Transport, Handling and Storage of Dangerous Goods Guideline

Issue 3

Revision History

Date	Issue	Section	Description
November 2012	First Issue		
August 2014	Second Issue	Various	Editorial including addition of new section on emergency response
		Section 3.2	Revised Dangerous Goods notification procedure
		Section 6.2	Revised policy for handling IMDG Class 1 goods including maximum quantities permitted on vessels in transit
		Section 8.11	Additional reference to Australian training standards
September 2021	Third Issue	Various	Updated references and editorial corrections
		Section 1.4	New section to clarify exemption policy
		Section 1.5	New section to clarify authority to inspect / audit facilities (previously Section 3.9)
		Section 4	Amended notification and documentation requirements
		Section 5	Clarification and amendment of time limits Dangerous Goods may remain in the port area New section to clarify unclaimed DG and removal of objectionable cargo
		Section 6.2	Clarification through addition of notes to tables
		Section 6.2.5	Addition of requirement for trucks to be present at berth prior to handling IMDG Class 1 goods
			Removal of High Consequence Dangerous Goods and requirement for IMDG Security Plan and Security Adviser

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CHAPTER 1.0 INTRODUCTION

1.1 Abu Dhabi Ports

Abu Dhabi Ports has a responsibility under Abu Dhabi legislation to control the conditions under which Dangerous Goods (DG) are transported, handled, or stored in its ports.

1.2 Purpose

Abu Dhabi Ports' Dangerous Goods Guidelines is prepared to assist in implementing the requirements of applicable legislation relating to Dangerous Goods in Abu Dhabi Ports. It outline the relevant criteria and requirements for the transport, handling, and storage of Dangerous Cargoes in Ports, either as break-bulk or in Cargo Transport Units (CTUs), and cover the import, export, transhipment, and goods in transit. However, Dangerous Goods Guidelines are not intended to be a complete or comprehensive review of all statutory requirements relating to the handling of Dangerous Goods or other hazardous materials in Abu Dhabi Ports. It is the responsibility of the individual port user to ensure compliance with applicable law as it may apply to its activities.

Port users should note that Dangerous Goods Guidelines constitute part of the Abu Dhabi Ports' regulatory framework. Failure to comply may result in enforcement action by Abu Dhabi Ports.

1.3 Legislation

The United Nations' Model Regulations for the Transport of Dangerous Goods (the UN Model Regulations) specify the product testing criteria and associated classification, the packaging specifications and the labelling/ marking specifications if transporting Dangerous Goods.

The International Maritime Dangerous Goods (IMDG) Code, published by the International Maritime Organization (IMO), specifies the requirements for transporting Dangerous Goods by sea, including port operations. Amendment 39-18 to the IMDG Code comes into force on 1 January 2020. In addition, the IMO, by way of Circular MSC.1/1216 of 26 February 2008, has determined recommendations regarding the risk-free transport of dangerous goods and related activities within the port area.

The essential requirements of the UN Model Regulations and the IMDG Code are fully harmonized. The variation lies in the need to address the issues that arise through transporting Dangerous Goods by sea as opposed to land, for example the IMDG Code requires additional labelling on Dangerous Goods entering a port area to reflect the potential risk to the marine environment whereas this is not specifically required by the UN Model Regulations.

Reference should also be made to the Abu Dhabi Occupational Safety and Health Centre Safety Framework (OSHAD-SF) Code of Practice (CoP) 1.0 – Hazardous Materials – and the Environment Agency Abu Dhabi's (EAD) Technical Guidance Document for the Storage of Hazardous Materials.

1.4 Exemptions

Exceptionally, on a case-by-case basis, Abu Dhabi Ports may be prepared to grant exemption from all or any of the provisions of these Dangerous Goods Guidelines (as may be specified in the exemption) on such terms (if any) as Abu Dhabi Ports may specify. This would include circumstances where strict compliance with the policy direction given would, in practice, increase the risks related to the transport, handling or storage of Dangerous Goods within the port area.

1.5 Inspections and Audits

As and when required Abu Dhabi Ports shall carry out the inspection and/ or audit to ensure the compliance with all applicable legislation or requirement stated in this guideline and reserve the rights to access.

