

1. Introduction

Transport of dangerous goods by sea is regulated in order to reasonably prevent injury to persons or damage to the ship and its cargoes. Transport of so-called marine pollutants is primarily regulated to prevent harm to the marine environment.

The objective of the regulations is to enhance the safe transport of dangerous goods while facilitating the free unrestricted movement of such goods.

The classification of dangerous goods and certain general provisions concerning their transport in ships were adopted by the 1948 SOLAS Conference.

Vessels supplying the offshore industry are required to carry a variety of dangerous goods including those in packaged form. The design of the vessels and operational conditions do not assist compliance with the requirements of the IMDG code. Furthermore, it has been noted that the back loading process often gives rise to incorrectly declared, stowed, secured and labelled dangerous goods.

This IMDG Reference is a guideline to assist personnel involved in the transport of dangerous goods to and from offshore locations. It provides the following general information:

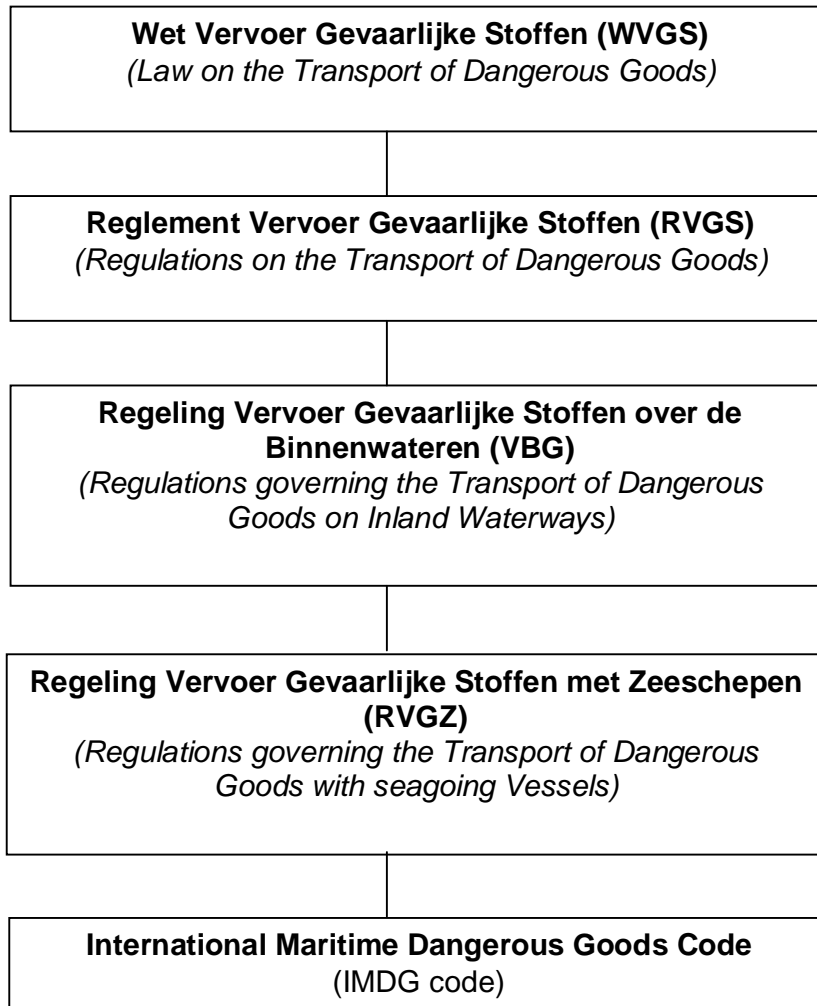
- § Legal requirements
- § Packaging of dangerous goods
- § Marking and labelling of packages
- § Marking and labelling of containers and baskets
- § Marking and labelling of tank and containers
- § Marking and labelling of IBC's
- § Documentation
- § Segregation
- § Transport of equipment with an diesel engine
- § Revised marking requirements for Limited Quantities

Note:

This IMDG Reference contains only details and explanations of the requirements in the IMDG code. Application of the regulations must always be made using the official valid edition of IMDG code.

