



CONTAINER BEST PRACTICES

CUSTOMER GUIDE





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INTRODUCTION

PREVENTION OF DAMAGE TO THE CARGO IS A PRIORITY FOR CMA- CGM.

CONTAINER IS A SAFE AND SECURE WAY OF MOVING CARGO BUT CARGO MUST BE STOWED AND SECURED IN ORDER TO WITHSTAND THE FORCES CAUSED BY ACCELERATIONS FROM ALL THE INVOLVED TRANSPORT MODES.

IF THE CARGO IS NOT SUFFICIENTLY SECURED INSIDE THE CONTAINER, IT MAY NOT ONLY CAUSE DAMAGE TO THE CARGO ITSELF BUT ALSO JEOPARDIZE THE SAFETY OF TRANSPORT MEANS.

WE NEED YOUR COOPERATION IN AN EFFORT TO MINIMIZE POTENTIAL DAMAGE TO THE CARGO, TO MAINTAIN INTEGRITY OF THE CONTAINER AND TO REDUCE THE RISK OF INJURY OR EVEN DEATH ON BOARD VESSELS AS WELL AS ASHORE ON TRUCKS, WAGONS OR BARGES.





CHOOSE THE RIGHT CONTAINER

- The right type of container to be chosen according to the kind and the quantity of goods to be stuffed. Ask for our **CMA CGM**:
 - o Container Fleet brochure.
 - o Reefer Brochure.

NEEDS	CONTAINER TYPE
	BOXES, CARTONS, CASES, BALES, PALLETS, DRUMS... GENERAL PURPOSE CONTAINERS
	-25°C TO +25°C TEMPERATURE CONTROLLED CONTAINERS
	BULK, MINERALS, HEAVY MACHINERY... OPEN TOP CONTAINERS
	EUROPALLET COMPATIBLE HIGH CUBE PALLETWIDE CONTAINERS
	HEAVY GOODS, SEMI- FINISHED GOODS, OUT OF GAUGE CARGOES... FLUSHFOLDING FLAT-RACK CONTAINERS
	BARRELS, DRUMS, CRATES, OOG CARGOES, MACHINERY... PLATFORM-BOLSTER
	ORGANIC PRODUCTS REQUIRING VENTILATION, VENTILATED CONTAINERS
	BULK LIQUIDS TANK CONTAINERS

Remark: No overheight cargo should be stuffed in Open Top Containers. Flat Rack containers are more suitable for overheight cargoes

(See: **OPEN TOP CONTAINER**)



- All containers presented for carriage by sea are required to have a valid CSC (Convention for Safe Container) Safety Approval Plate with:
 - A valid Next Examination Date.
 Or
 - An ACEP (Approved Continuous Examination Program) registered code (ex ACEP FR 0018 1985 CMA).
- The MAXIMUM PAYLOAD, Net Weight or Capacity Weight of the container is indicated on the right door of the container. This is the Maximum Gross Weight minus Tare of the container.

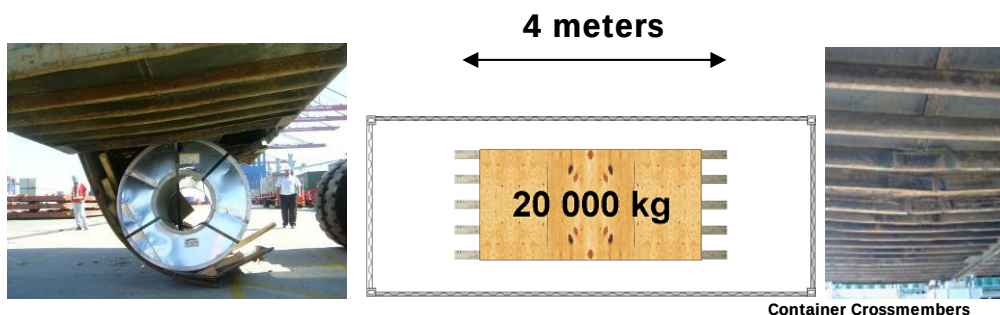
Max Gross Weight = Tare + Payload (Net weight or Capacity weight)

- The PERMISSIBLE LINE LOAD of a container is the maximum weight force which can be withstood by a container floor per running meter (The total cargo weight not exceeding the max payload of the container).

Container type	20'st	40'st
CMA CGM Permissible Line Load	5.0 tons per meter length	2.5 tons per meter length

APPROVED FOR TRANSPORT UNDER CUSTOMS SEAL (66/C 4678 BV/2090) PRESIGNED DOCUMENT MANUFACTURED BY OF THE CONTAINER CMA CGM MANUFACTURED CONTAINER SALE CONTAINER CO. LTD. CSC SAFETY APPROVAL F/8V/7326/00 ACEP FR 0018 1985	ECU 968742 15 45G1 MAX. GROSS 30,480 KG 67,200 LB TARE 3,740 KG 8,245 LB CAP. WT. 26,740 KG 58,955 LB CU. CAP. 67.7 CU.M. 2,423 CU.FT.	MGW 24,000 kg 52,910 lb TARE 2,250 kg 4,960 lb NET 21,750 kg 47,950 lb CUBE 33.5 m³ 1,191 ft³
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To stuff a 20 mt package into a 20' standard as above, the weight should be spread over a 4m length area at minimum using longitudinal dunnage to distribute the weight over a larger number of bottom cross members of the container's floor.



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INSPECT THE CONTAINER

HAZARDS

- UNSUITABLE CONTAINER FOR TRANSPORT.
- TYPE OF CONTAINER INAPPROPRIATE TO THE GOODS.

BEST PRACTICES

SHIPPERS TO ISSUE INSTRUCTIONS TO THEIR TRUCKING COMPANIES AND TO THEIR SERVICE PROVIDERS TO ENSURE A PROPER CHECKING OF THE CONTAINER PRIOR TO INTERCHANGE, PRIOR TO STUFFING AND AFTER PACKING.

- CONTAINER INSPECTION PRIOR TO INTERCHANGE & STUFFING

Outside inspection:

1. No holes or crack in walls and roof.
2. No damaged corner posts, corner fittings, framework...
3. Doors and closing devices operate properly.
4. The container has a valid Safety Approval Plate and the re-examination date has not passed or the container is subjected to an Approved Continuous Examination Program (ACEP).
5. The weight of all the items to be stuffed is not exceeding the max payload/net weight indicated on the right door of the container (incl container's line load: 20' 5mt/m).
6. No adhesives labels remaining from the previous shipment.
7. Flatrack container: Stanchions (If ordered) are complete and correctly fitted.
8. Open-Top container: Roof bows and tarpaulin are complete.

Inside inspection:

1. Container is watertight (Test method: Enter the container, close both doors tightly and look for incoming light).
2. Container interior is dry
3. Container is clean, free of cargo residues.
4. Container is neutral in odor.
5. No nails or other protusions which could damage the cargo.
6. Note recommendations posted inside the container.

- CONTAINER INSPECTION AFTER PACKING

1. The container is packed appropriately for the cargo and anticipated road, rail or sea transit stresses.
2. A copy of the packing list is placed in a highly visible location inside the container.
3. The doors have been carefully closed and, secured with an high security bolt seal meeting or exceeding the Iso/Pas 17712 standards (see § "Seal the container").
4. Old adhesives labels have been removed.
5. Dangerous Goods placards, if appropriate, have been affixed in the recommended positions (see § "Placarding and labelling of DG container").
6. Open-Top container: Roof bows and tarpaulin are correctly fitted and TIR cord secured with a high security cable seal.

Recommendations:

- Placards advertising the content should be removed from the outside of the container (They will attract thieves).
- Cargo is dried (In tropical area, forced ventilation or absorbent material can minimize humidity), oil is drained from motors or other mechanical parts.

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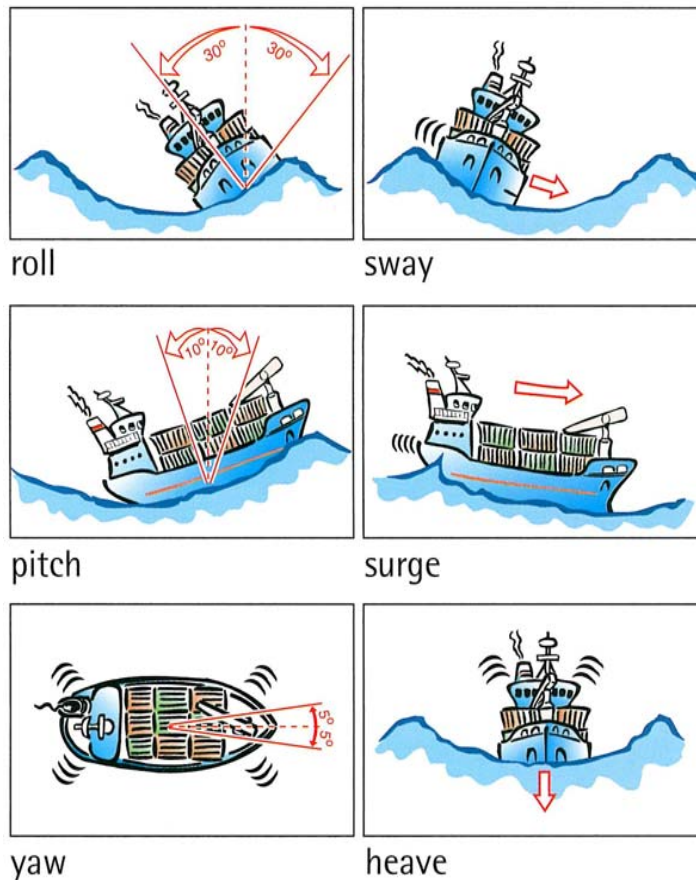


PACK AND SECURE THE GOODS INSIDE THE CONTAINER

IT IS SHIPPER'S RESPONSIBILITY TO BRACE AND SECURE THE CARGO IN OR ON THE SHIPPING CONTAINER IN SUCH A WAY IT IS UNABLE TO MOVE (SLIDING, TILTING, TIPPING).



