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MINISTRY OF TRANSPORT AND COMMUNICATIONS
DEPARTMENT OF MARINE ADMINISTRATION

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Date : 19th January 2018

Directive (5 / 2018)

**Approval of Stowage Plan for the Safe Carriage of
Dangerous Goods**

**Applicable to : All Ship - owners, Ship Operators, Flag State Surveyors, Recognized
Organizations, Masters and Officers of Myanmar Flagged Ships.**

Reference :

- (a) **IMDG Code**
- (b) **SOLAS 1974, as amended Reg: II-2/19, Reg: VII/2, Reg: VII/15**
- (c) **EmS Guide and MFAG which is produced in the supplement to the
IMDG Code**
- (d) **IMO Res 714(17), as amended**
- (e) **IMO MSC Circ.1353**

1. The Department of Marine Administration circulates this directive in the exercise of the power of Section 294-B, paragraph (b) of Myanmar Merchant Shipping Act 1923 as amended.
2. This directive applies to all ships to which SOLAS applies and which are carrying dangerous goods as defined in SOLAS Chapter VII Part A/1.2.
3. The parties concerned shall comply with the requirements of International Maritime Dangerous Goods (IMDG) Code in order to achieve the Safe Operation of Ships and for Pollution Prevention.
4. Transport information relating to the carriage of dangerous goods in package form and the container/ vehicle packing certificate in accordance with the relevant provisions of IMDG code shall be made available to the person or organization designated by Department of Marine Administration.
5. Each ship carrying dangerous goods in package form shall have a special list, manifest or stowage plan setting forth, in accordance with the relevant provisions of IMDG code, the dangerous goods on board and the location thereof. A copy of one of these documents shall be made available before departure to the person or organization designated by the Department of Marine administration.

6. Guidance for the Approval of Stowage Plan for the Safe Carriage of Dangerous Goods is set up by Department of Marine Administration to fulfill the requirements of the IMDG code.



Maung Maung Oo
Director General
Department of Marine Administration



DEPARTMENT OF MARINE ADMINISTRATION - MYANMAR

STANDARD OPERATING PROCEDURE FOR APPROVAL OF STOWAGE PLAN FOR SAFE CARRIAGE OF DANGEROUS GOODS

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DISTRIBUTION DATE:

1. Standard Operating Procedure for Approval of Stowage Plan for the Safe Carriage of Dangerous Goods

1.1. Policy

For the maritime transport of dangerous goods in packaged form carried by the vessels, in order to enhance and harmonize the safe carriage of dangerous goods and to prevent pollution to the environment.

1.2. Purpose

To ensure the vessel has a proper stowage plan for the carriage of dangerous goods in packaged form with the relevant provisions of IMDG code prior to loading and during the voyages.

1.3. Responsibilities

1.3.1. The **Director General** is responsible for the overall in - charge of the implementation of this procedure. The Deputy Director General (Tech) is responsible for the absence of Director General or when delegated by Director General.

1.3.2. The **Director(Nautical Division)** is responsible for

- .1 decision on policy matters, the close monitoring and the improvement of the process,
- .2 the assignment of any available surveyor when received the information of for the purpose of dangerous goods to be loaded,
- .3 the survey to be conducted in accordance with the requirements of

Issued by Director:	Approved by Director General:	
Originated by Nautical Department	Date : 19 th January 2018	This Revision Date :

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IMDG codes Chapter VII,

- .4 the approval given for the stowage of dangerous goods,
- .5 reporting of the survey outcome to Director General as necessary,
- .6 the safe keeping of the survey records,
- .7 the proposal for the amendment of this procedure as and when required, and
- .8 delegate to the Deputy Director (Nautical Division) at his absence.

1.3.3. The Surveyor is responsible for

- .1 checking whether the stowage plan is drawn up as per relevant IMDG Code,
- .2 monitoring the loading is carried out according to the approved plan, and
- .3 the reporting of the survey outcome to the Director.

1.4. Definitions

- .1 **Dangerous goods (or) Hazardous goods mean** Dangerous goods or hazardous goods are solids, liquids, or gases that can harm people, other living organisms, property, or the environment.
- .2 **Cargo Manifest** means the manifest is a list of all goods, listed per Bill of Lading, which was loaded onto the ship in one certain port and which has a single certain destination. The hazardous goods manifest lists hazardous goods onboard the vessel.

This manifest must be submitted to the port authorities prior to the vessel entering the port and shall be made available before departure to the person or organization designated by the port state authority if hazardous goods are loaded.

