic examination of the container will be due and subsequently the month and year when the next periodic examination will be due if the plate is used for this purpose. This will not be required if the container is examined under an ACEP scheme as indicated by a decal on or near the Safety Approval Plate.



Figure 2 Periodic Examination Scheme Safety Approval Plate



Figure 3 Approved Continuous Examination Program Safety Approval Plate

- 3.8 On every container all maximum gross weight or mass markings must be consistent with the maximum gross weight or mass information that is marked on the Safety Approval Plate.
- 3.9 ISO is currently developing classification letters and markings to identify containers that have limited stacking or racking capabilities. These will alert ship planners and those handling containers to the limitations of the individual containers.

4 Handling containers

- 4.1 Containers should be handled in accordance with ISO 3874 *Series 1 Freight containers - Handling and securing* and any relevant national and international legal requirements.
- 4.2 All persons carrying out container handling operations should be appropriately trained.
- 4.3 Particular care should be taken when handling containers in adverse weather conditions such as high winds or icy conditions.
- 4.4 The upper corner fittings and the top structure of a freight container are designed for lifting through vertically applied forces. Lifting in other directions should therefore, generally be avoided.
- 4.5 ISO 3874 allows nine specified methods of lifting containers:
 - 1 Top lift spreader
 - 2 Top lift sling
 - 3 Bottom lift sling
 - 4 Side Lift from bottom corner fittings with restraint from top corner fittings
 - 5 Side lift from top corner fittings with restraint from bottom corner fittings
 - 6 Side lift from top corner fitting with restrain only by bottom central pad
 - 7 End lift from bottom corner fittings with restraint from top corner fittings
 - 8 End lift from top corner fitting with restrain only by bottom central pad
 - 9 Fork lift.
- 4.6 All empty ISO containers may be lifted by methods 1 to 6 but only empty 20 ft and 10 ft containers may be lifted by methods 7 to 9. All loaded ISO containers may be lifted by methods 1 and 3 but only loaded 20 ft and 10 ft containers may be lifted by methods 4, 5 and 9. Lifting of loaded 20 ft and 10 ft containers by methods 2, 6, 7 and 8 is not allowed. This is summarised in the table below:

Method	Permitted Empty					Permitted Loaded				
1	45	40	30	20	10	45	40	30	20	10
2	45	40	30	20	10	None				
3	45	40	30	20	10	45	40	30	20	10
4	45	40	30	20	10				20	10
5	45	40	30	20	10				20	10
6				20	10	None				
7				20	10	None				
8				20	10	None				
9				20	10				20	10

- 4.7 Most general purpose containers are lifted by means of top lift spreaders or side lifting frames. It should be noted that lifting by four leg top lift slings is only allowed for empty containers.
- 4.8 Containers may be handled by other methods but only after careful evaluation of the proposed lifting equipment and method of lifting.

- 4.9 Particular care should be taken when handling a container that is eccentrically loaded or has a mobile centre of gravity, e.g. a container carrying a liquid bulk bag or a hanging load. Unless they have been approved and plated for such use containers should not be transported with doors open or removed.
- 4.10 Particular care should be taken when handling containers with straddle carriers. Pedestrians should be excluded from straddle carrier operation areas except for the necessary presence of truck drivers in designated areas on exchange grids.
- 4.11 Many straddle carriers have a number of blind spots that can hide other vehicles and even other straddle carriers, until they are surprisingly close. A gentle weaving motion while driving can increase the probability of drivers seeing other vehicles in their vicinity.
- 4.12 The carrying of containers at a high level should be avoided as far as is practicable as it raises the centre of gravity of the machine and lead to instability. Particular care should be taken when turning straddle carrier to ensure that they are driven at a safe speed. Excessive speed when cornering has lead to the overturning of many straddle carriers and consequential injuries.
- 4.13 Before containers are lifted from trucks by straddle carriers, rubber tyred gantries or rail mounted gantries it is essential that it is ensured that all the twistlocks on the truck have been unlocked. This is usually the responsibility of the truck driver but straddle Carrier and rubber tyred or railed gantry drivers should be alert to the possibility of an unreleased twistlock. Accidents continue to happen when one or more twistlocks have not been unlocked and a truck is lifted with a container and then falls back to the ground. A number of systems are being developed to detect such situations and stop lifting after a short distance. Information on three such systems is included in ICHCA International Research Paper No 13 *Lifting of Containers by Rubber Tyred Gantry Cranes*.
- 4.14 It is essential that twistlocks securing containers on road and rail vehicles are securely locked before a journey begins. For road vehicles this is the responsibility of the driver of the vehicle. However, a container may be moved unsecured within terminals at slow speeds on a specially constructed chassis that prevents accidental displacement of the container.