2. Legal requirements

The regulations for the transport of dangerous goods by sea in The Netherlands are shown in the schedule below.



As shown in this schedule, transport by sea-going vessels must be in compliance with the general rules of the Dangerous Goods Act (WVGS), the Dangerous Goods Regulations (RVGS), the Regulations governing the transport on inland waterways (VBG), the Regulations governing the transport of dangerous goods with sea-going vessels (RVGZ) and the International Maritime Dangerous Goods Code (IMDG code).

3. Packaging of dangerous goods

UN approved packing

In general, dangerous goods must be packed in (UN) approved packages.

Packages such as boxes, drums, jerry cans, cylinders and intermediate bulk containers (IBCs) must be UN certified. For gas cylinders, which are not UN certified, national approval is also acceptable.

Tank containers must be either of an IMO or UN type and must have a valid certification on their test data plate.

Limited Quantities

Dangerous Goods in limited quantities may be carried in non UN approved packages, provided the maximum quantity per inner package does not exceed the specified limits and the inner packages are firmly secured in outer packagings.

The gross mass of the completed package must not exceed 30 kg.

Overpacks

If dangerous goods packages are shrink-wrapped on a pallet or contained within e.g. a box pallet, the pallet should be treated as an overpack.

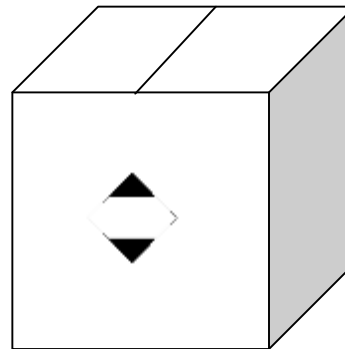
4. Marking and labelling of packagings

Every package containing dangerous goods must be marked with the UN number (preceded by the letters UN) and the proper shipping name, e.g. **UN 1230 METHANOL**.

Packagings containing dangerous goods in Limited Quantities need not to be marked with the proper shipping name, but must be marked with the limited quantity mark.



Marking and labelling
UN approved drum



Marking of a packaging
with Limited Quantity

Note: For limited quantity packages that also comply with the regulations for air transport, the limited quantity placard may contain the letter “Y” in the middle part.

Marking and labelling of overpacks

Overpacks must be marked with the UN number(s) and proper shipping name(s) of all substances contained within the overpack and the word OVERPACK.

Overpacks must be marked with hazard labels of 10 x 10 cm for each dangerous goods contained within the overpack.

Overpacks containing only dangerous goods in Limited Quantities must be marked with the Limited Quantity placard and the word OVERPACK.

5. Marking and placarding of cargo transport units(containers, baskets)

General

Recently we have noticed some confusion with regards to the placarding of cargo transport units containing dangerous goods. A cargo transport unit - freight container, basket or tank container - containing dangerous goods or residues of dangerous goods shall clearly display placards on each side and on each end of the unit indicating the risk of the content. Tank containers must also be marked with the UN number on each side and the proper shipping name on 2 opposite sides.

Hazard labels

Containers or baskets that are loaded with dangerous goods in packages with hazard labels must be placarded on four sides with the same hazard labels as shown on the packages. The placards must have dimensions of not less than 25 x 25 cm.



Basket loaded with dangerous goods - Placards on **4 SIDES**

Exceptions

Placards are NOT required on cargo transport units

- Carrying any quantity of explosives of division 1.4 compatibility group S
- Carrying excepted packages of radioactive material – class 7
UN2908 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, EMPTY PACKAGE
UN 2910 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, LIMITED QUANTITY OF MATERIAL
UN 2911 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, ARTICLES
- Carrying dangerous goods packed in Limited Quantities

Containers and baskets that **only** contain dangerous goods in Limited Quantities must on four sides be placarded with the Limited Quantity mark, which must have dimensions of 25 x 25 cm.



Container with **ONLY** dangerous goods in Limited Quantities - Limited Quantity placard on **4 SIDES**

Packages with hazard labels and Limited Quantities in the same cargo transport unit

When both packages with hazard labels and packages containing dangerous goods in Limited Quantities are loaded together in the same container, the container should only be placarded with the applicable hazard labels, not with the Limited Quantity mark.