- .3 **Segregation** is obtained by maintaining certain distances between Incompatible dangerous goods or by requiring the presence of one or more steel bulkheads or decks between them, or a combination thereof

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For checking segregation between dangerous goods in packaged form there are

1. Segregation Table
2. Segregation Rules in column 16b of IMDG code.
3. Segregation terms such as;
 - (a) “Away from”;
 - (b) “Separated from”;
 - (c) “Separated by a complete compartment or hold from”;
 - (d) “Separated longitudinally by an intervening complete compartment or hold from”;

- .4 Packaged Form** means the form of containment specified in IMDG code.

1.5. Procedure for the Survey and Approval process

1.5.1. The Approval of requested

Requests for approval must be received early to avoid unnecessary delay and the approval must be issued prior to the goods being offered for shipment and loading of the cargo transport unit. Such requests should be made by completing the DMA approval request form or by providing the information there in together with the Material Safety Data Sheet for the substance or its equivalent and packing certificate.

Upon receipt of a request, the Director shall assign any available surveyor(s) to arrange and conduct the survey.

1.5.2. Inspection of packaging

In the main dangerous goods, packages should be marked and labelled with

- The UN number and Proper Shipping Name

(with the technical name added in brackets, if appropriate)

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- The UN specification code for the type of package (unless limited or excepted quantities)
- Orientation arrows (two on opposite sides) if a liquid
- Labels for the hazard class/division and any subsidiary hazard
- The environmentally hazardous substance mark if a marine pollutant. Other marks may be required and the details are to be found in the Regulations and they should be referred to for their details.

1.5.3. Inspection of Segregation

The IMDG Code has some specific rules regarding the segregation of Dangerous goods. A container might be able to arrive at the quayside intact with IMDG code symbol. There are tables which are used to ensure that segregation is acceptable. The tables are to be shown in Guidance.

1.5.4. Inspection of Labeling

For cargo transport units (including containers and portable tanks) placards (250mm x 250mm) representing the hazards should be on all four sides. There are additional requirements in respect of the UN number and Proper Shipping Name. The IMDG Code should be referred to for the details. For a single substance the UN number should be included in a white rectangle in the placard on at least two opposite sides.

If containing dangerous goods in limited quantities the container must be placarded with the limited quantities mark. However, if the container contains both a load of dangerous goods in limited quantities and also dangerous goods other than limited quantities the container must be placarded only with the placards for the non limited quantities unless this would mean no placards at all.

1.5.5. Dangerous goods declaration

The transportation of dangerous goods requires two documents: the dangerous

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goods declaration and the vehicle/container packing certificate. It is prescribed the dangerous goods declaration may be in any form provided that it shall contain all the specific information required by the IMDG Code.

It incorporates the vehicle/packing certificate.

1.5.6. Approval of Cargo Plan

Upon successful completion of a survey, Director or Surveyor with approval of Director shall have the authority to issue the approval for the cargo plan.

1.5.7. Withdrawal of the Approved cargo plan

The General Director shall have the authority to withdraw any approved cargo plan if the ship fails to take adequate safety measures for the safe carriage of the dangerous goods and segregation with the relevant requirements of the IMDG Code, including measures ensure to follow as per approved cargo plan.

1.6. References

1.6.1. Guidance for the Approval of Stowage Plan for Dangerous Cargoes

1.6.2. International Maritime Dangerous Goods (IMDG) Code

1.6.3. International Code for the Safety of Life at Sea (SOLAS) as amended

1.7. Records

1.7.1. The DMA Approval request form or the information therein for survey

1.7.2. The survey reports after conducting

1.7.3. The other documents related to the survey

1.7.4. The Relevant Copy of Approved Cargo Plan

The records shall be retained for a minimum period of 5 years.



Department of Marine Administration
Ministry of Transport and Communications
Republic of the Union of Myanmar

GUIDANCE FOR THE APPROVAL OF STOWAGE PLAN FOR SAFE CARRIAGE OF DANGEROUS GOODS

2018



Introduction

The objectives of this guidance for the approval of stowage plan for Safe Carriage of Dangerous Goods are to:

- enhance the safe transport of dangerous goods
- prevent injury to persons.
- protect the marine environment
- facilitate the free unrestricted movement of dangerous goods

It is to supplement the principles laid down in the SOLAS and MARPOL Conventions, the IMO developed the International Maritime Dangerous Goods (IMDG) Code & the International Maritime Solid Bulk Cargoes (IMSBC) Code.

These Guidance contain detailed technical specifications to enable dangerous goods to be transported safely by sea.

These Guidance are based on an internationally agreed system which;

- groups dangerous goods together based on the hazards they present in transport (classification),
- contains the dangerous goods in packaging/tanks which are of appropriate strength and which will prevent the goods escaping,
- uses hazard warning labels and other identifying marks to identify dangerous goods in transport,
- requires standard documentation to be provided when dangerous goods are being transported,
- lays down principles for ensuring that dangerous goods, which will react dangerously when loading together, are kept apart,
- lays down principles for where to place dangerous goods onboard ship to ensure safe transport, and
- provides emergency response advice for dangerous goods involved in a fire or spillage on board ship.

