

# STANDARD CARGO

SETTING THE STANDARD FOR SERVICE AND SECURITY



**Chris Spencer:** Director of Loss Prevention  
**Telephone:** +44 20 3320 8807  
**E-mail:** [chris.spencer@ctcplc.com](mailto:chris.spencer@ctcplc.com)

## GENERAL CARGO ON CELLULAR CONTAINER SHIPS

### INTRODUCTION

Questions about the carriage of general cargo (steel pipes, plates, coils, project cargo, paper pulp, etc.) on ships classed as container ships have been raised by several of the club's members. Their questions include whether P&I cargo cover continues as normal. At first sight, the issue would not appear to be too complex; however, there are sometimes some important issues to consider. This edition of *Standard Cargo* sets out the steps that the club as a third-party liability insurer believes the shipowner should consider before carrying general cargo on a container ship.

There are various reasons why owners of container ships may want to load cargo on a ship for which it is not classed or designed. The reasons could be economic, as an owner may receive a better rate for the carriage of break bulk cargo on a container ship, or to reposition the ship.

### CONTAINER SHIPS AND GENERAL CARGO SHIPS – THE DIFFERENCE

The principal difference between a general cargo ship and a container ship lies in ship design. Container ships are designed on the assumption that cargo is carried in containers and loaded in such a way as to subject the ship's tank top or hatch covers to point loading. The design of a general cargo ship or bulk carrier assumes continuous tank top loading. Consequently, the structural design of a container ship's tank top and hatch covers are fundamentally different to that of a general cargo ship or bulk carrier. Classification societies accept that the hatch cover arrangements can be different for container ships as opposed to general cargo ships. Different structural concerns have been considered for each different type of ship at the design and build stage.

### Key issues:

- \_ ISM code and flag compliance
- \_ Class designation
- \_ Hatch cover weathertightness
- \_ Securing manual
- \_ Cargo lashings
- \_ Securing points
- \_ Ship's stability
- \_ Stowage suitability
- \_ Tank top loading
- \_ Dunnage
- \_ Crew experience
- \_ Ventilation
- \_ Instructions and procedures
- \_ Risk assessment

√ A container ship can be suitable to carry general cargo





^Steel rails and plate loaded into a cellular container ship

The carriage of break bulk or project cargo on a flat rack or in an open container poses no problem as these would be considered to be containers. The occasional break bulk parcel or item of project cargo that is not susceptible to water damage, so long as it is being carried in compliance with flag and class rules, is also not a problem. However the club would recommend that if any cargo susceptible to water damage is to be carried, the ship should carry out a watertight hatch cover test prior to loading.

## ISM CODE AND FLAG COMPLIANCE

### Club rule

Club rule 15.1 (5) states that the ship must comply with the ship's Flag State requirements and maintain the validity of statutory certificates, including those in respect of the ISM Code.

The ISM Code requires that the ship has a valid Safety Management Certificate (SMC) and that the company has a valid Document of Compliance (DOC). The DOC states what ship type the company is approved to operate; the ISM safety management system is audited against operating the particular ship type/s. The ISM Code requires the company to address critical operations, and the loading and carriage of cargo are considered critical operations. Therefore instructions, procedures and guidance notes are necessary for the cargo carried onboard.

A number of administrations have penalised companies following major incidents for not having specific operations manuals for specific ships. In any event from a practical and common-sense level, it would be expected that procedures and instructions to be available to the master.

If a ship did not have an appropriate cargo-securing manual, a suitable ship's stability book and relevant procedures and guidelines, the ISM Code would not be complied with.