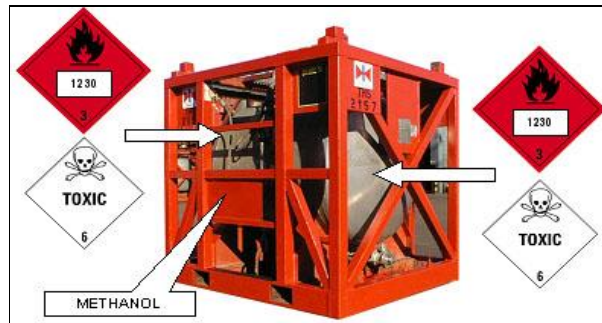
6. Marking and placarding of tank containers

Tank containers must be placarded with hazard labels (25 x 25 cm) showing the UN number on a white background in the lower half of the label on four sides and must show the proper shipping name of the contents on two opposite sides (those with the forklift pockets).

or

be labelled with hazard labels (25 x 25 cm) and orange placard with the UN number on four sides and must show the proper shipping name of the contents on two opposite (long) sides

Option 1



*Note: hazard labels and UN number to be affixed on **four sides**, proper shipping name on **two opposite sides***

Option 2



*Note: hazard labels and orange signs to be affixed on **four sides**, proper shipping name on **the two opposite sides***

Minimum dimensions of the UN number and the proper shipping name

The UN number and proper shipping name shall be displayed in characters not less than 65 mm high and shall be of the contrasting colour with the background.

7. Intermediate Bulk Container – IBC

Also IBC's sometimes cause confusion.

The unit below should be considered an IBC with a content of more than 450 L.

The requirements for the marking and labelling of IBC's > 450 L are:

- Dangerous goods placards 10 x 10 cm. on 2 opposite sides
- Proper shipping name on 2 opposing sides
- UN number on 2 opposing sides



Hazard labels (10x10 cm)
UN NUMBER
PROPER SHIPPING NAME





















It is also possible to use 25 x 25 cm on 4 sides as long as the UN number and the proper shipping name are also displayed on 2 opposite sides.

8. Overview marking and labelling

The table below provides an overview of the requirements for marking and labelling.

Type	Marking	Hazard labels / Placards (inclusive Marine Pollutant mark)
Packages	<ul style="list-style-type: none"> UN number and Proper shipping name 	Labels (10 x 10 cm) on one side
Overpacks	<ul style="list-style-type: none"> UN number and Proper shipping name The word "OVERPACK" 	Labels (10 x 10 cm) on one side
Radioactive packages	<ul style="list-style-type: none"> UN number and Proper shipping name Additional markings (see IMDG-code 5.2.1.5) 	Labels (10 x 10 cm) on two opposite sides
IBCs (> 450 L)	<ul style="list-style-type: none"> UN number and Proper shipping name on two opposite sides 	Labels (10 x 10 cm) on two opposite sides
Containers	<ul style="list-style-type: none"> UN number if more than 4000 kg of the same substance; otherwise no markings required; The Limited Quantity mark if only dangerous goods in limited quantities are loaded in the container 	Placards (25 x 25 cm) on four sides
Tank containers	<ul style="list-style-type: none"> UN number on four sides Proper shipping name on two opposite sides 	Placards (25 x 25 cm) on four sides

9. Applicable labels for Dangerous Goods

			
Class 1.1, 1.2, 1.3 * Explosives	Class 1.4 ** Explosives	Class 2.1 Flammable gas	Class 2.2 Non-flammable, non-toxic gas
			
Class 2.3 Toxic gas	Class 3 Flammable liquid	Class 4.1 Flammable solid	Class 4.2 Spontaneously combustible
			
Class 4.3 Dangerous when wet	Class 5.1 Oxidizing substance	Class 5.2 Organic peroxide	Class 6.1 Toxic substances
			
Class 6.2 Infectious substances	Class 7 Radioactive - I-White	Class 7 Radioactive - II-Yellow	Class 7 Radioactive - III-Yellow
			
Class 8 Corrosives	Class 9 Miscellaneous	Marine Pollutant	Limited quantity

* Class number and compatibility group to be shown in lower half of the label, e.g. 1.3G

** Letter of the compatibility group to be shown in lower half of the label, e.g. G

10. Documentation for Dangerous Goods

General

When dangerous goods are offered for transport a document is required to give carrier information applicable to the dangerous goods.