In implementing this guidance, the transport of the dangerous goods will be safe.

As we cannot see inside the packaging and packages, a container with dangerous goods inside shall have the placards, packing certificate and correct segregation plan.

The guidance contains a number of obligations on the various parties to the transport

especially the consignor. These are to classify, identify, pack, mark, label and document for each shipment providing;

- whether it is dangerous for transport or not.
- the name of the dangerous goods
- proper packaging
- communication to all parties that the transport is safe.

This Guidance for the approval of stowage plan for Safe Carriage of Dangerous Goods is set out on 19th January 2018 according to Directive 5/2018 in the exercise of the power of section 294 (B), paragraph (b) of Myanmar Merchant Shipping Act 1923 as amended.

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DANGEROUS GOODS
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GENERAL REQUIREMENTS

1.1. Scope

1.1.1 The application of this section is considered to satisfy the requirements of SOLAS Reg.II-2/19, Reg.VII/2, Reg.VII/15 and the relevant requirements of IMDG code in respect of carriage of dangerous goods in packaged form.

1.2. Definitions

1.2.1 Classes of dangerous goods

Classes of dangerous goods according to SOLAS, Chapter VII, Part A,

Class 1: Explosives

Division 1.1: Substances and articles which have a mass explosion hazard

Division 1.2: Substances and articles which have a projection hazard but not a mass explosion hazard

Division 1.3: Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard

Division 1.4: Substances and articles which present no significant hazard

Division 1.5: Very insensitive substances which have a mass explosion hazard

Division 1.6: Extremely insensitive articles which do not have a mass explosion hazard

Class 2: Gases

Class 2.1: Flammable gases

Class 2.2: Non-flammable, non-toxic gases

Class 2.3: Toxic gases

Class 3: Flammable liquids

Class 4: Flammable solids; substances liable to spontaneous combustion; substances which, in contact with water, emit flammable gases

Class 4.1:	Flammable solids, self - reactive substances and desensitized explosives
Class 4.2:	Substances liable to spontaneous combustion
Class 4.3:	Substances which, in contact with water, emit flammable gases
Class 5:	Oxidizing substances and organic peroxides
Class 5.1:	Oxidizing substances
Class 5.2:	Organic peroxides
Class 6:	Toxic and infectious substances
Class 6.1:	Toxic substances
Class 6.2:	Infectious substances
Class 7:	Radioactive material
Class 8:	Corrosive substances
Class 9:	Miscellaneous dangerous substances and articles

1.2.2 Dangerous Goods are substances capable of causing harm to people and property because of their hazardous properties. They may be corrosive, flammable, combustible, explosive, oxidising or water - reactive or have other hazardous properties.

1.2.3 Cargo spaces are all spaces used for cargo and trunks to such spaces.
(SOLAS Reg. II-2/3.8)

1.2.4 Ro-ro cargo spaces are spaces not normally subdivided in any way and extending to either a substantial length or the entire length of the ship in which goods (packaged or in bulk, in or on rail or road cars, vehicles, trailers, containers, pallets, demountable tanks or in or on similar stowage units or other receptacles) can be loaded and unloaded normally in a horizontal direction.(SOLAS Reg. II-2/3.41)

1.2.5 Open ro-ro spaces are ro-ro spaces either open at both ends or open at one end, and provided with adequate natural ventilation effective over their entire length through permanent openings distributed in the side plating or deck- head or from above, having a total area of at least 10% of the total area of the space sides.(SOLAS Reg. II-2/3.35)

1.2.6 Closed ro-ro cargo spaces are ro-ro cargo spaces which are neither open ro-ro cargo spaces nor weather decks.(SOLAS Reg. II-2/3.12)

1.2.7 Weather deck is a deck which is completely exposed to the weather from above and from at least two sides.(SOLAS Reg. II-2/3.50)

1.2.8 An open deck extending into a ro-ro cargo space not having sufficient openings to be considered “open” does not fall under the definition weather deck in the context of dangerous goods.

1.2.9 Hazardous area (comparable with zone 1 as defined in IEC 60092-502) is an area in which an explosive atmosphere is likely to occur in normal operation. The explosive atmosphere may exist due to gas and or dust.(IEC 60092-506, 3.1)

1.2.10 Extended hazardous area (comparable with zone 2 as defined in IEC 60092-502) is an area in which an explosive atmosphere is not likely to occur in normal operation and, if it does occur, is likely to do so only infrequently and will exist for a short period only.

1.2.11A Material Safety Data Sheet (MSDS) is a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product. It also contains information on the use, storage, handling and emergency procedures all related to the hazards of the material. MSDSs are prepared by the supplier or manufacturer of the material.