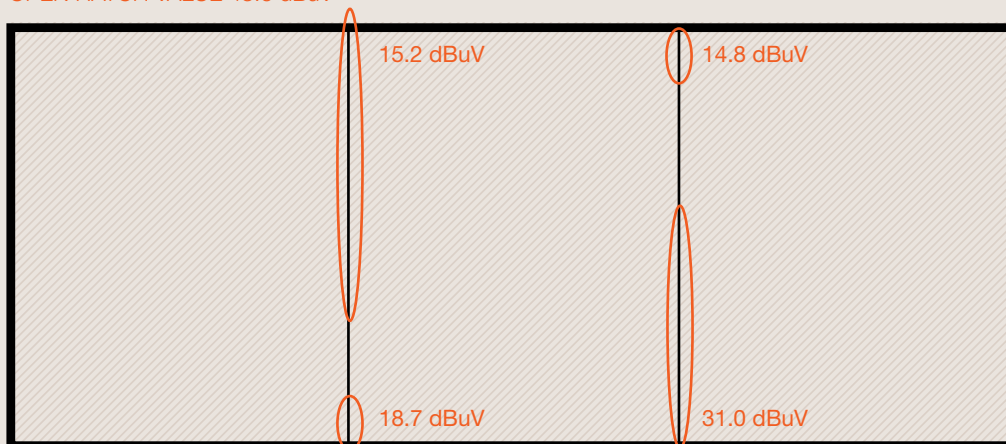
The ISM Code states in Section 7 – Shipboard operations that: *"The Company should establish procedures, plans and instructions, including checklists as appropriate for key shipboard operations concerning the safety of the personnel, ship and protection of the environment. The various tasks involved should be defined and assigned to qualified personnel."*

The ISM Code refers to special and critical operations. The carriage of cargo such as steel or project cargo would fall into either category particularly in relation to cargo shift (securing) and/or stability. For example, special instructions would be required in relation to a steel cargo before the onset of and during heavy weather. The shifting of steel coil or plate is more likely than container shift in heavy weather.

The issue of the ISM requirements may be complex in the situation where the class designation of the ship has changed and there may be different interpretations as to what is required. However, it would be safe to assume that for one voyage only, where general cargo is loaded on a cellular container ship, the following would have to be complied with:

- \_ Flag State approval or Class approval on behalf of Flag State
- \_ Class approval
- \_ instructions and procedures issued to the master in respect of cargo care
- \_ Class/Flag dispensations may be given in respect of:
  - \_ Cargo Securing Manual
  - \_ stability book/stability requirements
  - \_ hatch cover suitability in compliance with loadline regulations

OPEN HATCH VALUE 43.6 dBuV



Typical ultrasonic hatch test on a cellular container-type pontoon lid; note the areas marked between the individual lids where the results have exceeded the 10% acceptable value. These areas will allow ingress of water in heavy weather.



^Surveyors taking ultrasonic readings on hatch covers

#### ISM COMPLIANCE

In a situation where the loading of general cargo in the container ship is a 'one-off', ISM compliance may be satisfied by an acknowledgement from Flag or Class on behalf of the Flag State to confirm that the ISM manuals/procedures have been reviewed and found acceptable. However, other requirements may be stipulated.

In the case of a container ship going on time charter for a significant period of time, the position would require a more permanent approach and the following would be the minimum requirement:

- \_ Flag approval or Class approval on behalf of Flag
- \_ Cargo-Securing Manual (SOLAS)
- \_ stability book reviewed/approved by Flag (or Class on behalf of Flag)
- \_ Class approval in respect of tank top loading
- \_ Class approval of cargo hatch cover arrangements
- \_ Flag (and/or Class) approval in respect of ISM compliance, if appropriate

ISM Code compliance may require a 'mini audit' or review that the company and ship has the appropriate procedures, documentation and experience in place. The level of audit required would be a decision for Flag (and/or Class on behalf of Flag).

#### CLASS DESIGNATION

##### Club rule

Club rule 15.1 (1) requires, as a condition of insurance, that every ship must be and remain fully classed by a classification society approved by the managers.

Container ships can be classed as container carriers, container ships or container/general cargo ships. Each classification reflects different operational conditions or arrangements on the ship. For example, a container ship is likely to load cargo in closed containers carried below deck slotted into cell guides, while a container carrier may utilise a system of guides and buttresses. It is important to understand what is behind the actual classification. It is likely that all three classifications are made on the basis of cargo carried in closed boxes with point loading on the ship's tank top.