1.6 Definitions

1.6.1 Dangerous Cargoes

The definition of 'Dangerous Cargoes' for the purposes of shipping is broader than that used for land transport. The formal definition of Dangerous Cargoes includes:

- Oils covered by Annex I of the International Convention for the Prevention of Pollution from ships (MARPOL).
- Gases covered by the IMO Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk.
- Noxious liquid substances or chemicals, including wastes, covered by the IMO Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and Annex II of MARPOL.
- Dangerous Goods, hazardous and harmful substances, materials, and articles including environmentally hazardous substances (marine pollutants) and wastes covered by the IMDG Code.
- Solid bulk materials possessing chemical hazards and solid bulk materials hazardous only in bulk (MHBs), including wastes covered by IMO International Maritime Solid Bulk Cargoes (IMSBC) Code.

1.6.2 Dangerous Goods

Dangerous Goods as determined by UN criteria are the major subset of Dangerous Cargoes.

1.7 Coming into Force

Abu Dhabi Ports Dangerous Goods Guidelines: Issue 3 comes into force on [1st January 2022] and replaces Issue 2.

CHAPTER 2.0 DESCRIPTION OF DANGEROUS GOODS

2.1 Classification

Dangerous Cargoes (including mixtures and solutions) are assigned to one of nine classes by a specialist committee of the UN. Some of these classes are subdivided into divisions as described in Table 1

Table 1: UN Classification of Dangerous Goods

Classification	Description
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**
Division 2.1	Flammable gases (e.g. LPG, acetylene, natural gas)
Division 2.2	Non-flammable, non-toxic gases (e.g. nitrogen, argon)
Division 2.3	Toxic gases (e.g. chlorine, sulphur dioxide, ammonia)
Class 3	**Flammable Liquids** (e.g. petrol, kerosene, solvents)
Class 4	**Flammable solids;** substances liable to spontaneous combustion; substances which, on contact with water, emit flammable gases
Division 4.1	Flammable solids, self-reactive substances, and solid desensitised explosives
Division 4.2	Substances liable to spontaneous combustion
Division 4.3	Substances which in contact with water emit flammable gases
Class 5	**Oxidizing substances and organic peroxides**
Division 5.1	Oxidizing substances (e.g. ammonium nitrate, solid pool chlorine)
Division 5.2	Organic peroxides (e.g. methyl ethyl ketone peroxide – MEKP)
Class 6	**Toxic and infectious substances**
Division 6.1	Toxic substances (e.g. sodium cyanide, pesticides)
Division 6.2	Infectious substances (e.g. medical waste)
Class 7	**Radioactive material** (e.g. monazite, uranium)
Class 8	**Corrosive substances** (e.g. sulphuric acid, caustic soda, hydrofluoric acid)
Class 9	**Miscellaneous dangerous substances and articles**

The
objective of this classification is to provide a common pattern for substances with similar characteristics and risk, for adoption in the various national and international regulations relating to the transport of Dangerous Goods.

2.2 Packing Groups

For packing purposes, substances other than those of Classes 1, 2 and 7, divisions 5.2 and 6.2, and other than self-reactive substances of Division 4.1, are assigned to three Packing Groups in accordance with the degree of danger they present:

- Packing Group I: Substances presenting high danger.
- Packing Group II: Substances presenting medium danger.
- Packing Group III: Substances presenting low danger.

CHAPTER 3.0 UN NUMBERS AND PROPER SHIPPING NAMES

3.1 Assignment

According to their hazard classification and composition, each substance assessed to be a Dangerous Good is assigned a UN number and Proper Shipping Name (PSN). The PSN is mandatory for transport documentation and labelling, and no alternatives or variations are permitted; the UN number / PSN ensure the correct handling, stowage, and segregation of the substance at all times.

3.2 IMDG Code

Dangerous Goods commonly transported by sea are listed in the IMDG Code. Where a substance is specifically listed by name, the substance is identified in transport by the PSN in the Dangerous Goods List (see Volume 2 Part 3 of the IMDG Code). For Dangerous Goods not specifically listed by name, "generic" or "not otherwise specified" entries are provided in the IMDG Code to identify the article or substance in transport.

Each entry in the IMDG Code Dangerous Goods List is characterised by a UN number. This list also contains relevant information for each entry, such as hazard class, subsidiary risk(s) (if any), Packing Group (where assigned), packing and tank transport requirements, etc.

The PSN is that portion of the entry most accurately describing the goods in the Dangerous Goods List, which is shown in upper case characters (plus any numbers, Greek letters, "sec", "tert", and the letters m, n, o, p, which form an integral part of the name). An alternative PSN may be shown in brackets following the main PSN [e.g., ETHANOL (ETHYL ALCOHOL)]. Portions of an entry appearing in lower case need not be considered as part of the PSN but may be used.