SECTION (2)

REQUIREMENTS FOR APPROVAL OF STOWAGE PLAN FOR DANGEROUS GOODS

2.1. Application for Requirements

This section contains all requirements relevant for the approval of stowage plan for dangerous goods.

2.2. Requirements Applicable For Stowage Plan of Dangerous Goods

Any vessel intending to load Dangerous Goods shall fulfill with the requirements described in 2.2.1, 2.2.2, 2.2.3 and 2.2.4, providing with the Dangerous Cargo Stowage Plan which shall indicate Dangerous Goods class & Stowage Location, along with a Dangerous Goods Cargo List (indicating Location, Crtn No., Dangerous Goods Class and UN No., etc).

2.2.1 Packing of Dangerous Goods

2.2.1.1 Before packing dangerous goods into container the interior and exterior of the container must be thoroughly examined. Every package of dangerous goods, drums, jerricans, boxes, bags etc. must be visually inspected for any damage. Packages leaking or damaged must not be loaded into the container. The packages are marked, labelled and are having UN number on them.

2.2.1.2 When oversized machinery or vehicles are secured on container the dangerous goods in the machinery or vehicle must not leak or spill.

2.2.1.3 Whenever possible liquid dangerous goods must be loaded below dry dangerous goods. Similarly, while loading dangerous and non-dangerous into same container dangerous goods should be kept towards the door end when possible. The marks and labels of dangerous goods packages should face the door end.

2.2.1.4 Packages with vents, drums, and those having orientation marks must always be kept upright. IMDG Code prohibits drums on roll. If the packages are not designed for stacking the tiers must be separated with dunnage.

2.2.1.5 Dangerous goods are assigned into 3 packing groups (also known as UN Packing Group) in accordance with the degree of danger they present:

Packing Group I: high danger

Packing Group II: medium danger

Packing Group III: low danger

The packaging requirements for dangerous goods assigned to UN packing group I are much higher than the dangerous goods assigned to packing group II and III. In this article, we will show you how to assign packing groups for dangerous goods.

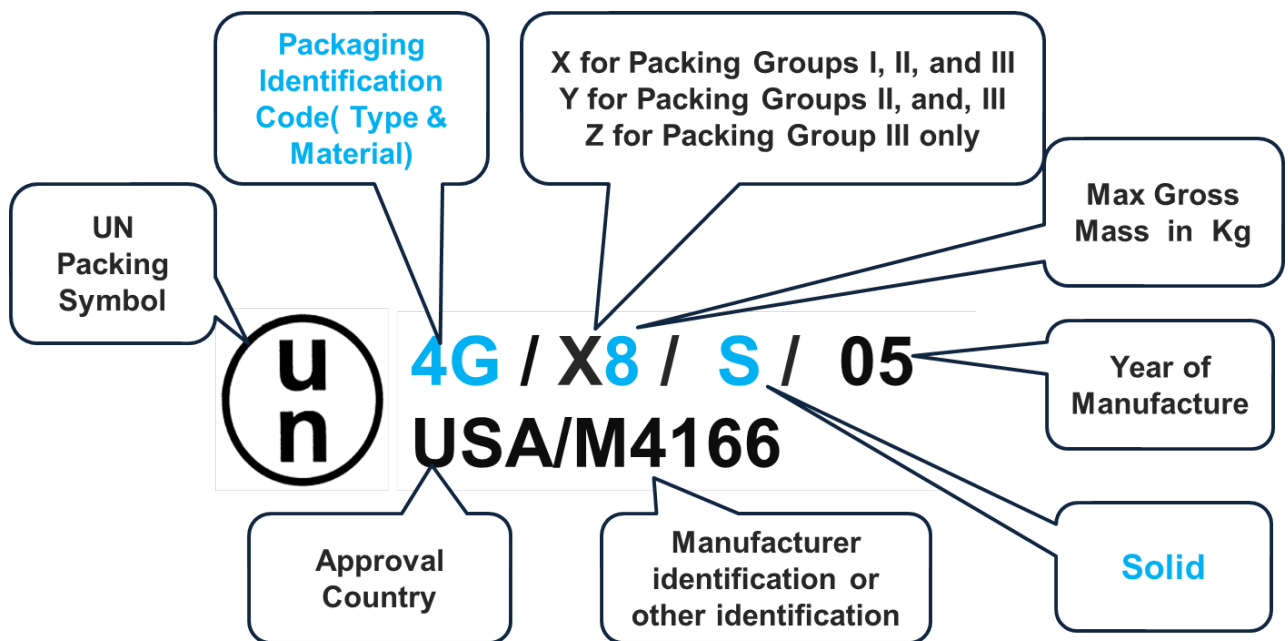
Note: Articles and some dangerous goods (Class 2, Division 6.2 and Class 7) are not assigned into 3 packing groups I, II and III based on the degree of danger they present.