Combined cargo transport units like containers will often start the transport on road, continue at sea and then may be end up in a rail transport. The cargo must be stowed and secure in or on the container to withstand the forces caused by movements and accelerations from all the involved modes of transportation.





REFERENCES:

- o SOLAS (International Convention for the Safety of Life at Sea 2004 edition) chapter VI
- o Code of Safe Practice for Cargo Stowage and Securing (CSS Code 2003 edition)
- o Safe Stowage and Securing of Cargo Units and Other Entities in Ships other than Cellular Container Ships (resolution attached as appendix 1 to the CSS Code)
- o Elements to be Taken into Account when Considering the Safe Stowage and Securing of Cargo Units and Vehicles in ships
- o Securing of Cargo for Sea Transportation (P&I The Swedish Club)
- o Securing the product in the container, Container Handbook die deutschen versicherer: http://www.containerhandbuch.de/chb_e/kaps/index.html

• GENERAL ADVICES

RIGID LOADING=COMPACT LOADING*
Or
INDIVIDUAL SECURING**

Goods must be stowed and secured inside the shipping container in such a way to prevent cargo shifting-sliding and tipping in all directions (foreward, backward and sideways).

Friction is an important factor to prevent cargo from sliding.

Materials	Coefficient of friction, μ
Steel – Steel, dry	0.1
Steel – Steel, wet	0.0
Steel – Rubber	0.3
Steel – Timber (wood)	0.3
Timber (wood) – Timber (wood)	0.4

To avoid sliding the most preferable measures are:

- o To increase friction by use of rubber pads or mats or dunnage
- o To block the cargo by a tight stowage.
- o To fill void spaces to the sides or between goods with blocking material.

*Compact loading: No gaps or gaps filled with resilient material.

**Individual securing: Items loaded attached to the lashing points or the frame members of the container.

CONTAINER CLIMATE WARNING

- **Inside temperature: At 25°Celsius (77°F) the air temperature inside a steel unit can rise up to 50° C (122°F). Condensation: The lower is the cargo water content, the greater is the temperature/Dew point difference and the lower is the risk of condensation.**



• PACKING

- Do not pack heavy goods with fragile ones.
- Stuff heavy items and liquids on the bottom of the container.
- Stuff light items over heavy ones.
- Stuff solids over liquids.
- Do not pack incompatible goods together!



- Distribute heavy loads over a large floor area (see permissible line load of the container: 20'GP 5mt/m).
- Use dunnage (Flat board timber, plywood sheet, synthetic material sheeting...):
 - To avoid sliding.
 - To protect cargo from contacts.
 - To support cargo loaded on top of another.
 - To spread the weight of the cargo on the container's floor
- Cargo center of gravity close to the center of volume of the container. Maximum 60% of weight of cargo in 50% of container length (ISO3874).



- Inner & outer packagings of Dangerous goods to be labelled.
- Dangerous goods stuffed close to container doors (easy access).
- Dangerous packagings labels facing doors of the container for identification.



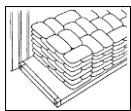
- Drums and liquids in plastic outerpackaging stuffed upright with layers between tiers.



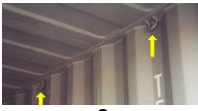
- Oil drained from used machineries-spare parts (motors, gear boxes...) to avoid leakage.

• SECURING

- Cargo braced and secured to avoid sliding & tipping inside the container.



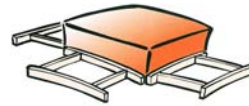
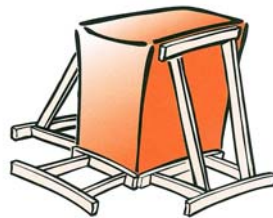
1



2



3



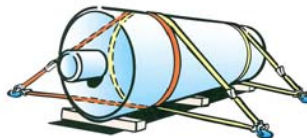
- Compact loading :Free spaces filled in with pallets, air cushions, airbags, used tyres...



- Cargo cylindrical or rolling items:
 - To be held steady with appropriate wedges in respect of size of the item.
 - To be stowed in fore and aft direction rather than athwartships if possible.
- Loop lashing better than round turn lashing if no securing points.



Spring lashing



- Lashing and wedging strengths to press only on frame parts of the container not side wall panels.
- Cross-tie stowage for bags.
- Lashing points:
 - (1) + (2) + (3) Lashings points (1.5 mt)
 - Lashing rings: flat rack container 5.0 mt-reefer container 0.5 mt up to 1 mt



- Rule-of-thumb method to calculate lashing requirements (Annex 13-IMO Code of Safe Practice for Cargo Stowage and Securing): The total of Maximum Securing Load (MSL) values of the securing devices on each side of a unit of cargo (port as well as starboard) should be equal the weight of the unit (MSL is the load capacity for a device used to secure cargo).

The rule of thumb method is valid under the following conditions:

- Good friction between the contact surfaces (1 surface should consist of wood or rubber).
- Lashings working together.
- Lashings symmetrically placed on both sides.
- Vertical angle towards container floor less than 60 degrees
- Horizontal angle towards container transverse axle less than 30 degrees



- 19mm => 3 wire rope grips minimum
- Over 19mm => 4 wire rope grips
- Saddles on the weight bearing part
- Grips to be spaced 6 rope diameters apart

Useful link: [Containerhandbuch](#)

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SEAL THE CONTAINER

▪ CMA CGM SEAL POLICY

THE SHIPPER IS RESPONSIBLE FOR AFFIXING AN HIGH SECURITY SEAL IMMEDIATELY UPON THE COMPLETION OF THE CONTAINER STUFFING PROCESS, AND FOR PREPARING RELEVANT SHIPPING INSTRUCTIONS REPORTING THE AFFIXED SEAL NUMBER.

To protect cargo interests and to ensure compliance with I.S.P.S. code, Customs-Trade partnership programs and other Customs-Trade Partnership, CMA-CGM requires the use of high security bolt seals that meet or exceed the ISO/PAS 17712 standards.

Security seals are an integral part of the chain of custody. For a cargo-laden container, at each change of custody, security seals should be inspected by the receiving party.

Inspecting a seal requires visual check for signs of tampering, comparison of the seal's number with the relevant documentation, and noting the inspection in the appropriate document.

In case of discrepancy, the receiving party must notify the party tendering the container, and the law enforcement agencies in accordance with national legislation and local regulation.

All containers shipped under a CMA-CGM bill of lading must have an individually numbered high security bolt seal which meets or exceeds the current ISO/PAS 17712 standards and this for the whole transport duration.

- All bolt seals distributed by CMA-CGM to customers, vessels, agents, subsidiaries and logistic actors are individually numbered, ISO/PAS 17712 compliant, and bear the company's name.
- CMA CGM will monitor for more advanced technologies beyond mechanical sealing.

Recommendations:

- *If available, seals should be placed in the "Secura Cam" position at the bottom of the left locking bar of the right door.*
- *If the container is not sealed by the shipper, CMA-CGM representative will seal it upon receipt, If sealed with an "exotic item", in addition, he must affix a company's high security seal.*
- *All seals that are removed from a container for a legitimate intermediate examination must be placed in the container just inside the door, in plain view, before a new seal is affixed to the container.*
- *Seals must be stored in a secure place with restricted and controlled access.*



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Toutankhamon's Tomb
1352 BC





▪ **MANDATORY USE OF HIGH SECURITY BOLT SEALS FOR ALL CONTAINERS ARRIVING AT U.S. PORTS**

Effective **October 15, 2008**, U.S. Customs and Border Protection will enforce new regulations requiring **all containers in transit to the U.S.** – whether **scheduled for discharge at a U.S. port or through-transit** – **be secured by an ISO/PAS 17712-compliant high security bolt seal.**

A high-security seal is defined in ISO/PAS 17712 as a “seal constructed and manufactured of material such as metal or metal cable with the intent to delay intrusion ... generally must be removed with quality bolt cutters.”

Security seals are an integral part of the chain of custody and shippers are responsible for affixing a high security seal immediately upon the completion of the container stuffing process, for preparing relevant shipping instructions, and reporting the affixed seal number to CMA CGM.