A mixture or solution containing a single substance specifically listed by name in the Dangerous Goods List, together with one or more substances not subject to the IMDG Code, is assigned the UN number and PSN of the dangerous substance, unless:

- The mixture or solution is specifically identified by name in the IMDG Code.
- The entry in the IMDG Code specifically indicates that it applies only to the pure substance.
- The hazard class or division, physical state or Packing Group of the solution or mixture is different from that of the dangerous substances.
- There is significant change in the measures to be taken in emergencies.

In those other cases, except the one described in ☐, the mixture or solution is treated as a dangerous substance not specifically listed by name in the Dangerous Goods List.

For a
solution or mixture when the hazard class, the physical state or the Packing Group is changed in comparison with the listed substance, the appropriate 'Not Otherwise Specified' (NOS) entry is used including its packaging and labelling provisions.

CHAPTER 4.0 GENERAL REQUIREMENTS

4.1 Operational Procedures

As appropriate, each terminal or berth operator is required to develop and implement operational procedures for the transport handling or storage of Dangerous Goods at its facility in compliance with Abu Dhabi Ports Dangerous Goods guideline and the applicable regulations. These procedures must form part of a Safety Management System that enables the identification, assessment and control of risks associated with the handling of Dangerous Goods, taking due account of Best International Practices, in particular IMO Circular MSC.1/1216, recommendations, in relation to the safe transport of Dangerous Cargoes and related activities in port areas.

All Port Terminals and tenants must have in place a Dangerous Goods Inventory in an approved format on site and available for inspection by Abu Dhabi Ports at all times and inventories including storage period must be emailed to HSE.Ports@adports.ae each day the terminal or tenant premises operate.

4.2 Notifications

Abu Dhabi Ports must be advised of all Dangerous Goods to be imported or exported through a port, including transhipments and/ or goods remaining on a vessel in transit as described in Section Chapter 5.0.

4.3 Reporting of Incidents

Any incident involving Dangerous Goods in a port must immediately be reported to Abu Dhabi Ports by telephone on **800 112** or to the Vessel Traffic Service (VTS) and, if appropriate, to the Terminal Operator.

Owner or Agent of the Cargo or Vessel will be held fully accountable for any incident, damage or leakage that may occur during the storage of (DG) within Abu Dhabi Ports' jurisdiction.

4.4 Packaging and Labelling

All Dangerous Goods delivered to a port area, by land or sea, must be packaged, marked, labelled and placarded in accordance with the IMDG Code.

Terminal operators shall ensure all dangerous goods to be clearly marked (as per the international labelling standards such as, IMDG) during the offloading process and before leaving the terminal to indicate their contents.

Terminal operators shall conduct random inspections on dangerous goods to ensure that labels/ placards are visible.

Terminal Operator shall not permit DG to enter the Terminal Facility unless these Goods are appropriately packaged, marked, and labelled as contemplated in the IMDG Code.

Inappropriately packaged, marked, or labelled Dangerous Goods permitted to enter Port Facility subject to violation / penalty as per Port Rule

4.5 Segregation and Safe Storage of Dangerous Goods

Certain Dangerous Goods are incompatible with other goods. They may also present a risk if exposed to high temperatures, solar radiation, or moisture, etc.

Each terminal or berth operator handling Dangerous Goods must ensure the required segregation and environmental conditions are maintained at all times, as determined through reference to the IMDG Code or the UN Model Regulations, as appropriate. The Safety Data Sheet (SDS)[1] for each substance or product provides more detailed information on the conditions for handling. Time limitations on the storage of Dangerous Goods in Abu Dhabi Ports are defined in Section Chapter 6.0.

Terminal Operator may use an appropriate software to segregate dangerous goods as per IMDG code requirement. Terminal operators must maintain an updated applicable software.

4.6 Area for Damaged Dangerous Goods and Disposal

Each terminal or berth operator must ensure that an isolated area is designated for the storage of any damaged Cargo Transport Units (CTU) containing Dangerous Goods. This area must be provided with suitable facilities to enable:

- Repacking of CTUs.
- Separation and disposal of contaminated waste.

4.7 IMDG Leakage Cargo handling

Each terminal or berth operator are responsible for of handling IMDG leakage containers at specific designated area. The designated area must be bunded with drain sumps connected to sealed systems or interceptors, as appropriate, to prevent contamination of the nearby waters/land and must include all safety and emergency measures/ precautions.