2.2.1.6 UN packing group indicates qualified packages more quickly. The packing group also determines the degree of protective packaging required. Packages and containers for dangerous goods that have passed rigorous performance testing usually bear UN specification marks (see example below). X, Y and Z will be used to indicate whether the package is appropriate for all 3 packing groups or just 1 packing group.

A sample UN Marking: 1H2 / Y1.8 / 100 / 2012 / F / DB / 1195

UN	The United Nations Packaging Code System
1	Type of Container 1. 1 = Drums/Pails 2. 2 = Barrels 3. 3 = Jerry cans 4. 4 = Boxes 5. 5 = Bags 6. 6 = Composite Packaging 7. 7 = Pressure receptacle
H	Material of Construction Steel = A Aluminum = B Natural wood = C Plywood = D Reconstituted wood = F Fibre = G Plastic = H Paper = M Metal = N Glass = P
2	Category Within Type 1. Closed head (non-removable lid) 2. Open head (open-top removable lid)
Y	Packaging Group for which container was tested X. for Packaging Group I, II, III Y. for Packaging Group II and III Z. for Packaging Group III Packaging Group I: Great Danger - high hazard level Packaging Group II: Medium Danger - medium hazard level Packaging Group III: Minor Danger - low hazard level
1.8	Density (relative density) or specific gravity of material packed OR

	For packaging intended <u>for Solids</u> (powders, pills, capsules, tablets) or that have inner packaging, this marking will indicate the <u>maximum gross mass (weight) in kilograms</u> .
100	Hydraulic pressure (vapour pressure) in kilo-Pascal (100 kPa = 1 bar) OR For packaging intended <u>for Solids</u> or that have inner packaging, an "S" in upper case will follow the gross mass.
12	Year of production (2012)
F	Country where container was manufactured
DB	Code for manufacturing plant
1195	Reference of UN homologation report



2.2.1.7 *When the dangerous goods list provides more than one packing group* for a hazardous material, the packing group shall be determined on the basis of test results following test methods given in the UN Manual of Tests and Criteria. For substances which cannot be identified in the Dangerous Goods List, packing group will be assigned based on the basis of hazard test results.

- **Class 1 Explosives Packing Group**

All class 1 dangerous goods (explosives) are assigned to packing group II.

- **Class 3 Flammable Liquids Packing Group**

Packing Group	Flash Point	Initial Boiling Point
I		≤ 35°C (95°F)
II	≤ 23°C (73°F)	> 35°C (95°F)
III	≥ 23°C (73°F) but ≤ 60.5°C (141°F)	> 35°C (95°F)

- **Class 4 Division 4.1 Flammable Solids Packing Group**

Packing group II: Assigned to readily combustible solids (other than metal powders) if the burning time is less than 45 seconds and the flame passes the wetted zone or assigned to powders of metal or assigned to metal alloys if the zone of reaction spreads over the whole length of the sample in 5 minutes or less.

Packing group III: Assigned to readily combustible solids (other than metal powders) if the burning rate time is less than 45 seconds and the wetted zone stops the flame propagation for at least 4 minutes or assigned to metal alloys if the reaction spreads over the whole length of the sample in more than 5 minutes but not more than 10 minutes.

- **Class 4 Division 4.2 Packing Group for Substances Liable to Spontaneous Combustion**

Packing group I: Pyrophoric liquids and solids.

Packing group II: if a self-heating material gives a positive test result when tested with a 25 mm cube size sample at 140 °C;

Packing group III: if a positive test result is obtained on a self-heating material in a test using a 100 mm sample cube at 140 °C, , 120 °C or 100°C depending on packaging volume;

- **Class 4 Division 4.3 Packing Group for Substances Which, in Contact with Water, Emit Flammable Gases.**

Packing Group I: if the material reacts vigorously with water at ambient temperatures and demonstrates a tendency for the gas produced to ignite spontaneously, or which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gases is equal or greater than 10 L per kilogram of material over any one minute;

Packing Group II: if the material reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gases is equal to or greater than 20 L per kilogram of material per hour, and which does not meet the criteria for Packing Group I; or

Packing Group III: if the material reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gases is greater than 1 L per kilogram of material per hour, and which does not meet the criteria for Packing Group I or II.

- ***Class 5 Division 5.1 Oxidizing Substances Packing Group***

Packing Group I: for any material which, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3:2 potassium bromate/cellulose mixture.

Packing Group II: for any material which, in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met.

Packing Group III: for any material which, in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Group I and II are not met.

- ***Class 5 Division 5.2 Organic Peroxides Packing Group***

All Division 5.2 materials are assigned to Packing Group II.