ALL CONTAINERS ARRIVING AT U.S. PORTS UNDER A CMA CGM BILL OF LADING WITHOUT A HIGH SECURITY BOLT SEAL ARE SUBJECT TO SEIZURE OR FORFEITURE AND PENALTIES EQUAL TO THE VALUE OF THE CARGOES FOUND IN THE CONTAINER MAY BE IMPOSED AGAINST CMA CGM.

Although this is a new regulation, it is important to note that this is not a new practice for CMA CGM; as a U.S. C-TPAT partner, we implemented and have facilitated use of high security bolt seals for several years, distributing those seals to customers, agents, subsidiaries and other participants in our logistics chain. All high security bolt seals distributed by CMA CGM are individually numbered, ISO/PAS 17712 compliant, and bear the company’s name.

In order to ensure compliance with U.S. regulations, all containers – with exception of tank, open top and non-standard containers - shipped under a CMA CGM Bill of Lading must have an individually numbered high security bolt seal affixed before delivery to CMA CGM or its agents; at each change of custody, security seals must be inspected by the receiving party. Inspection requires a visual check for tampering and comparison of the seal number with relevant documentation. Should any discrepancy be noted, the receiving party must immediately notify the party tendering the container and law enforcement agencies in accordance with relevant national or local regulation.

CMA CGM WILL NOT ACCEPT DELIVERY OF CARGO LADEN CONTAINERS WITHOUT AN AFFIXED HIGH SECURITY BOLT SEAL.

Should a container arrive at its lading port or interchange without an affixed high security bolt seal, the shipper will be notified immediately and required to reinspect the container for conformity with the Bill of Lading, affix a high security seal, and prepare a report which certifies the has been inspected and identifies both the container number and the number of the affixed seal.

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WEIGH THE CONTAINER

**MIS-DECLARED WEIGHTS HAVE THE POTENTIAL
TO CAUSE VESSELS or CONTAINER STACKS TO EXCEED THEIR PERMISSIBLE
SEAGOING LIMITS.**

The audit of the containers removed from MSC Napoli, indicate that the declared weights of many of the containers carried by the vessel were inaccurate. This discrepancy is due to many packers and shippers not having the facilities to weigh containers on their premises. It is also due to shippers deliberately under-declaring containers' weights in order to: minimise import taxes calculated on cargo weight; allow the over-loading of containers; or to keep the declared weight within limits imposed by road or rail transportation regulations.



Containers are pre-stowed on board by the ship planner according to their ports of discharge, their specificities (out of gauge, dangerous, reefer...) and their weights, these one participating at first in the good stability of the vessel.

It is essential to know or to assess the weights of all the containers as precisely as possible and thus, before sailing, to allow vessel's command and line's operations management to monitor the stresses acting on ship as accurately as possible.

Multimodal transportation:

Overweight vehicles on the road, including vehicles carrying inter-modal shipping containers, risk the safety of drivers and other road users. Overweight containers can cause longer braking distances, vehicle instability, road damage, as well as accelerate road wear.

Inefficient practices such as repeated weighing of containers also occurs. Where conflicting weights are recorded, confusion is created. Unreliable weight information makes it very difficult for drivers to comply with the required safety limits.

Same for inland waterways transport

Nota: Maximum Payload and Line load of the container not to be exceeded (see § "Choose the right type of container")



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DANGEROUS GOODS

EXCEPT AS OTHERWISE PROVIDED IN THE IMDG CODE, NO PERSON MAY OFFER DANGEROUS GOODS FOR TRANSPORT UNLESS THOSE GOODS ARE PROPERLY CLASSIFIED, MARKED, LABELLED, PLACARDED, DESCRIBED AND CERTIFIED ON A TRANSPORT DOCUMENT (IMDG 5.1.1.2)

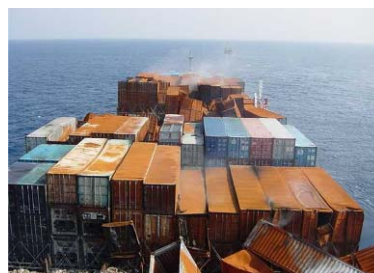
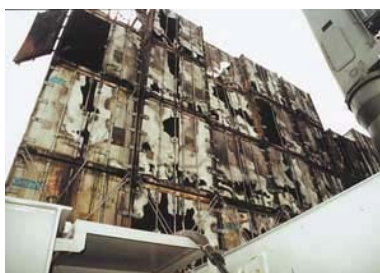
• SHIPPER'S OBLIGATIONS

• REFERENCES

- **International Maritime Dangerous Goods Code** (IMDG Code)
- ISM Code, SOLAS chapter VII, MARPOL Convention Annex III
- ADR-ADN-ADNR-RID: European agreements concerning International Carriage of DG goods by Road-Inland Waterways-Rail.
- National/Local regulations : French vessel safety rules (Div 411), CFR49 (US regulated ports), RPM (French Sea Ports reg)...
- Dangerous Goods guide (UK P&I Club): [UK P&I Club - Dangerous Goods](#)
- CMA CGM Dangerous Goods Procedure (SMM-02-DCO-100)
- CMA CGM Dangerous Goods Transhipment Procedure (SMM-02-DCO-130)
- Storck Guide-Stowage & Segregation to IMDG Code (Storck Verlag Hamburg)

• CLASSIFICATION OF DANGEROUS SUBSTANCES, MATERIALS

The classification (Class, division, Sub risk(s), Un nr, Proper Shipping Name, Marine Pollutant, Waste, FP...) shall be made by the shipper/consignor or by the appropriate competent authority (IMDG 2.0.0). In case of accident the substance has to be readily identified during transport. This is particularly important in order to determine what emergency procedures are necessary to deal properly with the situation and, in the case of marine pollutants, for the master to comply with the reporting requirements of Protocol I of MARPOL 73/78 (IMDG 5.1.1.3)



• DOCUMENTS

▪ SOLAS Chapter VII regulation 4

- In all documents relating to the carriage of dangerous goods by sea, Proper shipping name to be used, correct description in accordance with IMDG code.
- Transport document prepared by shipper to include a signed certificate or a declaration that the consignment is properly packed, marked, labelled or placarded as appropriate, and in proper condition for carriage.



- The person responsible for the packing/loading of dangerous goods in a cargo transport unit (road vehicle, railway wagon, a freight container, a road tank vehicle, a railway tank wagon, a portable tank) shall provide a signed container/vehicle packing certificate stating that the cargo in the unit has been properly packed and secured and that all applicable requirements have been met. Such a certificate may be combined with the document referred to in §2.

- **MARPOL Annex III regulation 4**

1. Correct technical name of harmful substances to be used and identification by the addition of the words "Marine Pollutant".
2. id SOLAS Chapter VII regulation 4

- **IMDG Code Chapter 5.4**

The consignor who offers dangerous goods for transport shall describe the dangerous goods on a transport document and provide additional information and documentation as specified in this Code (IMDG Code 5.4.1.1).

When dangerous goods are packed or loaded into any container or vehicle, those responsible for packing the container or vehicle shall provide a "container/vehicle packing certificate" specifying the container/vehicle identification number(s) and certifying that the operation has been carried out in accordance with the following conditions (IMDG Code 5.4.2.1)

The information required in the dangerous goods transport document and the container/vehicle packing certificate may be incorporated into a single document; if not, these documents shall be attached one to the other.

- **TRANSPORT DOCUMENT (Imdg Code 5.4.1)**

- A dangerous goods transport document may be in any form, provided it contains all of the information required by the provisions of the IMDG Code. May consist of more than one page, provided pages are consecutively numbered.

IMO form: [Annex 2 Multimodal Dangerous Goods Form](#)

[International Maritime Organization](#)

Document to be signed by both the packer and the shipper.

- The sequence of dangerous goods description for international shipments on the documentation must be as followed:

UN number, Proper shipping name, Hazard class, Sub Hazard, Packing Group.

- **UN number** preceded by the letters "UN";
- **The Proper Shipping Name**, as determined according to IMDG 3.1.2, including the technical name enclosed in parenthesis, as applicable (see below "Technical names for n.o.s).
- **Primary hazard** class or, when assigned, the division of the goods, including for Class 1, the compatibility group letter. The words "Class" or "Division" may be included preceding the primary hazard class or division numbers;



- **Subsidiary hazard** class or division number(s) corresponding to the subsidiary risk label(s) required to be applied, when assigned, shall be entered following the primary hazard class or division and shall be enclosed in parenthesis.
- **Packing group** for the substance or article which may be preceded by "PG" (e.g. "PG II").

These five elements shall be shown in the order listed above (i.e. .1, .2, .3, .4, and .5) with no information interspersed. Additional informations shall be placed after the dangerous goods description.