Leaking containers to be transferred to the leaking-containers storage area through the leaking-container/ designated trucks under the required supervision (security, Operations & HSE). Ensure all emergency apparatus are available during the handling and transferring process based on the SDS content.

4.8 Dangerous Goods competent HSE personnel

Each port and terminal operator transporting, handling, or storing Dangerous Goods shall have a competent HSE personnel to provide advice in dangerous goods related matters and monitor the compliance of the related requirements (refer to training section).

The functions of a Dangerous Goods competent HSE personnel include:

[1] May also be known as the Material Safety Data Sheet (MSDS).

- Monitoring compliance with applicable law governing the transport, handling or storage of Dangerous Goods in a port area and these Abu Dhabi Ports Dangerous Goods Guidelines.
- Monitoring the following practices and procedures relating to the activities of the terminal or berth operator which concern Dangerous Goods.
- Adhere to Dangerous Goods Guideline by establishing a procedure for compliance with the regulations governing the identification of Dangerous Goods.
- Verify the equipment used in connection with the transport, handling, or storage of Dangerous Goods as per the established procedure.
- Provide proper training for personnel and maintain records of training.
- Implement emergency procedures in the event of any accident or incident that may affect safety during the transport, handling, or storage of Dangerous Goods.
- Investigate and prepare reports on serious incidents or violations recorded during the transport, handling, or storage of Dangerous Goods.
- Implementation of appropriate measures to avoid the recurrence of incidents or violations.
- Introduce measures to increase awareness of the risks inherent in the transport, handling, or storage of Dangerous Goods.

4.9 Emergency Preparation

Each terminal or berth operator must have a written emergency plan in place for dealing with any dangerous situation arising from the transport or handling of Dangerous Goods in line with Abu Dhabi Ports Emergency Preparedness and Response plans.

All Port Terminals and tenants must have an Abu Dhabi Ports approved Dangerous Goods Storage and Emergency Response Plan. The Plans must be reviewed annually and are subject to verification.

All Port Terminals and tenants must carry out an annual exercise of their emergency response plan and document for audit purposes.

Terminal operators must provide trainings to operation and maintenance personnel to support the dangerous goods response team, this includes the ability to wear the applicable dangerous goods suits and the use of emergency response equipment.

4.10 Empty, Un-Cleaned Cargo Transport Units

Empty CTUs retaining residues of Dangerous Goods, or loaded with empty uncleaned packages, or empty uncleaned bulk containers, must comply with the provisions applicable to the goods previously contained in that CTU.

Empty
containers which have been used previously for the transport of harmful substances shall themselves be treated as harmful substances unless adequate precautions have been taken to ensure that they contain no residue that is harmful to the marine environment.

Other than for class 7, a container, which previously contained dangerous goods shall be identified, marked, labelled and placarded as required for those dangerous goods unless steps such as cleaning, purging of vapours or refilling with a non-dangerous substance are taken to nullify any hazard.

4.11 Weather Precautions

Subject to the direction of the Harbour Master, the Masters of vessels carrying Dangerous Goods shall not authorise the loading/ unloading of dangerous goods in adverse weather conditions, which are likely to increase the risks of loading/ unloading. Operational limitations for each terminal crane or lifting equipment shall be adhered to.

4.12 Management of Vessels

The vessel's Master shall ensure that there are sufficient and appropriately trained personnel on board at all times whilst carrying, loading or unloading Dangerous Goods, such that all equipment and safety devices for the safe handling of dangerous goods is maintained.

4.13 Road vehicles carrying Dangerous Goods

All vehicles carrying Dangerous Goods on public roads shall follow the provisions of applicable regulations stated by UAE Ministry of Interior Gen. Command of Civil Defence and Transport applicable authorities such as Abu Dhabi Police.

Vehicles transporting Dangerous Goods will be authorized to enter port premises only upon confirmation that all cargo related documentation is in order.

4.14 Training of Drivers carrying Dangerous Goods

The duties of drivers of Dangerous Goods are: -

- Check all requirements on board such as check Labels/ Markings/ PPE/ Fire & First Aid kit.
- Read and understand documentation including "instructions in writing" and the transport document.
- Confirm that load is secured.
- Maintain vehicle marking and placards clean.
- Adhere to emergency procedures in case of accident/ incident.
- Inform Abu Dhabi Ports Security and Emergency Services, if any issues arise.