5 The owner

- 5.1 The owner of a container has the prime responsibility to ensure that it is of good construction and is maintained so as to be fit for purpose.
- 5.2 The owner must ensure that the container is of an approved design and is thoroughly examined at the required intervals under a PES or ACEP periodic examination scheme.
- 5.3 If it is permitted by national law, the owner's duties may be undertaken by a lessee or bailee in accordance with an agreement between the owner and a lessee or bailee. A lessee is a person who has an interest in a container for a period of time specified in a lease. A bailee is a person to whom the possession of a container is entrusted by the owner without the intention of transferring ownership, e.g. a truck driver.

6 The consignor, freight forwarder and consolidator

- 6.1 The consignor or shipper of a container is any person or organisation that prepares a consignment for transport. The consignor may or may not be the owner of the goods or the person that packs them in container. The consignor is responsible for making arrangements for the container to be carried to a port for shipment.
- 6.2 If the consignment includes dangerous goods, the consignor is responsible for providing the necessary information on the dangerous goods to the packer and others along the transport chain, including the master or owner of a ship that is to carry the dangerous goods..
- 6.3 The freight forwarder may fulfil a number of different roles in the transport chain, primarily as the agent of the owner of the goods. The freight forwarder may also be a consignor, packer, domestic carrier or, if goods are brought together from different sources to be packed into a container for onward transport, a consolidator. Ports are effectively consolidators receiving and holding a number of containers to go to or from individual ships.
- 6.4 The freight forwarder should follow the advice elsewhere in this guidance that relates to the various roles that he is carrying out.

7 The Packer

- 7.1 The packer has control of many of the factors that lead to the safe transport of a container. Consequently, in many ways the packer is the most important person in the transport chain. Once the doors of the container are closed, no one will see inside it until it reaches its destination.
- 7.2 The packer should check that the container is fit for purpose by ensuring that it has a valid Safety Approval Plate, is without significant structural deficiencies, and is dry, clean and ready for loading with cargo.. Unless the container is to complete its journey on a trailer or be carried on a ship on a chassis, e.g. on a short sea ro-ro crossing, it is recommended that the container should be an ISO Series 1 container with an allowable stacking weight of 192,000 kg. However, even if a container has a valid Safety Approval Plate, it should be appreciated that the container could have deteriorated or been damaged since it was last thoroughly examined. Therefore, the container should be visually checked for any damage that may make it unfit for service. It should also be checked that the markings of the maximum gross load on the container are consistent with those marked on its Safety Approval Plate and that the cargo to be loaded will not cause this rating to be exceeded.
- 7.3 If a container is found to have a serious structural deficiency in any of its structurally sensitive components it should immediately be rejected. Criteria for determining what deficiencies are serious structural deficiencies have been developed by IMO and are in the Appendix. However, it should be stressed that these are criteria for the use of Control Officers authorised under CSC to make immediate out-of-service determinations. Less serious structural deficiencies could become more serious during a journey and lead to the container becoming unsafe and so be unsuitable to be packed. Persons visually examining containers should be appropriately trained to be competent to assess the significant of any defects they may see.