**IT IS RECOMMENDED THAT THE SHIP'S CLASSIFICATION SOCIETY APPROVES THE SHIP FOR ONE VOYAGE (A LETTER OF DISPENSATION) OR RECLASSIFIES THE SHIP AS A GENERAL CARGO SHIP (OR SIMILAR) BEFORE A CONTAINER SHIP IS LOADED WITH GENERAL OR BREAK BULK CARGO.**

This process could involve ship modification, and classification societies are likely to examine a number of issues as outlined in this bulletin.

**FOR A SHIP ENGAGED ON A LONG-TERM CHARTER, IT IS RECOMMENDED THAT CLASS BE APPROACHED TO HAVE THE SHIP RECLASSIFIED AS A SHIP SUITABLE TO CARRY THE INTENDED CARGO; THIS MIGHT REQUIRE RECLASSIFYING THE SHIP AS A GENERAL CARGO SHIP/CONTAINER SHIP OR COMBINATION CARRIER AS CLASS FOUND APPROPRIATE. THIS WOULD INVOLVE HAVING CARGO SECURING MANUAL AND STABILITY BOOKS REISSUED/ ENDORSED AND IMPLEMENTING POSSIBLE ISM AUDITS.**

Class may consider that it is not possible to reclassify some container ships due to the type of hatch covers fitted. Therefore these ships would not be suitable for carriage of water-sensitive general cargo.

Typical letter of approval from Class for a container ship to carry general cargo for one voyage only may look like this:

*"For this container ship the XXX classification society does accept for one single voyage also the transport of break bulk cargo on the inner bottom of the cargo holds in accordance with Class Rules XXX.*

*When carrying break bulk the maximum permissible uniformly distributed load on the weather deck hatch covers and the maximum permissible uniformly distributed load on the tank top may not be exceeded. For the maximum permissible uniformly distributed load on the weather deck and tank tops refer to ship's technical files.*

*The maximum permissible stowage of break bulk is two container heights.*

*The ship's stability for the specified intended voyage has to be sufficient and the respective loaded departure/arrival stability condition shall be sent to the Class society after each port.*

*The master shall ensure that the hatch covers will be efficiently sealed for the intended cargo.*

*The cargo securing measures have to be appropriate for the intended cargo and shall be in accordance the Code of Safe Practice for Cargo Stowage and Securing/IMO res A.714 (17)."*

**IF A DISPENSATION LETTER FROM CLASS WAS ISSUED THIS WOULD NOT NECESSARILY MEAN THAT THE HATCH COVERS WERE SUITABLE FOR THE CARRIAGE OF GENERAL CARGOES AND THE CLUB WOULD RECOMMEND THAT THE HATCH COVERS WILL NEED AN ULTRASONIC TEST OR A HOSE TEST IF AN ULTRASONIC TEST IS NOT POSSIBLE.**

#### **HATCH COVER WEATHERTIGHTNESS**

Container ships are generally fitted with lift-on/lift-off hatch cover pontoons that are designed for flexibility. Less importance is given to weathertightness on container ships than on bulk or general cargo ships. As a result, hatch covers on modern container ships may not have compression bars, gaskets and double drainage channels. Very often, the only compression to the hatch cover rubbers on a container ship pontoon lid is on the sides of the lids where they land on the hatch coaming. At the edges where the hatch cover pontoons adjoin the adjacent lid, there is no interlocking compression. Instead, they could be fitted with protruding gaskets, Omega seals or flap arrangements. There are two types of Omega seal in common use: inflatable seals and solid domed rubber seals (known as Omega-lites), which compress against the vertical face of adjacent pontoons. General cargo ships are fitted with hatch covers designed to prevent water from entering the cargo hold and are likely to be fitted with gaskets, compression bars, a double drainage system, landing pads and cleats.

The club's experience has been that container ship hatch covers are unlikely to be weathertight, that Omega seals are easily damaged during the lifting on or off of pontoon covers and that poor compression will result in water entering the cargo hold. Wet damage is a significant cause of cargo damage claims, particularly to finished steel, wood pulp or other water-sensitive cargo.