- ***Class 6 Division 6.1 Toxic Substances Packing Group***

	Packing group	Oral toxicity LD ₅₀ (mg/kg)	Dermal toxicity LD ₅₀ (mg/kg)	Inhalation toxicity by dusts and mists LC ₅₀ (mg/l)
Highly toxic	I	≤ 5	≤ 50	≤ 0.2
Toxic	II	> 5 and ≤ 50	> 50 and ≤ 200	> 0.2 and ≤ 2
Slightly toxic	III ^a	> 50 and ≤ 300	> 200 and ≤ 1 000	> 2 and ≤ 4

^a *Tear gas substances shall be included in packing group II even if data concerning their toxicity correspond to packing group III criteria.*

Where a substance exhibits different degrees of toxicity for two or more kinds of exposure, it shall be classified under the highest such degree of toxicity.

- **Class 8 Corrosive Substances Packing Group**

Packing Group I: Materials that cause full thickness destruction of intact skin tissue within an observation period of up to 60 minutes starting after the exposure time of three minutes or less.

Packing Group II: Materials other than those meeting Packing Group I criteria that cause full thickness destruction of intact skin tissue within an observation period of up to 14 days starting after the exposure time of more than three minutes but not more than 60 minutes.

Packing Group III: Materials, other than those meeting Packing Group I or II criteria but cause full thickness destruction of intact skin tissue or exhibit a corrosion on either steel or aluminum surfaces exceeding 6.25 mm (0.25 inch) a year.

- **Class 9 Miscellaneous Dangerous Goods Packing Group**

The UN packing group of class 9 dangerous goods is usually specified in the dangerous goods list.

2.2.2 Segregation of Dangerous Goods

Dangerous goods are incompatible to each other in case they react dangerously when they come in contact due to leakage or spillage, or any other accident or increase the intensity of fire or explode if they burn together. Segregation is obtained by maintaining a certain distances incompatible dangerous goods or by

requiring the presence of one or more steel bulkhead or decks between them, or a combination thereof.)

2.2.2.1 **When different dangerous goods** are to be loaded into the container segregation rules of IMDG Code shall be met with. When combined road, rail and sea transport is involved the most stringent provisions of IMDG Code is applicable for segregation. Incompatible dangerous goods should not be transported or stored together to avoid possible reactions between the dangerous goods or reduce the hazards of any accidental leakage or spillage. For incompatible materials, shared transportation or storage may still be allowed if the materials are separated from each other by a minimum distance. In this section, it contains dangerous goods segregation table, the general principles of segregation, and necessary information to determine whether transport or store, a hazardous material together with other hazardous materials.

2.2.2.2 **Checking of segregation**

- Ensure the general segregation provisions (chapter 7.2 of IMDG code)
- Identify the UN No., Proper Shipping Name, class or division, subsidiary hazard class or division, if any, and where assigned packing group for each substance
- The dangerous goods are exempted from the general segregation provisions such as Limited Quantities, Excepted Quantities, Special Provisions of segregation and Acids and Alkalis in class 8.
- If segregation is applicable, use the segregation table taking into account any specific or general segregation provisions and determine the specific segregation provisions for each substance (e.g., segregation groups), ensuring the most stringent requirements are taken.

2.2.2.3 Dangerous Goods Segregation Table

Class or Division	1.3	1.4	1.5	1.6	2.1	2.2	2.3 Zone A	2.3 Zone B	3	4.1	4.2	4.3	5.1	5.2	6.1 PGI Zone A	7	8 Liquids
Explosives - 1.3	*	*	*	*	X		X	X	X		X	X	X	X	X		X
Explosives - 1.4	*	*	*	*	O		O	O	O		O				O		O
Very Insensitive Explosives - 1.5	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely Insensitive Explosives - 1.6	*	*	*	*													
Flammable Gases - 2.1	X	O	X				X	O							O	O	
Non-Toxic, Non- Flammable gases - 2.2			X														
Toxic Gas Zone A - 2.3	X	O	X		X				X	X	X	X	X	X			X
Toxic Gas Zone B - 2.3	X	O	X		O				O	O	O	O	O	O			O
Flammable Liquids - 3	X	O	X				X	O					O		X		
Flammable Solids - 4.1			X				X	O							X		O
Spontaneously Combustible Materials - 4.2	X	O	X				X	O							X		X
Substances which, in contact with water, emit flammable gases - 4.3	X		X				X	O							X		O
Oxidizers - 5.1	X		X				X	O	O						X		O
Organic Peroxides - 5.2	X		X				X	O							X		O

Toxic Liquids PGI Zone A - 6.1	X	O	X		O				X	X	X	X	X	X			X
Radioactive Materials - 7			X		O												
Corrosive Liquids - 8	X	O	X				X	O		O	X	O	O	O	X		

FOOTNOTES:

(X): These materials may not be loaded, transported, or stored together in the same transport vehicle or storage facility during the course of transportation. Both main hazard risks and subsidiary risks need to be taken into account.