- The Proper Shipping Name shall be supplemented as follows:
 - **Technical names for "n.o.s."**(Not otherwise specified) and other generic descriptions: Proper Shipping Names that are assigned special provision 274 in Column 6 of the Dangerous Goods List shall be supplemented with their technical or chemical group names.
 - **Empty uncleaned packagings**,: Empty means of containment which contain the residue of dangerous goods, shall be described as such by, for example, placing the words "EMPTY UNCLEANED" or "RESIDUE LAST CONTAINED" before or after the proper shipping name.
 - **Wastes**: For waste dangerous goods which are being transported for disposal, or for processing for disposal, the Proper Shipping Name shall be preceded by the word "WASTE", unless this is already a part of the proper shipping name.
 - **Marine Pollutants**: Goods to be identified as "MARINE POLLUTANT".
 - **Flashpoint**: If the dangerous goods to be transported have a flashpoint of 60°C or below (in °C closed-cup (c.c.)), the minimum flashpoint shall be indicated.

EXAMPLES OF DANGEROUS GOODS DESCRIPTIONS

UN1098 ALLYL ALCOHOL 6.1 (3) I (21°C c.c.)

UN1098, ALLYL ALCOHOL, class 6.1, (class 3), PG I, (21°C c.c.)

UN 1092, Acrolein, stabilized, class 6.1 (3), PG I, (-24°C c.c.) MARINE POLLUTANT

UN 2761, Organochlorine pesticide, solid, toxic, n.o.s. (Aldrin 19%), class 6.1, PG III, MARINE POLLUTANT



- **Additional informations to be included in the transport document.**
 - **Total quantity of dangerous goods**: For each item of dangerous goods bearing a different Proper Shipping Name, UN Number or packing



group shall be included (For Class 1 dangerous goods, the quantity shall be the net explosive mass). For dangerous goods transported in salvage packagings, an estimate of the quantity of dangerous goods shall be given).

- **The number and kind of packages** (e.g. steel-plastic drum, steel-plastic box, steel or plastic jerrican etc or UN packaging Code as per: [ANNEX 3: UN PACKAGING CODE](#)) shall also be indicated.
- **UN packaging codes** may only be used to supplement the description of the kind of package (e.g., one box (4G)). Abbreviations may be used to specify the unit of measurement for the total quantity.
- **Limited quantities:** When dangerous goods are transported according to the exceptions for dangerous goods packed in limited quantities provided for in Column 7 of the Dangerous Goods List and Chapter 3.4 of the IMDG Code, the words "**limited quantity**" or "**LTD QTY**" shall be included.
- Special provision for Europe Combined Transport Movements: for carriage in a transport chain including maritime, road, rail or waterways in accordance with §1.1.4.2 of ADR, ADN or RID agreements, a statement shall be included in the transport document as follows; "**Carriage in accordance with 1.1.4.2.1**".

• **PERSONNEL TRAINING**

Shore-based personnel engaged in the transport of dangerous goods by sea/road/rail...should receive training in the contents of dangerous goods provisions commensurate with their responsibilities (see IMDG Code-ADR-ADN § 1.3/1.4).

The requirements can be summarized as follows:

- The company must determine the Personnel to be trained, training level, training plan.
- If a new recruit is not trained it must be supervised by trained personnel
- The training shall be refreshed periodically
- Detail of training activities must be recorded and at disposal of authority
- Competent authority may audit to check effectiveness of training system.

• **EUROPEAN FEATURES FOR INLAND HAULAGE**

- Each undertaking, the activities of which include the carriage, or the related packing, loading, filling or unloading, of dangerous goods by road, water, rail shall appoint one **Safety Adviser** for the carriage of dangerous goods (ADR 1.8.3.3).
- **Pre or on carriage by road (ADR):** It is the responsibility of the party involved in the loading or the filling of a container to ensure that the following provisions are complied with:
 - The **document transport** and (or) record (s) writing (s) for the driver are contained in the documents of the vehicle.
 - The **driver** holds a **training certificate** as valid and appropriate to the transport to be undertaken.
 - The **truck** is equipped with sound **certificate** for approval as valid and appropriate for the transport to be undertaken.



- The truck is fitted with (see ADR 8.1.4/8.1.5):
 - Appropriate **fire fighting equipment**.
 - **1 chock** of a size suited to the weight of the vehicle.
 - **2 self-standing warning signs** (e.g. reflective cones or triangles or flashing amber lights which are independent from the electrical equipment of the vehicle).
 - A suitable **warning vest** for each member of the vehicle crew.
 - **A pocket lamp** for each member of the vehicle crew.
 - Additional requirements (see ADR 8.5) related to particular classes (respiratory protective device, special training...)
- The truck is properly marked and placard with two rectangular orange-coloured plates conforming to ADR 5.3.2.2.1, set in a vertical plane. They shall be affixed one at the front and the other at the rear of the truck.

IN THE EVENT OF A NEGATIVE CONTROL ELEMENTS ABOVE AND IF IT CAN NOT BE BROUGHT INTO LINE, TRANSPORTATION SHOULD NOT BE MADE.

• **AMERICAN FEATURES FOR INLAND HAULAGE**

- In addition to the IMDG Code requirements for Transport documents mentioned earlier, the following 49 CFR 172.203 additional descriptions **MUST** be notated on the transport document for inland haulage for the United States and Canada:
 - A shipment made under a special permit approved by the Department of Transportation permitting a person / shipper to perform a function that is not permitted under 49 CFR must bear the notation "**DOT-SP**" followed by the special permit number assigned and notated after the shipping description. In addition, a copy of the DOT-SP needs to accompany the transport document. The **document transport** and (or) record (s) writing (s) for the driver are contained in the documents of the vehicle.
 - The letters "**RQ**" shall be entered on the transport document either before or after the shipping description when the Dangerous Goods being shipped is:
 - o Listed on appendix A of 49 CFR 172.101 and,
 - o In a weight PER PACKAGE equal to or exceeding the weight listed in appendix A.
 - When the Dangerous Goods offered for shipment have a code number of 1,2,3 or 4 found in column 7 (special provisions) of the 49 CFR 172.101 hazardous material table, then the statement **Poisonous Inhalation Hazard** and the **Zone** assigned need to be notated after the shipping description. If the code number 1 is found in column 7 then the Zone will be **A**, code number 2 will be **Zone B**, 3 is **Zone C** and 4 is **D**.
 - An **Emergency Response Telephone number** must to be listed on the transport document. This telephone number will be called in the event of an emergency and needs to meet the requirements set forth in 49 CFR 172.604.



- When inland haulage will be provided via the railroad, 49 CFR Part 174 (Carriage by Rail) needs to be complied with in addition to the other general requirements of 49 CFR.
- When inland haulage will be provided via the Highway, 49 CFR Part 177 (Carriage by public Highway) needs to be complied with in addition to the other general requirements of 49 CFR.

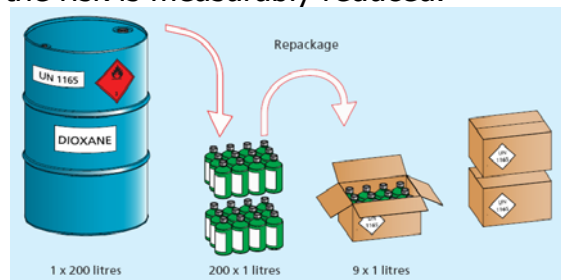
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• LIMITED QUANTITIES

Hazardous goods classify as “limited quantities” are subject to fewer restrictions during transportation. At sea the segregation rules are substantially relaxed for limited quantities

The principle is to package down from large packages to smaller ones placed inside outer packages. The double-packaging protection can contain any small leakage and so the potential hazard as well as the risk is measurably reduced.



• Criteria to classify hazardous goods as limited quantities (IMDG Code 3.4)

- Dangerous goods must be in PG II or PG III only, PG I are prohibited (with exceptions).
- Must be in a combination package (inner package placed inside an outer package), with a maximum allowable mass/capacity to be determined for the inner package and a maximum allowable weight for the outer package.
- There is no upper restriction on the overall quantity of dangerous goods meeting the requirements of the limited quantities rules that may be shipped in a given shipping container.
- Marking and labelling requirements are different (see below).
- Different classes of dangerous goods in limited quantities may be shipped in the same outer package provided the segregation rules of IMDG 7.2 indicates they are compatible, and the goods will not react dangerously with each other
- Dangerous goods of classes that are not compatible according to IMDG 7.2 may be shipped in the same shipping container provided they are in limited quantities and in different outer packages.

• Provisions for packaging dangerous goods in limited quantities (IMDG Code 3.4.2)

- Packaging does not have to be UN-tested, but it must not leak, and must be built to fulfil the applicable design criteria of IMDG 6.1.4
- Must be a two-part combination pack comprising one or more inner packages placed in an outer package
- The combination package should be designed to absorb any foreseeable leakage of inner receptacles without losing overall strength and integrity. Therefore any spilled product should be prevented by the packaging from coming into contact with any other packages
- The maximum mass/capacity of the inner package is determined by the UN Number and the packing group. The allowable maximum mass/capacity is fixed and is displayed in column 7 of the Dangerous Goods List (IMDG Code 3.2). If the mass/capacity of the



inner package exceeds this figure, the goods cannot be classified as limited quantities. If the word "None" has been indicated in Column 7 of the Dangerous Goods List, the relevant hazardous cargo is not permitted to be transported in accordance with this classification.