The format of the document is free but it must contain all required information as per the IMDG code.

Information required

1. UN number preceded by the letters “UN”
2. Proper shipping name
3. Primary hazard class or division and for class 1 the compatibility group letter
4. Subsidiary hazard class where applicable
5. Packing group where applicable

These 5 elements of the DG description must be shown in the order listed above with no information interspersed, except as provided in the IMDG code. Unless permitted or required by the IMDG code additional information shall be placed after the DG description.

Additional information

In addition the following information regarding the dangerous goods shall be included:

- Total quantity – in case of class 1 (explosives) the total net quantity of explosives
- Number and kind of package
- Indication of Marine Pollutant where applicable
- Flashpoint if 60°C or less
- In case of limited quantity the words “limited quantity” or “LTD QTY” shall be included

Supplements to the Proper shipping name

The proper shipping name in the dangerous goods description shall be supplemented as follows:

- If special provision 274 is mentioned in column 6 of the Dangerous Goods List the proper shipping name shall be supplemented with the technical or chemical group name.
- Empty means of containment (including packagings, IBCs, bulk containers, portable tanks, road tank vehicles and railway tank wagons) which contain the residue of dangerous goods of classes other than Class 7 shall be described as such by, for example, placing the words “**EMPTY UNCLEANED**” or “**RESIDUE LAST CONTAINED**” before or after the proper shipping name.
- For waste dangerous goods (other than radioactive wastes) 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.

Container / vehicle packing certificate

When Dangerous Goods are packed or loaded in a container the person of the organization responsible for the packing/loading of the container or vehicle shall provide a “container/vehicle packing certificate”.



This certificate may be part of the IMO Dangerous Goods Declaration or the Multimodal Dangerous Goods Declaration form.

Note 1: The container/vehicle packing certificate is NOT required for tank containers

Note 2: If the Dangerous Goods Declaration is only submitted to the carrier in an electronic format, the signature(s) may be replaced by the name (in capitals) of the person(s) authorized to sign.

Example of an IMO Dangerous Goods Declaration

MULTIMODAL DANGEROUS GOODS FORM

1 Shipper/Consignor/Sender Oil Field Services K16B Platform Continental Shelf The Netherlands		2 Transport document number QRG-12							
		3 Page 1 of 1 pages	4 Shipper's reference						
		5 Freight forwarder's reference							
6 Consignee Peterson SBS Den Helder BV Paleiskade 43 1781 AN Den Helder		7 Carrier (to be completed by the carrier) SNS Pool							
8 This shipment is within the limitations prescribed for: (Delete non-applicable)		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.							
PASSENGER AND CARGO AIRCRAFT		CARGO AIRCRAFT ONLY							
10 Vessel/flight No and date POOL VESSEL	11 Port/place of loading K16B	9 Additional handling information 24 hour emergency response telephone number: (USA 011)++31-223-763456231							
12 Port/place of discharge DEN HELDER	13 Destination Den Helder								
UN	Proper shipping name	Class	PG Flashp	EMS	# of pkg - type of packing	NET	GROSS	NEQ	Remarks
UN 1066	NITROGEN, COMPRESSED	2.2		F-C, S-V	4 Cylinders in gasrack CP-231	40 kg	200 kg		
UN 1072	OXYGEN, COMPRESSED	2.2 (5.1)		F-C, S-W	2 Cylinders in gasrack CP-231	22 kg	150 kg		
UN 1992	WASTE, FLAMMABLE LIQUID, TOXIC, N.O.S. (CONTAINS METHANOL, GAS CONDENSATE AND SLUDGE)	3 (6.1)	II 20 °C	F-E, S-D	1 Tank container THSA 796	2200 L	4600 kg		MARINE POLLUTANT
UN 2990	LIFE-SAVING APPLIANCES, SELF-INFLATING	9		F-A, S-V	4 life rafts, unpacked, loaded in basket GSA 342	380 kg	1246 kg		
UN 1268	PETROLEUM PRODUCTS, N.O.S.	3	II 2 °C	F-E, S-E	1 plywood box loaded in container HT-297	4 L	12 kg		LTD QTY
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)					
see above	n/a			-					
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 Nederlandse Aardolie Maatschappij		Haulier's name		22 Name of company (OF SHIPPER PREPARING THIS NOTE) Oil Field Services					
Name/status of declarant John Loosakker, MATCO		Vehicle reg. no.		Name/status of declarant John Loosakker, MATCO					
Place and date K16B, 02 jul 2012		Signature and date		Place and date K16B, 02 jul 2012					
Signature of declarant 		DRIVER'S SIGNATURE		Signature of declarant 					