(O): These materials may not be loaded, transported, or stored together in the same transport vehicle or storage facility during the course of transportation **unless separated** from each other (Usually ≥ 3 meters). However, Class 8 (corrosive) liquids may not be loaded above or adjacent to Class 4 (flammable) or Class 5 (oxidizing) materials except that the mixture of contents would not cause a fire or a dangerous evolution of heat or gas; (*) Segregation among different Class 1 (explosive) materials is governed by the compatibility table. Exception: ammonium nitrate (UN 1942) and ammonium nitrate fertilizer may be loaded or stored with Division 1.1 (Class A explosive) or Division 1.5 (blasting agents) materials.

(Blank): The absence of any hazard class or division or a blank space in the table indicates that no restrictions apply.

2.2.2.4 General Principles of Dangerous Goods Segregation

- Hazardous materials of the same class usually may be stowed together (except incompatible subsidiary risks or dangerous chemical reactions).
- Strong acids are usually deemed as incompatible with strong alkali.
- Class 4.3 materials should be separated from all containers of aqueous (water containing) solutions even if the solutions are not dangerous goods.

- Class 5.2 organic peroxides and highly pyrophoric class 4.2 goods are highly reactive. They are recommended to be stored in separated detached buildings.
- Class 6.1 toxic substances shall be separated from all foods or feeds.
- Some explosives (unstable, 1.1 and 1.2), infectious substance (class 6.2) and radioactive materials (class 7) are usually deemed incompatible with all other dangerous goods.
- Class 9 dangerous goods are usually deemed compatible with all other dangerous goods.

2.2.3 Labelling of Dangerous Goods

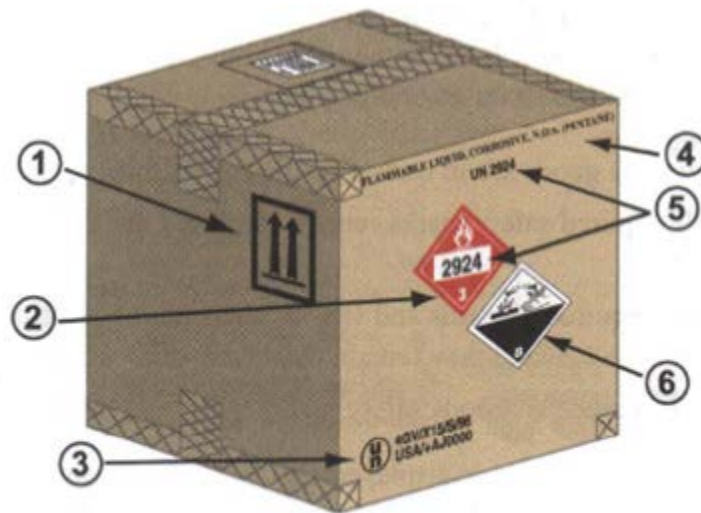
Hazard class labels or placards made of plastic, metal, or other material must be capable of withstanding, without deterioration, a 30-day exposure to open weather conditions.

2.2.3.1 Every package of dangerous goods must be marked and labelled.

- Marking: mainly refers to UN number, proper shipping names, UN specification marks and other markings if applicable (i.e. orientation arrows, environmental hazardous substances mark for UN 3077 and UN 3082 and excepted quantities mark);
- Labelling: mainly means hazard symbols (and handling labels) displayed on small means of packages (usually less than 450 liters) ;

Example of Dangerous Goods Marking and Labeling

The picture below shows how a dangerous goods package should be marked

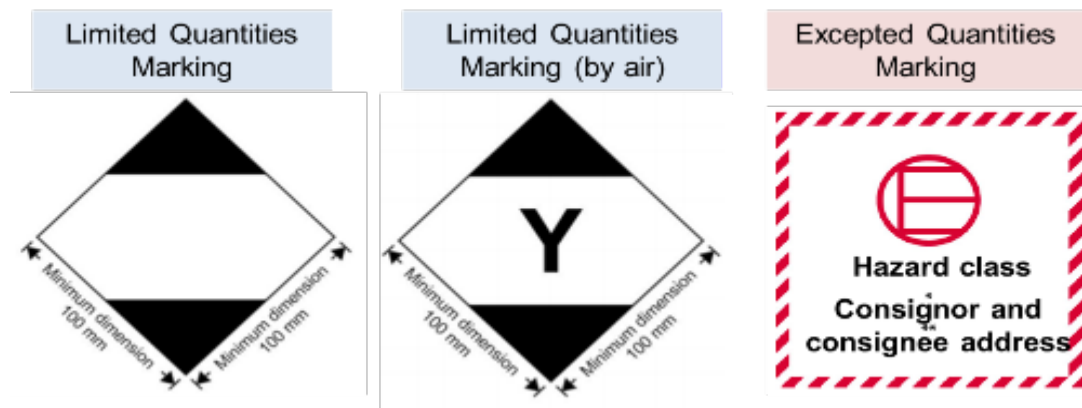


- ① Orientation label (optional) ② Primary class label ③ Standardized UN certification (according to standard)
④ Shipping name ⑤ UN number ⑥ Subsidiary class label