- IMDG restricts the maximum weight of each outer package to not more than 30 kg gross weight
 - Outer packages may consist of shrink-wrapped trays, provided the inner packages are robust (this includes aerosols) and are not made of breakable materials such as glass. This is a common packing method for aerosols. The maximum weight of such shrink-wrapped trays is reduced to 20 kg
 - There is no upper limit to the total number or weight of packages in limited quantities that may be loaded to a shipping container. A single shipping container may be loaded to its maximum capacity with packages of dangerous goods in limited quantities. Such limited quantities packages may be made up into unit loads.
- **Package marking and labelling requirements for limited quantities (IMDG Code 3.4.5.1)**
The marking and labelling requirements for packages of limited quantities are very different from "normal" dangerous goods (IMDG 3.4.5):
 - Outer package must be marked with the UN Number(s) in a diamond
 - Inner packages do not need to be marked or labelled because the outer package should not be opened in transit.
 - **Documentation requirements for limited quantities**
Dangerous goods consigned in limited quantities must be documented with a signed shipper's declaration in the normal way, but in addition, the shipper's dangerous goods declaration must include the words "LTD QTY" or "LIMITED QUANTITIES" next to the dangerous goods description.
Dangerous goods in limited quantities also need a packing certificate in the normal way.
NOTE: The IMDG Code requires "number and kind of packages" (IMDG 5.4.5.1). Under this instruction it is standard practice to include the sizes of inner packages as well as size of outer packages in dangerous goods shipper's declarations. Shipping lines may insist on full packaging details of limited quantities consignments before acceptance.
 - **Placarding requirements for dangerous goods in limited quantities (IMDG Code 3.4.5.2)**
Shipping containers of dangerous goods in limited quantities need not be placarded, but they should display either "**LIMITED QUANTITIES**" or "**LTD QTY**" labels on both sides, front and back.

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• SEGREGATION IN THE SAME CONTAINER (IMDG Code 7.2)

Segregation is the process of keeping dangerous goods separate from other dangerous goods that can react dangerously together during transportation. These are “incompatible” dangerous goods.

DANGEROUS GOODS WHICH HAVE TO BE SEGREGATED FROM EACH OTHER SHALL NOT BE TRANSPORTED IN THE SAME CARGO TRANSPORT UNIT.

Exception (IMDG Code 7.2.2.3): Dangerous goods which shall be segregated "away from" each other may be transported in the same cargo transport unit if:

- o *Written approval of the competent authority.*
- o *An equivalent standard of safety shall be maintained.*

- 1. CHECK SEGREGATION TABLE WITH PRIMARY AND SUB RISKS IF ANY (SEE BELOW TABLE)**
- 2. CHECK COLUMN 16 “STOWAGE & SEGREGATION” IN THE DANGEROUS GOOD LIST (VOLUME 2 PART 3)**

SEGREGATION TABLE (IMDG Code 7.2.1.16)

CLASS		1.1 1.2 1.5	1.3 1.6	1.4	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
Explosives	1.1, 1.2, 1.5	*	*	*	4	2	2	4	4	4	4	4	4	2	4	2	4	X
Explosives	1.3, 1.6	*	*	*	4	2	2	4	3	3	4	4	4	2	4	2	2	X
Explosives	1.4	*	*	*	2	1	1	2	2	2	2	2	2	X	4	2	2	X
Flammable gases	2.1	4	4	2	X	X	X	2	1	2	X	2	2	X	4	2	1	X
Non-toxic, non-flammable gases	2.2	2	2	1	X	X	X	1	X	1	X	X	1	X	2	1	X	X
Toxic gases	2.3	2	2	1	X	X	X	2	X	2	X	X	2	X	2	1	X	X
Flammable liquids	3	4	4	2	2	1	2	X	X	2	1	2	2	X	3	2	X	X
Flammable solids (including self-reactive substances and solid desensitized explosives)	4.1	4	3	2	1	X	X	X	X	1	X	1	2	X	3	2	1	X
Substances liable to spontaneous combustion	4.2	4	3	2	2	1	2	2	1	X	1	2	2	1	3	2	1	X
Substances which, in contact with water, emit flammable gases	4.3	4	4	2	X	X	X	1	X	1	X	2	2	X	2	2	1	X
Oxidizing substances (agents)	5.1	4	4	2	2	X	X	2	1	2	2	X	2	1	3	1	2	X
Organic peroxides	5.2	4	4	2	2	1	2	2	2	2	2	2	X	1	3	2	2	X
Toxic substances	6.1	2	2	X	X	X	X	X	X	1	X	1	1	X	1	X	X	X
Infectious substances	6.2	4	4	4	4	2	2	3	3	3	2	3	3	1	X	3	3	X
Radioactive material	7	2	2	2	2	1	1	2	2	2	2	1	2	X	3	X	2	X
Corrosive substances	8	4	2	2	1	X	X	X	1	1	1	2	2	X	3	2	X	X
Miscellaneous dangerous substances and articles	9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X



Numbers and symbols relate to the following terms as defined in this chapter:

- 1 - "Away from" (3 meters)
- 2 - "Separated from" (6 meters)
- 3 - "Separated by a complete compartment or hold from"
- 4 - "Separated longitudinally by an intervening complete compartment or hold from"

X - The segregation, if any, is shown in the Dangerous Goods List Column 16 of IMDG Code

* - See IMDG Code 7.2.7.2 .

Examples:

- Alcohol, UN 1986, Class 3, Sub risk 6.1 and Safety Matches, UN 1944, Class 4.1
 - o "x" in both crossover boxes (3/4.1 and 6.1/4.1)
 - o Columns 16 of the Dangerous Goods list of the IMDG code volume 2 for both UN number state nothing.
 - => Possible to arrange both Dangerous Goods in the same container.
- Perchloric acid (70%), UN 1873, Class 5.1, Sub risk 8 and Safety Matches, UN 1944, Class 4.1
 - o "1" in both crossover boxes (5.1/4.1 and 8/4.1) => "Away from" so possible with approval of the competent authority.
 - o Column 16 of the Dangerous Goods list of the IMDG Code volume 2 for UN 1873 states that must be 'Separated from' class 4.1.
 - => Impossible to arrange in the same container.
- UN 3073, Cl 6.1,(3),(8),PG II and UN 1784, Cl 8, PG II
 - o "x" in all crossover boxes (6.1/8, 3/8, 8/8)
 - o But column 16 of the Dangerous Goods list of the IMDG Code volume 2 for UN 3073 states that must be 'Separated from' Acids
 - o 1784 is part of the Acid "Segregation group" (see IMDG Code 3.1.4)
 - => The two substances are prohibited in the same container.

EVEN IF THE SEGREGATION TABLE ALLOWS CLASSES TO BE STOWED TOGETHER, THE INDIVIDUAL SUBSTANCES MAY BE INCOMPATIBLE AND THEREFORE PROHIBITED IN THE SAME CONTAINER.

YOU HAVE ALSO TO REFER TO THE DANGEROUS GOODS LIST OF THE IMDG CODE AND TO CHECK COLUMN 16 ENTRY FOR ALL THE UN NUMBERS.

Remarks:

- Foodstuffs, canned, bottled food and drinks should not be loaded in the same shipping container as dangerous goods of classes 6.1,6.2,7 or 8.
- Limited quantities: There are a number of advantages to classify goods as "limited quantities" so that the rules for segregation between different types of Dangerous Goods are substantially relaxed. Incompatible goods in "limited quantity" may be shipped in the same container but in separate packages.

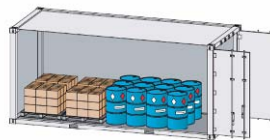
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- **PACKING AND SECURING THE GOODS (IMDG Code 7.5.2)**

THE PACKER IS LEGALLY RESPONSIBLE FOR ENSURING THE DANGEROUS GOODS ARE CORRECTLY PRESENTED AND THE SHIPPING CONTAINER SAFELY PACKED.
HE WILL SIGN THE CONTAINER PACKING CERTIFICATE

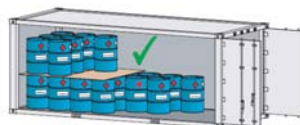
- Pre-loading assessment
 - Shipper's declaration is in order.
 - Packages have been checked for marks and labels.
 - Damaged or leaking packages have been set aside.
 - Segregation checks have been successfully carried out.
- Stow plan and load list to the loaders
- Inspection of the container:
 - See "Container inspection prior to stuffing" & "Container inspection after packing"
- Loading the container:
 - No damaged or leaking packages shall be packed into the container.
 - Excessive water, snow, ice or foreign matter adhering to packages shall be removed before packing.
 - Dangerous goods packed so as to be accessible (close to the doors of the container).



- Dangerous Goods labels facing container doors.



- Load solids over liquids.
- Load light over heavy.
- Use sheet material between tiers as a way to distribute the weight.





Remark : As per CMA CGM procedure (cf SMM03-Haz Cargo-210), hazardous liquids in plastic outer packagings codification beginning by 1H or 3H, whatever classes they are, weighed for 10 T or more are acceptable with the proviso that a letter, email or other written means issued by the shipper states that:

Means permitting a good repartition of weight has been placed between each tier (they can be timber sheets, pallets or other means).