11. Segregation

In general, dangerous goods that might react dangerously with each other must be segregated during transport.

Dangerous reactions are:

- § Combustion and/or evolution of considerable heat
- § Evolution of flammable, toxic or asphyxiant gases
- § The formation of corrosive substance
- § The formation of unstable substances

Loading into containers

Dangerous goods, which need to be segregated according to the IMDG code, must not be loaded in the same container, even if the required segregation distance may be achieved in a container.

Segregation table

The segregation table on the next page shows which dangerous goods must be segregated from each other.

Note that for many substances additional segregation requirements apply, such as for caustic soda (sodium hydroxide), which may not be loaded into the same container with acids. These additional segregation requirements are shown in column 16 of the Dangerous Goods List in the IMDG code and always take precedence over the segregation requirements in the table.

For each individual substance the segregation requirements for loading different dangerous goods into the same container and the minimum distance between containers with incompatible substances is shown in the schedules for the individual substances in this guide.

Foodstuffs

Packages containing substances for which toxicity is indicated by a “Toxic” hazard label, infectious substances, radioactive materials and corrosives must not be loaded into the same container with foodstuffs.

Containers with foodstuffs must be separated from containers with toxic, infectious or radioactive materials as indicated in the segregation table on the next page.

Segregation table

Class	1.1 1.2 1.5	1.3 1.6	1.4	2.1	2.1	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
1.1, 1.2, 1.5	*	*	*	4	2	2	4	4	4	4	4	4	2	4	2	4	X
1.3, 1.6	*	*	*	4	2	2	4	3	3	4	4	4	2	4	2	2	X
1.4	*	*	*	2	1	1	2	2	2	2	2	2	X	4	2	2	X
2.1	4	4	2	X	X	X	2	1	2	X	2	2	X	4	2	1	X
2.2	2	2	1	X	X	X	1	X	1	X	X	1	X	2	1	X	X
2.3	2	2	1	X	X	X	2	X	2	X	X	2	X	2	1	X	X
3	4	4	2	2	1	2	X	X	2	1	2	2	X	3	2	X	X
4.1	4	3	2	1	X	X	X	X	1	X	1	2	X	3	2	1	X
4.2	4	2	2	2	1	2	2	1	X	1	2	2	1	3	2	1	X
4.3	4	4	2	X	X	X	1	X	1	X	2	2	X	2	2	1	X
5.1	4	4	2	2	X	X	2	1	2	2	X	2	1	3	1	2	X
5.2	4	4	2	2	1	2	2	2	2	2	X	2	1	3	2	2	X
6.1	2	2	X	X	X	X	X	X	1	X	1	1	X	1	X	X	X
6.2	4	4	4	4	2	2	3	3	3	2	3	3	1	X	3	3	X
7	2	2	2	2	1	1	2	2	2	2	1	2	X	3	X	2	X
8	4	2	2	1	X	X	X	1	1	1	2	2	X	3	2	X	X
9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Foodstuffs	X	X	X	X	X	2	X	X	X	X	X	X	2 ¹⁾	3	2	1	X

¹⁾ Except for Class 6.1, packing group III, where the figure is 1

Explanation of the figures used in the table:

- 1 – not in the same container / on deck 1.5 meter or 1 mini container distance
- 2 - not in the same container / on deck 3 meter or 2 mini containers distance
- 3 - not in the same container / on deck 4.5 meter or 3 mini containers distance
- 4 - not in the same container / on deck 24 meter distance
- X - the segregation, if any, is shown in the Dangerous Goods List
- * - for segregation of different explosives, see 7.2.7.2 of the IMDG code.