Ultrasonic gauge reading





^ Damaged container ship hatch corner rubbers would allow water ingress



^ Hatch cover longitudinal joints such as these would have to be in good condition to prevent water ingress



^ Damaged hatch cover edges would allow water ingress – sufficient to cause water damage to water-sensitive cargo



^ Damaged packing rubber seals



^ Damaged packing channels and seals – sufficient to allow water ingress



^ Damaged channel bars – potentially allowing water ingress



^ View of area where CAT seal acts on the coaming table

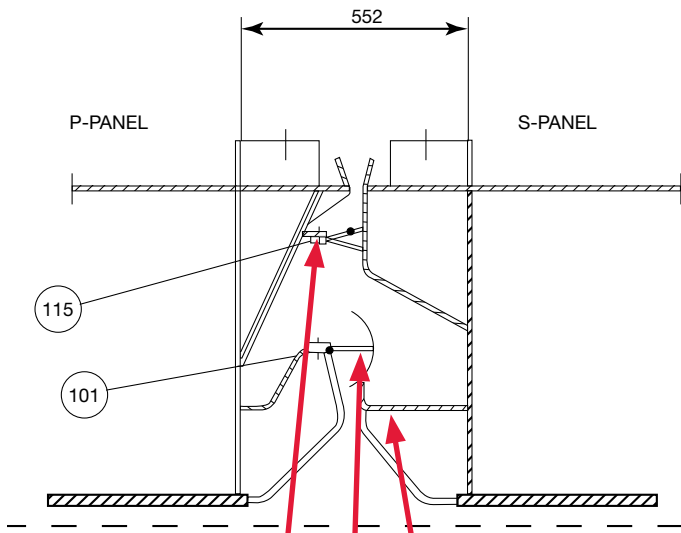


^ This sealing arrangement may be acceptable to Class; however, when subjected to an ultrasound test, it is likely to fail and therefore it is not recommended by the club for water-sensitive cargo. The only seal is a rubber seal/flap and a drain channel



^ A damaged seal, which will allow water ingress

If the flaps or the drain channel lip is damaged, the weathertightness will be impaired. As noted previously, Class may consider these types of hatches to be unsuitable for a general cargo ship notation



^ This picture and diagram shows a pontoon hatch cover arrangement that would most likely fail an ultrasound hatch cover test. Even with foam and tape, this arrangement is likely to allow water ingress into a hold sufficient to damage water-sensitive cargo when the ship is experiencing heavy weather



^ The use of foam is not a primary means of preventing water ingress  
 v





**WHEN CARRYING WATER-SENSITIVE CARGO, THE HATCH COVERS SHOULD BE SECURED AND WEATHERTIGHT SUFFICIENTLY TO PASS AN ULTRASOUND TEST (OR A HOSE TEST).**

The ultrasonic hatch cover test would have to be carried out before any 'ram-nek' or equivalent tape was applied and/or any 'foam' used as additional protection against water ingress.

Experience shows that tape and/or foam are not sufficiently robust to be a primary means of preventing water ingress. However, it can be an additional precaution as a secondary barrier.

^  
v The use of tape is not a primary means of preventing water ingress



^ The use of foam and tape is not a primary means of preventing water ingress





^ This ship may be suitable to stow the cargo



^ Pipes stowed correctly



^ This container hold may be suitable for general cargo. It would depend on the cargo and the hatch cover condition

The fact that the ship is trading with a high freeboard and in benign waters is also not a justification alone for the carriage of general cargo on container ships. Heavy spray and/or heavy driving rain are able to penetrate container ship hatch lids at the cover joints, particularly when the ship is moving in a seaway. Unexpected heavy weather has also led to claims. It is prudent to ensure that weather routing is considered for certain voyages, particularly areas where deep depressions, cyclones, typhoons and hurricanes are prevalent.

The hatch covers for general and bulk carriers have compression bars and rubber jointing that is compressed by the weight of the hatch lids and compression cleats or wedges. These lids when in a good condition and dogged down properly will prevent water ingress into the holds.

