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## Safety risks of casualties caused by cargoes

This update is issued to raise awareness of the potential risk of casualties caused by cargoes, relating to containers (Annex 1) and solid bulk cargoes (Annex 2).

This safety update is for

- Shippers and Shipmasters
- Maritime Administrations, their officers, investigators and technical advisors

## ATTENTION SHIPPERS AND SHIPMASTERS



There are many accidents caused by the mis-declaration of dangerous goods in containers and inaccurate container weight information.



Cargo mis-declaration is the cause of many container fires.



Accurate weight of cargo containers is a critical safety issue. Shipper shall provide Verified Gross Mass (VGM) to the ship.



Be aware of danger, take precautions and comply with SOLAS requirements

## SOLAS Ch.VI Reg 5

Cargo, cargo units and cargo transport units, shall be loaded, stowed and secured throughout the voyage in accordance with the Cargo Securing Manual approved by the Administration.

## SOLAS Ch.VI Reg 2

### Verification of the gross mass (VGM) of a packed container

The cargo information shall include a general description of the cargo, the gross mass of the cargo or of the cargo units, and any relevant special properties of the cargo.

The shipper of a container shall ensure the VGM is stated in the shipping document.

The shipping document shall be signed by a person duly authorised by the shipper, submitted to the master or his representative and to the terminal representative sufficiently in advance, as required by the master or his representative, to be used in the preparation of the ship stowage plan.

If the shipping document, with regard to a packed container, does not provide the VGM and the master or his representative and the terminal representative have not obtained the VGM of the packed container, it shall not be loaded on to the ship.

### How to weigh a packed container

In the case of cargo carried in a container, shippers shall provide the captain or representative of the container stations with information on VGM of export containers, either by:

**Method 1** Weighing the packed container using appropriate measuring equipment.

**Method 2** Weighing each cargo item, including pallets, dunnage and other packing materials, and calculating the gross mass by adding the tare-weight of a container.



## Tokyo MOU

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### Tokyo MOU Secretariat

Ascend Shimbashi 8F, 6-19-19, Shimbashi, Minato-ku, Tokyo Japan 105-0004

**Tel:** +81-3-3433 0621 **Fax:** +81-3-3433 0624

**Email:** secretariat@tokyo-mou.org **Website:** www.tokyo-mou.org

## ATTENTION SHIPPERS AND SHIPMASTERS



The liquefaction and mis-identification of solid bulk cargoes is the cause of many accidents.



Pay strict attention to stowage and levelling when carrying solid bulk cargo. Ensure you know exactly what cargo is loaded on your ship.



The cause of above accidents was the loss of stability as a result of **liquefaction of solid bulk cargo**.



Ensure you know exactly what cargo is to be loaded. If there are any doubts about cargo identification, the cargo should not be loaded.



Be aware of danger, take precautions and comply with SOLAS requirements

# Safe carriage of solid bulk cargoes

This brochure will help you to manage the risks associated with the carriage of solid bulk cargoes and give a summary of the steps you must follow before accepting a cargo for shipment.

The carriage of solid bulk cargoes other than grain shall comply with relevant provisions of the IMSBC Code, which has been introduced by SOLAS convention.

## What are the risks?

The IMSBC Code has classified solid bulk cargoes into three groups, according to the associated risks.

Group		Risk
<b>A</b>	Cargoes likely to liquefy if shipped at a moisture content (MC) exceeding their transportable moisture limit (TML).	The liquefaction of the cargo can lead to shifting and thus affect stability.
<b>B</b>	Cargoes that have chemical hazard which can lead to dangerous situation on a ship	Fire / explosions
<b>C</b>	Other Cargoes that are neither liable to liquefy (Group A) nor have chemical hazards (Group B)	If not properly loaded and transported, these cargoes may still have hazards other than liquefaction and chemical hazards (e.g. oxygen depletion, negative effects on stability and strength etc.)

## When can you accept the cargo for safe shipment?

Appropriate information on the cargo to be loaded shall be provided by the shipper to the Master, sufficiently in advance of loading to enable all the necessary precautions to be taken to ensure the safe carriage of the cargo.