Note: Segregation shall also take account of a single subsidiary risk label.

Transport of equipment with a diesel engine by sea

Since January 1st, 2012, Edition 35-10 of the IMDG code is applicable. In this edition of the Code, new regulations apply to the transport by sea of equipment with a diesel engine, such as generators, power units and air compressors.



An exception applies for equipment with a diesel engine of which the fuel tank is completely empty and batteries are protected against short-circuits. When these conditions are complied with, the equipment is not subject to the requirements of the IMDG code.

IMDG classification

Equipment with a diesel engine is classified as

UN 3166 ENGINE, INTERNAL COMBUSTION, Class 9.

Note: In the UK, engines were previously classified as UN 3363, Dangerous goods in machinery. This classification is no longer applicable.

Requirements for equipment with a diesel engine

The following requirements are applicable for equipment containing a diesel engine when the fuel tank is not completely empty:

- The equipment shall not show signs of leakage from batteries, engines or fuel tanks.
- Fuel tanks with diesel fuel shall not contain more than 25% of its capacity with a maximum of 250 liter.
- Installed batteries shall be protected from damage, short circuit and accidental activation during transport.
- Dangerous goods required for the operation of the equipment such as fire extinguishers, compressed gas accumulators etc. shall be securely mounted in the equipment.

Marking and labelling

The equipment does not have to be marked with the UN number and proper shipping name, nor to be labelled with a class 9 hazard label. Containers with this type of equipment do not have to be placarded with class 9 placards.

Dangerous Goods Declaration

A Dangerous Goods Declaration shall be issued for each shipment. The dangerous goods details (e.g. for a power unit) shall be shown as follows:

Shipping marks	Number and kind of packages; description of goods	Gross mass	Net mass	Cub (m ³)
UN 3166	ENGINE, INTERNAL COMBUSTION, Class 9 1 diesel generator, unpacked	1200 kg		

Note: Equipment with a diesel engine is not regarded to be dangerous when transported by road. Therefore, the provisions of ADR are not applicable.

Marking / labelling of packages with Dangerous Goods in Limited Quantities

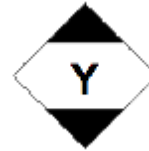
Since January 1st, 2012, Edition 35-10 of the IMDG code is applicable. In this edition of the Code, changes have been introduced for the marking of limited quantity packages and packages with dangerous goods in limited quantities may **no longer** be marked with the UN number in a diamond.



As from January 1, 2012 **only** the limited quantity marking shown below may be used. The mark with the letter Y is used for packages that also comply with the regulations for air transport. The minimum dimensions of the LQ mark are 100 x 100 mm. For small packages, this may be reduced to 50 x 50 mm provided the marking remains clearly visible.



New LQ mark
for packages



New LQ mark
for packages that also comply with the
requirements for air transport

Note: More stringent requirements apply for the transport of dangerous goods in limited quantities by air. The quantities per inner packaging are more restrictive and packages must (in addition to the limited quantity mark) be marked with the UN number and the proper shipping name and bear hazard labels. Not all operators allow the transport of dangerous goods in limited quantities by helicopter.

Marking of containers which only contain dangerous goods in limited quantities

The marking for containers with only dangerous goods in limited quantities will also change. Instead of the words Limited Quantities or the abbreviation LTD QTY are containers as from January 1, 2012 required to bear the new LQ mark with dimensions of minimum 25 x 25 cm on four sides.



Old LQ mark
for containers



New LQ mark for containers
(25 x 25 cm)

Note: A container must not be labelled with the limited quantity mark but with placards (large hazard labels with dimensions of 25 x 25 cm) if both packages containing dangerous goods with hazard labels and dangerous goods in limited quantities are loaded in the same container (e.g. packages with a sample of natural gas bearing a flammable gas hazard label and packages with gas condensate in limited quantities bearing the limited quantity mark).