Or

That all plastic packagings are only stowed on one tier.

- Cargo blocked, braced and secured to avoid sliding & tipping inside the container. Empty spaces filled with resilient materials.



- If the doors of a cargo transport unit are locked, the means of locking shall be such that, in cases of emergency, the doors can be opened without delay.
- Irrelevant markings, labels, placards, orange panels and signs shall be removed before packing.

Remark: See also [PACK AND SECURE THE GOODS INSIDE THE CONTAINER](#)



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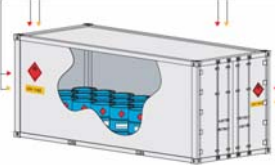
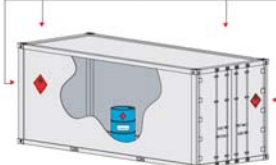
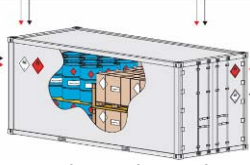
• PLACARDING AND LABELLING OF THE CONTAINER (see IMDG Code 5.3)

HAZARDS

ENLARGED LABELS (PLACARDS), MARKS AND SIGNS MUST BE AFFIXED TO THE EXTERIOR SURFACES OF CONTAINER TO WARN THAT THE CONTAINER IS DANGEROUS AND PRESENTS RISKS. IMPROPER MARKING AND LABELLING MAY INDUCE A HUGE SECURITY CONCERN WHILE HANDLING OR MOVING THE CONTAINER OR IN CASE OF AN ACCIDENT.

BEST PRACTICES

THE PACKER IS RESPONSIBLE FOR ATTACHING PLACARDS AND LABELS TO ANY CONTAINERS IN WHICH DANGEROUS GOODS HAVE BEEN PACKED.

 Single hazardous substance more than 4000 kgs 4 x Diamond placard 4 x UN numbers	 Single hazardous substance less than 4000 kgs 4 x Diamond placards	 Single hazardous substance more than 4000 kgs with sub-risk 8 x Diamond placards 4 x UN numbers	 More than 1 hazardous substance 2 x 4 x Diamond placards (2 substances)
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OTHER MARKS & LABELS

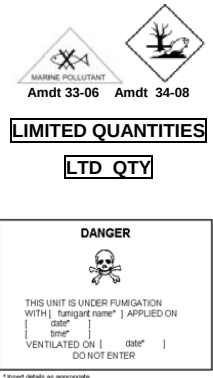
- o **MARINE POLLUTANT:** If the cargo or part of the cargo is Marine Pollutant, the said mark to be affixed on the 4 sides of the container
- o **LIMITED QUANTITIES:** If only dangerous goods in limited quantities, the container must be suitably marked on the 4 sides as "EN QUANTITE LIMITEE", "LIMITED QUANTITIES" or "LTD QTY".
- o **FUMIGATED UNITS:** When a container or its content has been fumigated and is to be shipped under fumigation,
 - o It has to be declared as UN 3359-CI 9 but marks & labels for UN 3359 are not required.
 - o 1 warning sign should be affixed to the outside of the doors, clearly visible to any person operating the door
 - o The sign should state the fumigant, the date and time when it took place.
 - o The sign should only be removed when the unit has been ventilated and when the fumigated goods or materials have been unloaded.

Remark: The Proper Shipping Name of the contents shall be durably marked on at least both sides of bulk containers containing dangerous goods.

RECOMMENDATIONS

- o All placards, labels, marks and signs shall be removed from containers by the receiver as soon as the dangerous goods are unstuffed. Dangerous goods marks on empty containers may result in fines.
- o Improper labelled containers must be refused at gate in by Terminal Operator.

ALL SPECIFICATIONS FOR PLACARDS, MARKS, LABELS & SIGNS Are Specified In the IMDG Code



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ANNEX 1: STUFFING-SPECIAL RECOMMENDATIONS

• THE ART OF STUFFING COILS

IT IS SHIPPER'S RESPONSIBILITY TO BRACE AND SECURE THE CARGO INSIDE A FCL CONTAINER.

• Loading instructions

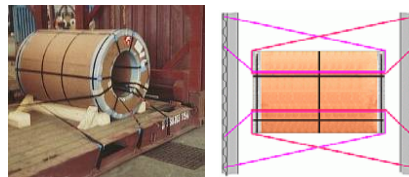
- Only 30 tonnes GW tested 20' containers to be used.
- The steel coil must have NO CONTACT WITH THE FLOOR of the container.
- Weight per linear meter = 5mtons max.
- Coils must have a support (timber or steel beam) and the support contact area must allow pressure of maximum 5 tons / meter (linear)
- The coil must be individually secured inside the container.
- The steel coil can cover the max payload of the container only if the coil's weight is distributed proportionally in the container (Max 5 Tons/ Linear Meter).
- Avoid pressure on side walls of the container
- Proper lashing and blocking sideward and door side necessary.



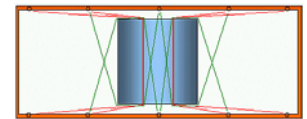
PROHIBITED
No pressure on
side walls



• Coils on flat rack container



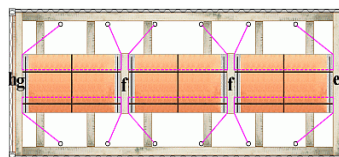
Coils on flat rack + loop lashing



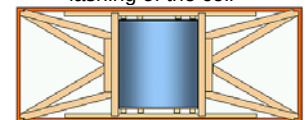
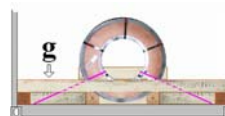
Longitudinal and transverse
lashing of the coil

• Coils in 20 standard container

• Eye to side

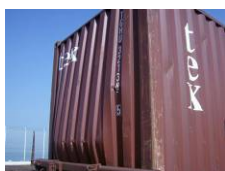
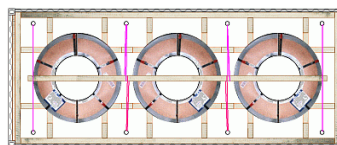


3 coils blocked and lashed



Longitudinal and transverse
shoring of the coil

• Eye to sky



Coils
Transport by rail

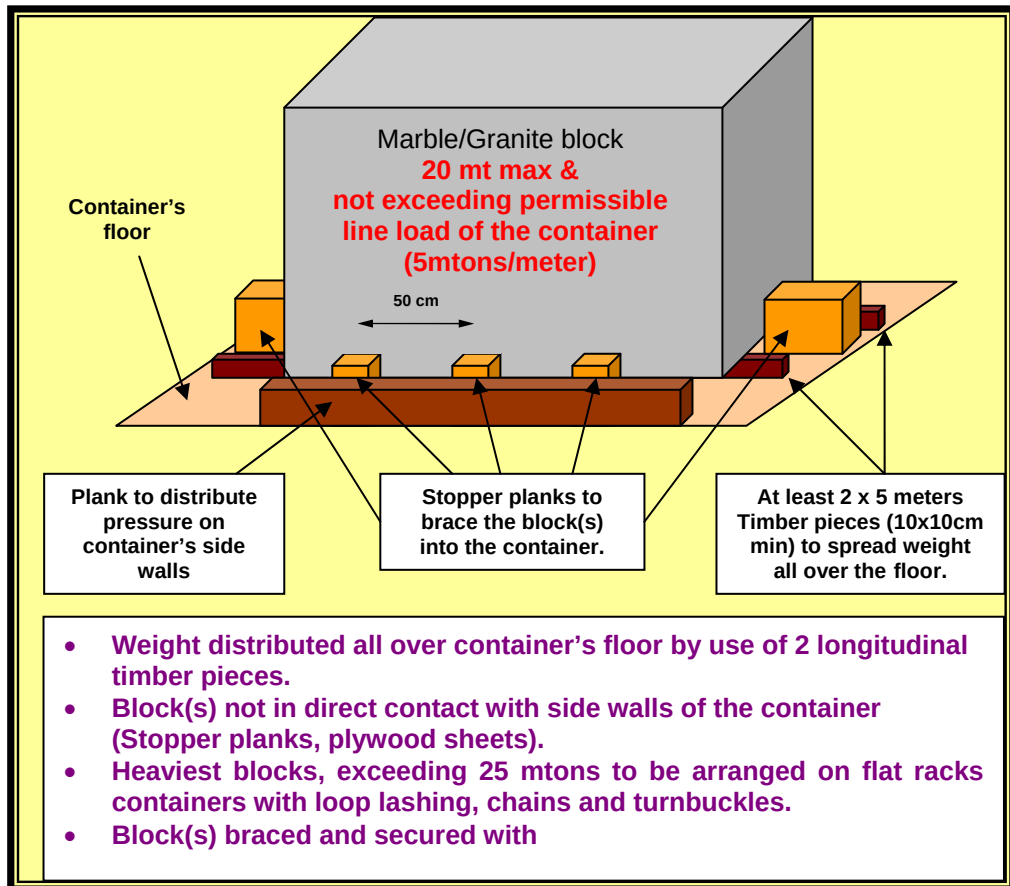
- Coils Sec
- Coils do not stick out beyond pallet edges
- Coils should be secured firmly to the pallets and to the container security rings (breaking strength of each strap should be less than that of the container's securing ring)
- Total breaking strenght of steel straps should be 5 times the weights of coil

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• THE ART OF STUFFING MARBLE/GRANITE BLOCKS

IT IS SHIPPER'S RESPONSIBILITY TO BRACE AND SECURE THE CARGO INSIDE A FCL CONTAINER.