- 7.4 Not all apparently serious damage to a container will be structurally significant and create a significant risk to safety. Some damage, such as holes in sides, may infringe customs requirements or be liable to lead to damage of cargo but not be structurally significant.
- 7.5 The container should be checked to ensure that it is suitable for the load to be shipped in it. It should also be free from residues of any previous cargo and any placards or marks relating to such a cargo should have been removed. The interior of the container should be clean and dry.
- 7.6 Packages of cargo should be in good condition and capable of withstanding the ordinary stresses of transport along the transport chain, including the stresses at sea.
- 7.7 The cargo should be distributed in the container as evenly as practicable. Not more than 60% of the weight of the cargo should be in one half of the length of the container. In general the cargo should not put a load into the container's floor that exceeds 2500 lbs per linear foot (3720 kg per linear metre) of the container.
- 7.8 The centre of gravity of the loaded container should be as low as is practical. Hanging loads, particularly of meat, have caused many trailers carrying containers to overturn on corners or roundabouts on roads.
- 7.9 The cargo should be secured and braced to prevent it moving during transport. The forces to which cargo can be subjected during severe weather at sea are not appreciated by many. The fact that an item of cargo is heavy will not prevent it moving in such circumstances and it is essential that all cargo is prevented from moving inside a container.
- 7.10 Guidance on the safe packing of containers has been published by IMO in cooperation with the International Labour Office (ILO) and the United Nations Economic Commission for Europe (UN ECE). Additional guidance on safe packing is also available from many shipping companies and in ICHCA International's Briefing Pamphlet No. 21, *Stow It Right!*
- 7.11 If the cargo is to include packaged dangerous goods, it must be packed in accordance with the IMO International Dangerous Goods (IMDG) Code. The Code now requires that most shore side persons involved with dangerous goods for carriage by sea are trained in the relevant requirements of the Code.
- 7.12 When packaged dangerous goods are to be loaded, the consignor must describe them on a dangerous goods transport document.
- 7.13 The packer must ensure that all packagings that are used for dangerous goods have been UN tested and are in good condition. Any packages that are damaged, stained or leaking should be rejected and advice sought.
- 7.14 Persons responsible for the packing of dangerous goods in a container must provide a container packing certificate specifying the container identification number and certifying that:
 - the container was clean, dry and apparently fit to receive the goods
 - packages of dangerous goods have been segregated in accordance with the IMDG Code

- packages have been externally inspected and found to be sound
- drums have been stored upright unless otherwise authorised by the competent authority
- all goods have been properly packed and where necessary adequately secured and braced
- goods loaded in bulk are evenly distributed within the container
- the container and packages in it are properly marked, labelled and placarded as required by the IMDG Code
- a dangerous goods transport document has been received for each dangerous goods consignment loaded in the container.

7.15 Additional requirements relate to containers carrying certain explosives and in which solid carbon dioxide ('dry ice') is used for cooling purposes.

7.16 The dangerous goods transport document and the container packing certificate can be combined on one form. The use of IMO's multimodal dangerous goods form is not mandatory but is internationally recognised and its use is strongly recommended. It should be noted that this form requires separate signatures relating the dangerous good declaration and the container packing sections of the form. However, these may be signed by the same person when this is appropriate.

8 The intermodal carrier

- 8.1 Containers being transported by road or rail between the packer and the loading port or between the discharge port and their destination should be conveyed in accordance with the relevant national and international road and rail transport legislation.
- 8.2 Information on the nature of the goods being carried by the vehicle should be available and where appropriate the vehicle should carry the relevant hazard markings to alert emergency authorities in the event of an incident.

9 The port

- 9.1 Ports have the temporary custody of containers going to or from individual ships and are responsible for the safe storage and handling of the containers during that time.
- 9.2 Ports should ensure that containers are accompanied by any necessary documentation that is required by national or international law and that is checked as necessary. In many cases such information may be transmitted electronically.
- 9.3 Ports should ensure that all containers are stored safely and securely while in the port before or after transport by sea.
- 9.4 When containers are stacked on the ground in terminals it is essential that the bottom corner fittings of containers are positioned immediately above the top corner fittings of the container below.
- 9.5 Whenever practicable containers should be stacked on terminals so that their

longitudinal axis is in line with the prevailing wind direction. In the event of a storm warning the need for precautions, such as securing containers at the corners of blocks should be considered when wind speeds reach 15 m/s.

- 9.6 Many accidents have resulted from container carrying vehicles and container handling plant coming into contact with people on terminals. It is essential that people are separated from such equipment. During normal operations all pedestrians should be prohibited from container parks. Particular attention should be paid to the need for safe access to stacks of refrigerated containers. This should preferably be from outside the operating area.
- 9.7 Containers holding dangerous goods should be segregated, when necessary, in accordance with national legislation. In many ports this is on the basis of the segregation requirements in the IMDG Code.
- 9.8 In many cases the planning of the stowage of containers on board ships is carried out by shore side personnel in ports.
- 9.9 Ship planners should ensure that no container on a ship is subjected to a stacking weight in excess of the value on its Safety Approval Plate. For Series 1 freight containers this is normally 192,000 kg. This would allow eight fully loaded 20 ft containers or six fully loaded 40ft container to be stacked above a similar container. Containers with lower allowable stacking weights should accordingly be stowed higher in a stack, preferably at the top of a stack.
- 9.10 The lashing and unlashings of containers on board ships is usually carried out by port personnel.
- 9.12 Cargo, including containers, should be stowed on board a ship as specified in the ship's cargo securing manual. Containers should be secured in accordance with the IMO Code of Safe Practice for Cargo Stowage and Securing (the CSS Code). Annex 14 of the CSS Code gives guidance on providing safe working conditions for securing containers on deck.
- 9.13 Container lashing equipment in general, and lashing bars in particular are heavy and unwieldy to handle. Further guidance on the provisions for lashing containers is in BP 35 *Safe Lashing of Deck Containers*.
- 9.14 Whenever possible the lashing of containers should be carried out from safe positions on the decks of ships or from lashing platforms. The introduction and use of semi automatic twistlocks has greatly reduced the need for persons to go onto the tops of containers as part of lashing or unlashings operations but has not eliminated it. Guidance on safe methods of working when such access remain necessary is in BP 34 *Container Top Safety*.
- 9.15 Care should be taken If it is found to be necessary to open containers at a port (see section 11). This might be for customs purposes.