Limited Quantity and Excepted Quantity Marking

Selected dangerous goods packed in small quantities (limited quantity) or very small volumes (excepted quantity) pose a lesser risk in transport than do the same goods packed in larger volumes. Thus they qualify for some relief from robust packaging requirements provided that they are packed and marked properly. This could save considerable packaging costs.

The picture below shows the marking for limited quantity and excepted quantity dangerous goods.



2.2.4 Declaration of Dangerous Goods

The IMO shippers declaration form is mandatory for shipments of dangerous goods by sea under the International Maritime Organization regulations. The shipper must certify that the contents are fully and accurately described by proper shipping name, are classified, packed, marked and labeled, and are in all respects in the proper condition for transport according to the applicable regulations.

2.2.4.1 Those who pack a dangerous goods container is responsible to issue a Container Packing Certificate. The declaration of this certificate must read “I hereby declare that the goods described above have been packed/ loaded into the container/vehicle identified above in accordance with the applicable provisions” and must be signed. This certifies that;

- 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.
- No incompatible goods have been packed into the container/vehicle unless specially authorised by the Competent Authority.
- 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.
- All packages have been properly packed and secured in the container/vehicle.

- When materials are transported in bulk packaging the cargo has been evenly distributed in the container/vehicle.
- The packages and the container/vehicle have been properly marked, labelled and placarded. Any irrelevant mark, labels and placards have been removed.
- 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.

2.2.4.2 **MSDS** should be provided by the supplier of the dangerous goods. The port/terminal must make sure MSDS is supplied. Generic MSDS should not be accepted, although the data from generic MSDS can be used as supplementary information. The information contained in the MSDS will enable employees and emergency services personnel to deal with incidents such as spillages and damaged packages. MSDS should be readily accessible to all employees, other personnel on the premises, emergency services, medical personnel and other authority personnel.

SECTION (3)

SURVEY FOR APPROVAL OF STOWAGE PLAN FOR DANGEROUS GOODS

3.1 The Approval of requested

Request for approval must be received early to avoid unnecessary delay and the approval must be issued prior to the goods being offered for shipment and loading of the cargo transport unit. Such requests should be made by completing the DMA approval request form (Attached at Appendix) or by providing the information there in together with the Material Safety Data Sheet for the substance or its equivalent and packing certificate. Upon receipt of a request, the Director shall assign any available surveyor(s) to arrange and conduct the survey.

3.2 Approval of Cargo Plan

Upon successful completion of a survey as per the requirements of Section (2) of this Guidance, Director or Surveyor with approval of Director shall have the authority to issue the approval for the cargo plan.

3.3. Withdrawal of the Approved cargo plan

The General Director shall have the authority to withdraw any approved cargo plan if the ship fails to take adequate safety measures for the safe carriage of the dangerous goods and segregation with the relevant requirements of the IMDG Code, including measures ensure to follow as per approved cargo plan.

APPENDIX

APPROVAL REQUEST FORM

Approval Request Form for Dangerous goods is a shipment document, given to the Department of Marine Administration to prove that originating cargo can be accepted for transportation and that the cargo is well packed, marked, segregated and has necessary danger sign and is in due state for purpose of transportation in accordance with IMDG code.

Request Form is made on the base of information given by the cargo sender (manufacturer).

Attachments:

- Cargo stowage plan (if present)
- Material Safety Data Sheet for the substance or its equivalent
- Packing certificates for the dangerous goods



Department of Marine Administration

Approval Request Form

1	Denomination of applicant	
2	Applicant invoice details	
3	Cargo sender and its address, tel./fax for emergency communication	
4	Dangerous cargo receiver data:	
5	Vessel's name.	
6	Ports of loading and unloading	
7	Cargo's description	
	<ul style="list-style-type: none"> - Shipping name - Technical (chemical) name - UN No. - Hazard rating (underclass), for class – hazard rating and cargo UN No. 	
8	Cargo's producer and its address, tel.,fax for emergency communication	
9	Container and packing description	
	<ul style="list-style-type: none"> - Kind, - Type, - Overall dimensions, - Gross and net weight, - Match certificate number for shipper container, issued by appointing authority - UN marking of the container in accordance with certificate 	
10	Quantity of danger cargo	
	<ul style="list-style-type: none"> - Gross weight, kg - Net gross, kg - Volume m3 - Quantity, items - Operating efficiency (for gases) 	