- 30 mtons tested and 6 years old containers at the least should be selected (Grade B or C, brand new ones forbidden).
- Weight on floor: 5 mtons max per linear meter (Permissible Line Load not to be exceeded: 5 mtons/lm).
- Max allowable cargo weight: 20 mtons maximum.
- Block(s) to be individually secured inside the container.
- Block(s) not to be in contact with container's floor. Blocks to stand on 2 rafters/long pieces of timber (10x10 cm at minimum and 5 meters long) to distribute the weight all over container's floor.
- Block(s) not to be in contact with side walls of the container (Plywood sheets, airbags...).
- Wedging of block(s) on all side walls of the container. Lashing in addition only.
- HEAVIEST BLOCKS, EXCEEDING 20 MTONS TO BE ARRANGED ON FLAT RACKS CONTAINERS with loop lashing with chains and turnbuckles.

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• THE ART OF STUFFING LOGS IN CLOSED CONTAINERS

IT IS SHIPPER'S RESPONSIBILITY TO BRACE AND SECURE THE CARGO INSIDE A FCL CONTAINER.

CMA CGM is currently experiencing serious damages pertaining from improper stuffing of timber logs into containers. The resulting damages include but are not limited to, damages to cargo, to containers, to vessels as well as injuries to stevedores, company staff and vessel crew.

- **CMA CGM reserves the right to attend and monitor any timber logs stuffing operations at any time.**
- **The stuffing operation remains the responsibility of the shipper who must strictly adhere to CMA CGM procedures.**
- **CMA CGM agent at POD is entitled to collect a deposit from consignee before release of containers.**

- Containers should be selected: Use of grade C containers or at least 8 years old containers is strongly recommended. The use of brand new containers is strictly prohibited.
- Timber logs **MUST NOT BE IN CONTACT WITH THE SIDES OF THE CONTAINER** (doors, left and right hand side, front side and roof).
- Timber logs **MUST BE PROPERLY LASHED AND SECURED** using blocks / wedges and 2 pairs of metal straps of 32 mm (min 24 mm) + clamps which must be positioned first inside containers.
- Timber logs are classified as followed
 - o Light logs : Density # 0.6 ; $\varnothing \leq 2.0$ meters
 - o Mid weight logs : Density # 0.8 ; $\varnothing < 2$ meters
 - o Heavy logs : Density ≥ 1 , $\varnothing \leq 1.70$ meters (Kevazingo / Bubinga are forbidden)
- Empty container(s) will be returned to container depot free of any debris, dunnage, lashing equipment and must be cleaned and odorless.



Metal straps



Wedges



Light logs



securely lashed with metal straps and wedges

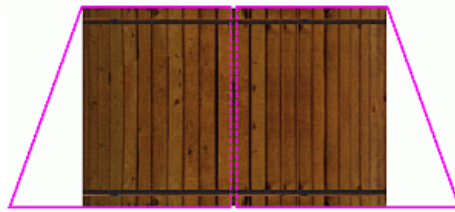
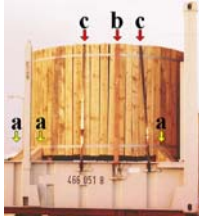
Heavy logs



• THE ART OF STUFFING CABLE REELS

IT IS SHIPPER'S RESPONSIBILITY TO BRACE AND SECURE THE CARGO INSIDE A FCL CONTAINER.

1. ON FLAT RACK EYE TO SKY



Wedges and loop lashing

2. OVERHEIGHT ON FLAT RACK EYE TO SIDE



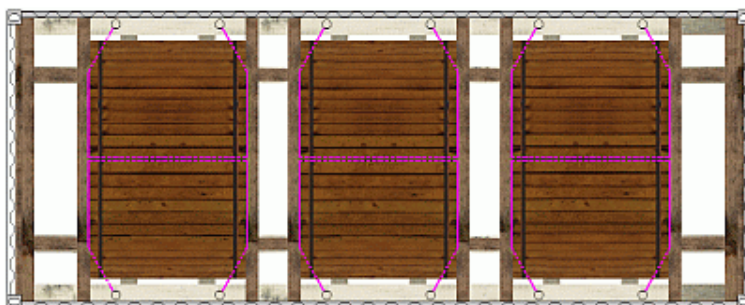
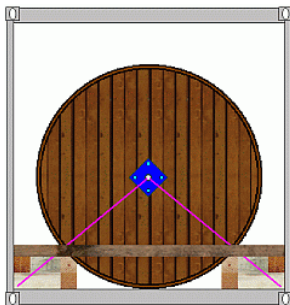
Vertical & oblique

securing



cross lashing

3. IN STANDART CONTAINER



loop lashings and appropriate wooden bracing in cross-section

Advices:

- Preferable to stow in fore-and-aft line of the ship rather than athwartships if possible because of ship's rolling at sea.
- Reels of cable chocked with timber, appropriate to the size of the reels.
- Larger reels must be stowed and secured individually. Suitable timber cradle to be constructed or wedges of suitable size to be fitted.
- Small reels may be block-stowed without any vacant space, block timbered and secured by use of appropriate lashing materials.

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• REFRIGERATED CARGO IN REEFER CONTAINER

IMPORTANT ADVICE WHEN USING REEFER CONTAINERS

Before shipping refrigerated cargo always verify:

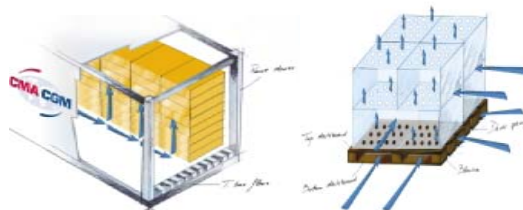
- That it can withstand the transit time.
- The optimal temperature required (for recommendations please refer to the reefer section on our website).
- The correct ventilation (m³/hour) and humidity settings.
- That in the case of frozen cargo, the vents are closed.
- That the correct packing materials and cargo stowage procedures are used.

CARGO CARE

Reefers are used to carry two main kinds of cargo: chilled or fresh produce (primarily fruits and vegetables) and frozen foods (primarily meat, fish and dairy products). In both cases, the cargo has to be pre-cooled to the optimal carrying temperature, because reefer containers are built to maintain temperatures, not to lower them. The container itself, however, should not be pre-cooled, so as to minimize interior condensation, which weakens the packing materials and hinders the functioning of the reefer unit. Also, never load cargo above the internal red line.

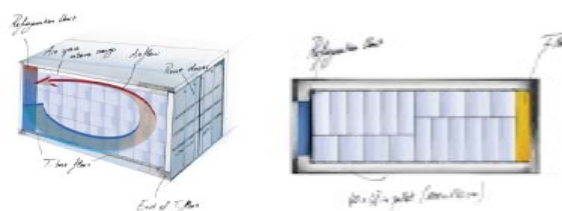
• Airflow

Air always takes the path of least resistance. In the case of fruits and vegetables, which represent a large percentage of chilled cargo, air has to be forced through vents in the boxes, in order to remove the heat generated by respiration. In the case of frozen cargo, there is no respiration, so airflow around the cargo is enough to maintain the cargo temperature.



• • Cargo Stowage

Cargo can be palletized or bulk, but in both cases solid block stowage is recommended, leaving no space between the cartons and between the cartons and the container walls. All of our containers are bottom air delivery, since air is forced up through the cargo the entire floor space should be covered. The two diagrams below show the proper loading procedures.





●●● Ventilation

All units are equipped with vents to create a more suitable atmosphere for fresh fruits and vegetables. Fresh air can be removed and replaced at the rate of 0 to 260 m³/hour. For frozen cargo ventilation should be closed.

●●●● Dehumidification

Humidity can be reduced to 55% and controlled at this level (ask our reefer department).

●●●●● Why Controlled Atmosphere?

For some chilled products, such as avocados and asparagus, shelf life can be extended by applying new reefer technology. By using a natural process to adjust the composition of the air inside the container, the resulting controlled atmosphere will increase shelf life, improve product quality and decrease dehydration. This is accomplished by delaying the opening of the air exchange flap, only using air exchange when needed, and/or reducing product respiration by maintaining elevated CO₂ levels for appropriate commodities.

Ask for a CMA CGM Reefer Brochure

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• OPEN TOP CONTAINER



OPEN TOP CONTAINERS HAVE TYPICAL DISTINGUISHING STRUCTURAL FEATURES, REMOVABLE ROOF BOWS AND DOOR HEADERS WHICH MAY BE SWIVELLED OUT. THESE TWO STRUCTURAL FEATURES, WHICH CONTRIBUTE TO CONTAINER STABILITY, GREATLY SIMPLIFY THE PROCESS OF PACKING AND UNPACKING FROM ABOVE OR THROUGH THE DOOR BY CRANE OR CRAB. OPEN TOP CONTAINERS ARE PARTICULARLY SUITABLE FOR BULKY CARGO SUCH AS MACHINERY.