10 The ship

- 10.1 The ship owner or master must be provided with information on the cargo to be carried as appropriate. In the case of packaged dangerous goods this may be by submission of the necessary information on IMO multimodal dangerous goods forms.

- 10.2 All containers on board the ship are required to be secured in accordance with the ship's cargo securing manual. Containers of packaged dangerous goods must be stowed and segregated in accordance with the IMDG Code.
- 10.3 The correct stowage of cargo is the responsibility of the Master of the ship but is often delegated to the First Officer. When stowage plans are being agreed with ship planners particular care should be paid to the positioning of any containers with limited stacking or racking capabilities

11 The recipient

- 11.1 Care should be taken when opening containers at their destination.
- 11.2 Many people have been injured by inadequately secured cargo falling onto them when they were opening a door of a container. Doors should be opened under control. A simple way is by securing a short sling with a spring-gate karabiner around the locking bars of the doors. If the doors are under pressure they will only be able to open a short distance. They can then be able to be opened under control by a lift truck or other restraint after the sling has been removed. If the doors are not under pressure, the sling can be removed immediately.
- 11.3 A container should not be entered until it has been confirmed that it is safe to enter. In addition to the hazards of falling cargo, the atmosphere in the container, particularly at the rear end may be hazardous. This may be
- toxic gasses or vapours from the cargo. These may be from the cargo itself or decomposition products from the cargo
 - fumigant gasses or residues of fumigants
 - lack of oxygen. This may also be caused by decomposition of the cargo.
- 11.4 When necessary the container should be thoroughly ventilated until it can be confirmed that it is safe for entry. Effective ventilation may be obstructed by the cargo configuration and further ventilation may be necessary before it is safe to access the end of the container, that is remote from the door.
- 11.5 After discharge all cargo residues should be removed from the container so that it is in a clean, dry condition and any hazardous goods placards should be removed.

12 Fumigation of containers

- 12.1 Some containers may be fumigated. Whilst this may be carried out before the container is shipped and the container is thoroughly ventilated before shipping, some containers may be shipped under fumigation. In such cases the container should be marked with the IMDG Code fumigation warning sign. This should include the name of the fumigant and the date of fumigation. Once the container has been thoroughly ventilated and confirmed to be safe for future entry, the fumigation marks should be removed.
- 12.2 Despite the absence of a fumigation mark it cannot be assumed that a container does not contain fumigant. Particular care should be taken if fumigant

residues are found and further testing may well be necessary.

13 One door off / one door open containers

- 13.1 Some containers are operated after being modified by having one door removed for the carriage of certain cargoes. This is a structural change that is considered to be a modification that may affect the safety of the container. As such it requires specific approval of the government or authorised organisation that approved the design of the container and appropriate markings on the Safety Approval Plate. The government or authorised organisation may require further testing to determine permissible stacking and racking limits.
- 13.2 Containers that have been so modified should retain the original date of manufacture on their Safety Approval Plate and add the date on which the modification was carried out on an additional line. The safety Approval plate must remain on the container after the door has been removed, preferably on the door that remains. Containers approved for operation with one door off should have their Safety Approval Plate marked to show ALLOWABLE STACKING MASS FOR 1.8 g (kg and lbs) ONE DOOR OFF and RACKING TEST LOAD VALUE (kg and lbs) ONE DOOR OFF.