**References:** SOLAS 74, Reg VI/2.2.2; IMSBC Code, paragraph 4.2

## What is this information referred to in the shipper declaration?

<b>1</b>	<b>Letter of approval</b>	For cargoes that may liquefy (Group A), procedures for sampling, testing and controlling moisture content of the cargo shall be established by the shipper and such procedures approved by the competent authority
<b>2</b>	<b>Stowage factor / density</b>	References: SOLAS 74, Reg VI/2.2.2 and Reg XII/10; IMSBC Code, paragraph 4.2
<b>3</b>	<b>Moisture content (MC) and transportable moisture limit (TML)</b>	<ul style="list-style-type: none"> <li>MC is the amount of water contained in a sample of cargo. It is expressed as a percentage of the total wet mass of the cargo sample. <b>Maximum validity: 7 days before loading starts.</b></li> <li>TML is the maximum moisture content, which is considered safe for carriage by sea of cargoes that may liquefy. <b>Maximum validity: 6 months.</b></li> </ul>

## Master's responsibility in preventing of the risk of liquefaction

✓	Make sure that the moisture content of the cargo is less than the TML at the time of loading. <b>Do not accept the cargo if the moisture content is more than the TML.</b>
✓	Continuous monitoring during loading. <b>You have the right and thus, the obligation to stop operations in case of any indication of high moisture content.</b>
✓	Take adequate measures to prevent any ingress of water in the holds during the loading and throughout the voyage.
✓	Ensure the trimming and leveling of the cargo is performed as per IMSBC recommendations.

## Shared responsibility between master and terminal representative

✓	Before a solid bulk cargo is loaded or unloaded, the master and the terminal representative shall agree on a plan which will ensure that permissible stresses on the ship are not exceeded taking into consideration factors such as rate of loading, rate of ballasting and deballasting, number of pours and all relevant parameters.
✓	The master has the right to suspend operation in case of deviation from the approved plan and the terminal representative shall ensure that corrective action is taken.  <b>References:</b> SOLAS, Reg VI / 7.3, Reg VI / 7.4 and Reg VI / 7.5

## Cargoes presented for shipment that are not listed in the Code

The master will accept this cargo for shipment **only if:**

- Information on the cargo is provided by the shipper to the port authority,
- Competent authority of port of loading assessed the acceptability of the cargo for shipment,
- Competent authority of port of unloading and the flag state have been informed and their agreement granted (see IMSBC Code section 1.3).

## What must the ship comply with in order to carry solid bulk cargoes?

1	<b>Survey and maintenance of bulk carriers</b>	SOLAS 74, Reg XII / 7
2	<b>Bulk carrier booklet (Loading Manual)</b>	To enable the master to prevent excessive stress in the ship's structure, the ship loading and unloading solid bulk cargoes shall be provided with a booklet referred to in SOLAS 74, Reg VI / 7.2 endorsed by the Administration as per SOLAS 74, Reg XII / 8
3	<b>Loading instrument</b>	Approved by ship's flag / ship's classification society <b>References:</b> SOLAS 74 Reg XII / 11.1; BLU Code, paragraph 2.2.2
4	<b>Loading plan</b>	<b>Preparation of plan and maintaining control of loading and unloading process and compliance with BLU Code is fundamental to safe loading.</b> <b>References:</b> SOLAS 74, Reg VI/7.3; BLU Code, paragraph 4
5	<b>Stability information</b>	Master shall be in possession of information on ship's stability, prior to loading. <b>References:</b> SOLAS 74, Reg VI / 6, Reg II - 1 / 5-1; 1966 LL Convention; 1988 LL Protocol Reg 10
6	<b>Watertightness and maintenance of cargo hatch cover</b>	According IMO/MSC/Circ.1071 Ship owners and operators are recommended to maintain a record of maintenance, and component replacement, to facilitate statutory surveys by the Administration. <b>References:</b> 1966 Load Line Convention, Reg 16 LLC Reg 3 (12): Definitions of terms used in the annexe.

\* Some of the mentioned Regulations may not apply depending on the ship's size, type or so on. The shipper and shipmaster shall ensure compliance with mandatory rules, regulations and Safety-Management-System (SMS) applied to each ship.

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