4.15 Unattended Vehicles carrying Dangerous Goods

Dangerous Goods vehicles may not be unmanned by the vehicle crew unless the transport unit is in an attended and secure area.

All requests for derogation of unattended vehicles must be in writing to the Abu Dhabi Ports stating Dangerous Goods class (UN specific) and must be accompanied by risk assessment and relevant Safety Data Sheet and shall only be authorised by Terminal Operator.

4.16 Overnight Parking of Vehicles carrying Dangerous Goods

Dangerous goods vehicles shall not be parked up or stored on the Port overnight. In unforeseen circumstances, a special authorisation to hold the vehicle overnight shall only be authorised by Terminal Operator or Abu Dhabi Ports Security.

All requests for derogation of overnight parking location must be submitted in written format to Abu Dhabi Ports stating Dangerous Goods class (UN specific), and must be accompanied by risk assessment and relevant Safety Data Sheet.

CHAPTER 5.0 SUPPLY OF INFORMATION

5.1 Overview

Abu Dhabi Ports must be notified prior to any Dangerous Goods entering a port by sea or land, including Dangerous Goods remaining on a vessel in transit. This notification is crucial to Port Management, particularly in the case of an incident.

5.2 Import of Dangerous Goods

Ship Agents should submit the notification for Dangerous Goods that to be imported, including Dangerous Goods in transit, to Abu Dhabi Ports within 24 - 48 hours prior to the arrival of the vessel. A reduced period of notification may be accepted at the discretion of the Harbour Master, for example where a vessel regularly trades to Abu Dhabi Ports.

5.3 Export of Dangerous Goods

Ship/ Clearance Agents should submit the notification of Dangerous Goods to be exported, to Terminal/ Berth Operator 6 hours prior expected time of berthing, with the exception of Dangerous Goods of Packing Group 1 (other than IMDG Class 5.2), and IMDG Class 1 and Class 7, which shall be notified at least 72 hours prior to arrival.

5.4 Information and Documentation

The information and other documentation submitted to Abu Dhabi Ports Terminals in relation to Dangerous Goods must be accurate and in accordance with the IMDG Code. Submission of inaccurate or incomplete information and/ or documentation constitutes a violation of the Port Rules and may also lead to delays for the vessel and/ or the cargo concerned.

In the case of packaged Dangerous Goods, the documentation supplied must show:

- The name and IMO number of the vessel to be used.
- The estimated date and time of arrival (ETA) of the vessel, or delivery of goods to port area, as appropriate.
- The name of agent, contact name and telephone number.
- If containerised, the container identification number.
- The number and type of packages.
- The PSN(s)
- The UN number(s)
- The IMDG Class or, when assigned the division of the goods, including for IMDG Class 1 Dangerous Goods, the compatibility group letter (if applicable).
- The Packing Group (where applicable).
- The quantity.

- The flashpoint range (as appropriate).
- The condition of the cargo, and if any abnormal hazard is likely to arise.
- In the case of substances of IMDG Classes 1, 6.1 and 7, the additional information specified in Section 9 of the General Introduction to the IMDG Code.

Vessels / vehicles transporting Dangerous Goods will be authorized to berth / enter port premises only upon confirmation that all cargo related documentation is in order.

5.5 Leaking Cargo Transport Units

In the event that a leaking Dangerous Goods CTU is detected after the submission of a Dangerous Goods notification, the vessel Master and/ or his Agent must immediately amend the declaration and nominate the leaking container and/ or associated issue. In addition, Abu Dhabi Ports must be supplied with the:

- SDS for the product(s).
- Manifest for the CTU.
- 24-hour contact details of the:
  - Transport company.
  - Storage facility.
  - Importer.

CHAPTER 6.0 TIME LIMITATIONS

6.1 Storage in Ports

6.1.1 Class 1 & Class 7

The articles under IMDG Class 1 and 7 shall not be handled unless prior approval is obtained from concerned Government Authorities in UAE. These articles will be handled only on direct delivery/loading basis.

Class 1 & 7 Cargo will be accepted within Abu Dhabi Ports only on direct delivery basis.

Storage, Handling and Transportation of Class 1.4S container containing Dangerous Goods is only allowed for transhipments.

Containers containing dangerous goods falling within the classification code 1.4S may be stored within the Port for as maximum period of 10 days subject to strict adherence and observance of Abu Dhabi Ports safety requirements and IMO Codes.