#### SECURING MANUAL

The Cargo Securing Manual for a cellular container ship will not be fit for purpose for a ship carrying general cargo. A new or revised Cargo Securing Manual should be submitted by owners to Class for approval. It is a Flag State requirement that the ship is issued with a Cargo Securing Manual in accordance with SOLAS Reg 5, Ch VI/VII. The manual should be in accordance with the provisions as described in IMO circ 745.

#### CARGO LASHINGS

A cellular container ship would not normally be provided with cargo lashings suitable for general cargo. The normal container lashings are not suitable for the majority of general or project cargo. Additional pad-eyes and D rings may have to be welded into position. D rings with adequate strength that fit into ISO sockets are available. Cell guides and their brackets are not designed to have lashings affixed to them.

Appropriate cargo-lashing material should be provided with safe working loads and in good condition.

#### SECURING POINTS

Securing points should be:

- \_ fit for purpose (that is, not container recess points)
- \_ welded to suitable secure strong positions (hot work permits required)
- \_ welded using professional welders
- \_ checked by non-destructive testing (NDT) to ensure welds are of good quality
- \_ approved by Class



^Consider the tank top loading and stability. Tank top loading strengths should always be complied with



^Loading pipes into container ship



^Dunnage used should be adequate depth

### SHIP'S STABILITY

If the ship is to be used for a purpose for which it was not designed or classed, the ship's stability book/information should be reapproved by Flag or Class on behalf of Flag.

If the ship is to be used for one voyage only, a dispensation can be sought from Class; but its views and requirements would depend upon the circumstances. It may be that the dispensation will be in the form of a letter which may or may not demand compliance with certain requirements. For example, Class may require that the company submit to Class a departure and arrival stability condition for its approval.

If, for example, the ship was to load a significant amount of heavy steel plate or coil on the tank top and combine the load with containers on deck, Class must be approached and approval sought. The very different loading and hence rolling characteristics may have an adverse impact on deck-loaded containers.

### STOWAGE SUITABILITY

Stowage suitability is also an issue which owners need to think about even if Class and Flag may consider this to be of less significance. The proximity of the cell guides and the container fittings on the tank top are all possible causes of physical damage to the cargo during loading/discharging or whilst stowed.

Cell guides and container fittings may become damaged as a result of carrying non-container cargo.

The use of good dunnage of an appropriate size to raise the stow off the tank top would be necessary. The issue of protection from the cell guides for the stowage of pulp cargo for example would need to be addressed.

### TANK TOP LOADING

Container ships are designed to take point loadings at the hatch shoes or twist-lock fittings. These loads may be completely different and inadequate for loading heavy cargo. For example, 25 mt steel coils or ingots have considerable point loading weights.

The maximum allowable tank top weight per square metre must not be exceeded in any circumstance. Class should be consulted for advice if necessary.

### DUNNAGE

Ample dunnage needs to be utilised throughout as necessary. Not only does dunnage need to be placed on the tank top to prevent physical damage from the container fittings, but dunnage also needs to be used for 'chocking off' or 'squaring off' cargo by means of wedges and braces.

Use suitable dunnage that is strong enough and of suitable height.



^ Use of ample dunnage protects the cargo



^ Dunnage keeping the cargo clear of tank top obstructions



^ Officers should be aware of the ventilation requirements of the cargo

### CREW EXPERIENCE

**NOTWITHSTANDING THE REQUIREMENTS OF FLAG TO COMPLY WITH THE ISM CODE, THE MEMBER SHOULD HAVE IN PLACE PROVISIONS TO PROVE THE CREW ARE EXPERIENCED AND TRAINED, AND THAT ADEQUATE INSTRUCTIONS AND PROCEDURES FOR THE CREW IN RESPECT TO THE LOADING/CARRIAGE OF THE CARGO ARE IN PLACE.**

**FOR TIME-CHARTERED SHIPS, THE MEMBER SHOULD CONSIDER THE EXPERIENCE NECESSARY TO OPERATE THE SHIP SAFELY BEARING IN MIND THE TYPE OF CARGO TO BE CARRIED. A GUIDE COULD BE THAT THE COMBINED GENERAL CARGO SEA SERVICE OF THE MASTER AND CHIEF OFFICER IS AT LEAST THREE YEARS. THIS REQUIREMENT WOULD BE BASED ON THE EXPERIENCE OF THE MEMBER IN THE TRADE BEING CONSIDERED.**