ONE DOOR - OFF CONTAINER	
ALLOWABLE STACKING WEIGHT FOR 1.8g	<input style="width: 50px;" type="text"/> kg <input style="width: 50px;" type="text"/> lb
RACKING TEST LOAD VALUE	<input style="width: 50px;" type="text"/> kg <input style="width: 50px;" type="text"/> lb

Figure 4 Additional 'One Door-off' Approval Plate

CSC SAFETY APPROVAL	
APPROVAL REFERENCE	/
DATE MANUFACTURED	<input style="width: 50px;" type="text"/>
IDENTIFICATION NO.	<input style="width: 100px;" type="text"/>
MAXIMUM GROSS WEIGHT	<input style="width: 50px;" type="text"/> kg <input style="width: 50px;" type="text"/> lb
ALLOWABLE STACKING WEIGHT FOR 1.8 g	<input style="width: 50px;" type="text"/> kg <input style="width: 50px;" type="text"/> lb
RACKING TEST LOAD VALUE	<input style="width: 50px;" type="text"/> kg <input style="width: 50px;" type="text"/> lb
NEXT EXAMINATION DATE <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	
ONE DOOR-OFF OPERATION	
ALLOWABLE STACKING WEIGHT FOR 1.8 g	<input style="width: 50px;" type="text"/> kg <input style="width: 50px;" type="text"/> lb
RACKING TEST LOAD VALUE	<input style="width: 50px;" type="text"/> kg <input style="width: 50px;" type="text"/> lb

Figure 5 Combined PES and 'One door off' Safety Approval Plate

- 13.3 In 2003 the International Association of Classification Societies published IACS Recommendation No. 80 as guidance to facilitate any necessary further

approval of 'one door off' containers. This includes the fitting of an additional 'ONE DOOR-OFF OPERATION' approval plate giving the relevant modified allowable stacking weight and racking test load value. This plate should be affixed as close as practicable to the CSC Safety Approval Plate. Alternatively the additional information may be included in a consolidated Safety Approval Plate.

- 13.4 The operation of a container with one door open imposes the same forces on the container as operating it with one door off. Therefore, any container that is to be operated with one door open should carry a valid one door off operation approval plate..

14 One trip containers

- 14.1 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. The Safety Approval Plate on the container should be removed when the container has been withdrawn from service and is no longer being maintained in accordance with the Convention

15 Offshore containers

- 15.1 The CSC does not apply to offshore containers that are handled in open seas. However, guidelines on such containers are contained in the Annex to IMO's MSC Circular 860.
- 15.2 It should be particularly noted that the approval plate on an offshore container should be clearly marked "Offshore Container" and that inspection plates on such containers commonly show the date of the last inspection of the container, unlike Safety Approval Plates on containers subject to 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, the date when the next examination is due.
- 15.3 Offshore containers designed for repeated use offshore are often purpose built for special cargoes. They include closed dry cargo units. The gross weight and sizes of offshore containers are not standardised. Many offshore containers have a smaller base area than the 7m² limit in the CSC definition of a container.

Appendix. Serious structural deficiencies of containers

Structurally sensitive component	Serious structural deficiency
Top rail	Local deformation to the rail in excess of 60 mm or separation or cracks or tears in the rail material in excess of 45 mm in length. Note: On some designs of tank containers the top rail is not a structurally significant component.
Bottom rail	Local deformation perpendicular to the rail in excess of 100 mm or separation or cracks or tears in the rail material in excess of 75 mm in length.
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 post	Local deformation to the post exceeding 50 mm or tears or cracks in excess of 50 mm in length.
Corner and intermediate fitting (Casting)	Any missing corner or intermediate fitting. 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 in excess of 5 mm from its original plane. Any aperture width greater than 66.0 mm. Any aperture length greater than 127.0 mm. Any reduction of thickness of the plate containing the top aperture to less than 23.0 mm. Any weld separation of adjoining components in excess of 50 mm in length
Understructure	Two or more adjacent cross members missing or detached from the bottom rails. 20% or more of the total number of cross members missing or detached. Note: If onward transportation is permitted, it is essential that that any detached cross members are precluded from falling free.
Locking rod	A locking rods that is non functional. Note: Some containers are designed and approved (and so recorded on the CSC Plate) to operate with one door open or removed.

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After obtaining a degree in chemical engineering at Imperial College in London, John Alexander joined HM Factory Inspectorate in 1957. He worked for the Inspectorate and the Health and Safety Executive in England and Scotland until 1995. For the last eight of those years he had a national responsibility for matters relating to the inspection of docks and inland waterways.

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