HAZARDS

OPEN TOP CONTAINERS SPECIFICATIONS AND TESTING ARE ISSUED AND PERFORMED WITH ROOF BOWS AND DOOR HEADERS IN POSITION (ISO 1496-1, §6 AND ANNEXE II CHAP 7 CSC).

- o If these two structural features are not in place, this could lead to damages to the container and may jeopardize safety.
- o The approval of an open top container is no more valid when used without roof bows. In case of accident **cma cgm** would be fully responsible for the consequences of this particular use of open top container.

BEST PRACTICES

- o THE USE OF OPEN TOP CONTAINERS FOR OUT OF GAUGE CARGO IS NOT APPROVED BY CMA CGM LOGISTICS Dpt.
- o FLAT RACK CONTAINERS ARE MORE SUITABLE FOR OVERHEIGHT CARGOES.
- o To avoid any foreign intrusion inside the container and so to comply with customs regulations requirements, tarpaulin and cable sealing device have to be in place and a bolt or cable seal affixed (see hereunder).
Nota: Metal or plastic strap seals are not standard for full containers.



Cable seal is compliant with the C-TPAT and ISO / PAS 17712

In case of a special line's management agreement to use such containers for OOG cargoes, it is highly recommended to comply with following rules:

- o Maximum weight of cargo to be reduced to 60% of the Max Payload indicated on the container's door (# 16 mtons).
- o Weight of cargo to be supported by container floor and not by side rails nor side walls.
- o Cargo weight spread all over container's floor and all over container length.
- o Cargo properly lashed and secured.

Nota: Open Top containers without tarpaulin and TIR cord cannot be sealed as required by Customs regs.

High security bolt seal cannot be fitted . Cable seal compliant with the C-TPAT and ISO / PAS 17712 can be affixed



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ANNEX 2: MULTIMODAL DANGEROUS GOODS FORM

This form may be used as a dangerous goods declaration as it meets the requirements of SOLAS 74, chapter VII, regulation 4; MARPOL 73/78, Annex III, regulation 4

1 Shipper/Consignor/Sender		2 Transport document number					
		3 Page 1 of pages		4 Shipper's reference			
		5 Freight Forwarder's reference					
6 Consignee		7 Carrier (to be completed by the carrier)					
		SHIPPER'S DECLARATION I hereby declare that the contents of this consignment are fully and accurately described below by the Proper Shipping Name, and are classified, packaged, marked and labelled/placarded and are in all respects in proper condition for transport according to the applicable international and national governmental regulations.					
8 This shipment is within the limitations prescribed for: (Delete non-applicable) PASSENGER AND CARGO AIRCRAFT CARGO AIRCRAFT ONLY		9 Additional handling information					
10 Vessel/flight no. and date						11 Port/place of loading	
12 Port/place of discharge						13 Destination	
14 Shipping marks *Number and kind of packages; description of goods Gross mass (kg) Net mass (kg) Cube (m³)							
DANGEROUS GOODS DESCRIPTION							
15 Container identification No./ vehicle registration No.		16 Seal number(s)	17 Container/vehicle size & type	18 Tare mass (kg)	19 Total gross mass (including tare) (kg)		
CONTAINER/VEHICLE PACKING CERTIFICATE I hereby declare that the goods described above have been packed/ loaded into the container/vehicle identified above in accordance with the applicable provisions. † MUST BE COMPLETED AND SIGNED FOR ALL CONTAINER/VEHICLE LOADS BY PERSON RESPONSIBLE FOR PACKING/LOADING.			21 RECEIVING ORGANISATION RECEIPT Received the above number of packages/containers/trailers in apparent good order and condition unless stated hereon: RECEIVING ORGANISATION REMARKS:				
20 Name of company			Haulier's name		22 Name of company (OF SHIPPER PREPARING THIS NOTE)		
Name/Status of declarant			Vehicle reg. no.				
Place and date			Signature and date		Place and date		
Signature of declarant			DRIVER'S SIGNATURE		Signature of declarant		



*** DANGEROUS GOODS:**

You must specify: Proper Shipping Name, hazard class, UN No., packing group, (where assigned) marine pollutant and observe the mandatory requirements under applicable national and international governmental regulations. For the purposes of the IMDG Code see [5.4.1.4](#)

† For the purposes of the IMDG Code, see [5.4.2](#)

Documentary Aspects of the International Transport of Dangerous Goods

Container/Vehicle Packing Certificate

The signature given overleaf in Box 20 must be that of the person controlling the container/vehicle operation.

When materials are transported in bulk packagings the cargo has been evenly distributed in the container/vehicle.

It is certified that:

The packages and the container/vehicle have been properly marked, labelled and placarded. Any irrelevant mark, labels and placards have been removed.

The container/vehicle was clean, dry and apparently fit to receive the goods.

If the consignments include goods of class 1, other than division 1.4, the container is structurally serviceable.

When solid carbon dioxide (CO₂ - dry ice) is used for cooling purposes, the vehicle or freight container is externally marked or labelled in a conspicuous place, e.g. at the door end, with the words: DANGEROUS CO₂ GAS (DRY ICE) INSIDE - VENTILATE THOROUGHLY BEFORE ENTERING.

No incompatible goods have been packed into the container/vehicle unless specially authorised by the Competent Authority.

When this Dangerous Goods Form is used as a container/vehicle packing certificate only, not a combined document, a dangerous goods declaration signed by the shipper or supplier must have been issued/received to cover each dangerous goods consignment packed in the container.

All packages have been externally inspected for damage and only sound packages packed.

Drums have been stowed in an upright position, unless otherwise authorised by the Competent Authority.

Note: The container packing certificate is not required for tanks

All packages have been properly packed and secured in the container/vehicle.

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ANNEX 3: UN PACKAGING CODES

Kind	Material	Category	Code	Paragraph
1. Drums	A. Steel	non-removable head	1A1	6.1.4.1
		removable head	1A2	
	B. Aluminium	non-removable head	1B1	6.1.4.2
		removable head	1B2	
	D. Plywood	-	1D	6.1.4.5
	G. Fibre	-	1G	6.1.4.7
	H. Plastics	non-removable head	1H1	6.1.4.8
		removable head	1H2	
	N. Metal, other than steel or aluminium	non-removable head	1N1	6.1.4.3
		removable head	1N2	
2.	(Reserved)			
3. Jerricans	A. Steel	non-removable head	3A1	6.1.4.4
		removable head	3A2	
	B. Aluminium	non-removable head	3B1	6.1.4.4
		removable head	3B2	
	H. Plastics	non-removable head	3H1	6.1.4.8
		removable head	3H2	
4. Boxes	A. Steel	-	4A	6.1.4.14
	B. Aluminium	-	4B	6.1.4.14
	C. Natural wood	ordinary	4C1	6.1.4.9
		with sift-proof walls	4C2	
	D. Plywood	-	4D	6.1.4.10
	F. Reconstituted wood	-	4F	6.1.4.11
	G. Fibreboard	-	4G	6.1.4.12
	H. Plastics	expanded	4H1	6.1.4.13
		solid	4H2	
5. Bags	H. Woven plastics	without inner liner or coating	5H1	6.1.4.16
		sift-proof	5H2	
		water-resistant	5H3	
	H. Plastics film	-	5H4	6.1.4.17
	L. Textile	without inner liner or coating	5L1	6.1.4.15
		sift-proof	5L2	



	M. Paper	water-resistant	5L3	6.1.4.18
		multiwall	5M1	
		multiwall, water-resistant	5M2	
6. Composite packagings	H. Plastics receptacle	in steel drum	6HA1	6.1.4.19
		in steel crate or box	6HA2	6.1.4.19
		in aluminium drum	6HB1	6.1.4.19
		in aluminium crate or box	6HB2	6.1.4.19
		in wooden box	6HC	6.1.4.19
		in plywood drum	6HD1	6.1.4.19
		in plywood box	6HD2	6.1.4.19
		in fibre drum	6HG1	6.1.4.19
		in fibreboard box	6HG2	6.1.4.19
		in plastics drum	6HH1	6.1.4.19
		in solid plastics box	6HH2	6.1.4.19
	P. Glass, porcelain or stoneware receptacle	in steel drum	6PA1	6.1.4.20
		in steel crate or box	6PA2	6.1.4.20
		in aluminium drum	6PB1	6.1.4.20
		in aluminium crate or box	6PB2	6.1.4.20
		in wooden box	6PC	6.1.4.20
		in plywood drum	6PD1	6.1.4.20
		in wickerwork hamper	6PD2	6.1.4.20
		in fibre drum	6PG1	6.1.4.20
		in fibreboard box	6PG2	6.1.4.20
		in expanded plastics packaging	6PH1	6.1.4.20
		in solid plastics packaging	6PH2	6.1.4.20

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