**THE MEMBER COULD CONSIDER PROVIDING AN EXPERIENCED 'SUPERCARGO' TO OVERSEE THE LOADING (AND DISCHARGING) AND THIS COULD OFFSET THE LACK OF EXPERIENCED GENERAL CARGO PERSONNEL ONBOARD. INSTRUCTIONS ON THE CARRIAGE OF THE CARGO WOULD, NEVERTHELESS, HAVE TO BE SUPPLIED TO THE CREW.**

### VENTILATION

Information must be given to the master about the cargo ventilation or dehumidification requirements for the voyage. This may include keeping a ventilation log and temperature recordings.

Instructions should be given to the master on the ventilation requirements for the intended cargo.

### INSTRUCTIONS AND PROCEDURES

In line with ISM Code requirements, appropriate procedures should be available for the officers and crew in relation to:

- \_ loading/discharge
- \_ stowage
- \_ lashing and securing
- \_ cargo care/ventilation during the voyage
- \_ commercial issues (e.g. clausing bills of lading/mates receipts)
- \_ survey (for example, steel-securing procedures and pre-load surveys of finished steel)

**IF A SHIP IS TO BE USED FOR A PURPOSE FOR WHICH IT IS NOT CLASSED AND/OR DESIGNED, THEN CERTAIN STEPS HAVE TO BE TAKEN TO ENSURE THAT THE RISKS TO THE SAFETY OF THE CREW AND SHIP, AND THE INTEGRITY OF THE CARGO, HAVE BEEN APPROPRIATELY MANAGED.**



^Ship classed as a general cargo ship suitable for containers and general cargo

**RISK ASSESSMENT**

If the member is considering using a ship to load a cargo for which it is not designed or classed, then the above issues must be adequately addressed. It would be prudent in these situations that a 'risk assessment' is completed; it is not just the carriage of cargo issues that have to be highlighted, significant safety issues also need consideration. The risk assessment should confirm that these issues have been addressed and the assessment should include:

- \_ compliance with Flag and/or Class
- \_ compliance with ISM Code
- \_ compliance with SOLAS/Cargo Securing Manuals and stability calculations
- \_ compliance with industry codes and guides
- \_ cargo securing/stowage issues
- \_ crew experience

**Club cover**

It is a condition of club cover that the ship remains:

- \_ fully classed with a society approved by the club managers
- \_ compliant with statutory requirements of the ships Flag State, including the ISM code

If not, club cover may be prejudiced. Non-compliance may make the ship unseaworthy and deny the operation of usual defences to cargo claims. Bills of lading should always be suitably claused to reflect the apparent order and condition of the cargo on loading. Pre-load surveys should always be conducted for finished steel cargos. We also make reference to this in the *Standard Cargo Steel* edition which you can find in the publication section of the club website, [www.standard-club.com](http://www.standard-club.com). We also cover some of these issues in a *Master's Guide to Hatch Cover Maintenance* which can additionally be found on our website.

Acknowledgement:

**Frank Wilhelm Heidrich**

Managing Director

Ocean Shipmanagement GmbH

Email: [shipmanagement@schulteship.de](mailto:shipmanagement@schulteship.de)

web: [www.schulteship.de](http://www.schulteship.de)

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**Charles Taylor & Co. Limited**

Standard House, 12/13 Essex Street,  
London, WC2R 3AA, England

Telephone: +44 20 3320 8888  
Fax: +44 20 3320 8800  
Emergency mobile: +44 7932 113573  
E-mail: [p&i.london@ctcplc.com](mailto:p&i.london@ctcplc.com)

Please send any comments to the editor –  
**Chris Spencer**

E-mail: [chris.spencer@ctcplc.com](mailto:chris.spencer@ctcplc.com)  
Telephone: +44 20 3320 8807  
Website: [www.standard-club.com](http://www.standard-club.com)

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