6.1.2 Dangerous Goods Break Bulk

Dangerous Goods break bulk cargo will be accepted within Abu Dhabi Ports only on direct delivery basis.

6.1.3 Gas Lighters, IMO Class 2.1, UN 1057

Gas lighters in Containers or Break-bulk for Importation will be accepted within Abu Dhabi Ports only on direct delivery basis during the summer months.

Gas lighter exported through Abu Dhabi Ports in dry Containers will be accepted within Abu Dhabi Port limits only on the day of exportation/ shipment loading.

Transhipment Containers carrying gas lighters will be accepted within Abu Dhabi Ports provided they are stored in reefer Containers.

6.1.4 ANTI-KNOCK MIXTURES – IMO Class 6.1

Containers containing motor fuel anti-knock mixtures, IMO Class 6.1, UN No. 1649, IMDG code

- Transhipment: shall be subject to a daily storage charge after 7 free days.
- Import & Export: shall be subject to a daily storage charge after 2 free days.

6.1.5 Class 8 Cargo:

1. Transhipment Class 8 Hazardous container shall not be stored within the port more than 10 days.

2. Import Class 8 Hazardous container shall be cleared within 10 working days.

3. Export

Class 8 Hazardous container shall not be stored within the port more than 5 working days.

6.1.6 All other IMDG Classes:

Any Cargo which is classified under IMDG code groups and which requires special storage temperature as per the IMDG code and their manufacturer's requirements shall be stored in accordance with their respective requirements to ensure that at no given time does the storage temperature of this cargo is exceeded.

6.2 Extensions

It is the responsibility of the consignee and/ or carrier, 'the Customer', to ensure Dangerous Goods do not remain on port premises in excess of the timescale defined in this guideline. If circumstances dictate a delay, the customer must apply to the Terminal Operator for an extension to keep Dangerous Goods within the terminal stating justification, Dangerous Goods class (UN specific) and must be accompanied by risk assessment and relevant Safety Data Sheet (SDS).

Any request for extension must be approved by Abu Dhabi Ports on request from Terminal Operator with justification for the delay in removing Dangerous Goods from a port.

6.3 Unclaimed DG

Abu Dhabi Ports/ Terminal Operator reserves the right to auction/ dispose/ return to origin source of unclaimed DG that remains in the Port for a period more than 30 days, unless extensions is being approved by Abu Dhabi Ports.

If DG cannot be auctioned, Abu Dhabi Ports/ Terminal Operator will initiate disposal/ return to origin source at the risk and expense of the Owner or Agent of the Cargo or Vessel.

6.4 Removal of Objectionable Cargo

Abu Dhabi Ports/ Terminal Operator reserves the right to transfer DG to another location and/or inspect any cargo or container, which in its judgment is likely to impose risk to the terminal/ berth, damage other goods/ cargo or property at the risk and expense of the Owner or Agent of the cargo or vessel.

CHAPTER 7.0 REQUIREMENTS BY CARGO TYPE

7.1 Overview

As previously introduced, Dangerous Goods are classified according to the hazard or the most predominant of the hazards they present. These hazards may require specific measures be taken to manage risk.

7.2 IMDG Class 1 – Explosives

7.2.1 Overview

Explosives are designated as IMDG Class 1. Within IMDG Class 1, there are six Divisions. Within the Divisions, compatibility groups are assigned to define which explosive can be safely stowed and transported together.

The numbers and letters in the classification system relate to the sensitivity, mass explosion hazard and projectile hazard of a particular type of explosive. Typical commercial blasting type explosives are classified as Division 1.1 Compatibility Group D (commonly depicted as 1.1 D); detonators are typically of 1.1B or 1.4B; display fireworks generally fall under a 1.3G or 1.4G classification and shop goods varieties of fireworks are usually classified as 1.4S explosives.

Safety distances to be maintained whilst transporting or handling explosives vary according to their classification and are based on the distance required to prevent property damage or injury should the total quantity of explosives detonate.

7.2.2 Explosive Quantity

All references to explosive quantity are references to Net Explosive Quantity (NEQ) which is the actual quantity of explosive in the cargo excluding all packaging materials and non-explosive components.

7.2.3 Explosives on Vessels in Transit

Limited quantities of explosives may be permitted to remain on board vessels in transit as shown in below tables (2A, 2B).

Table 2-A: KP-
Maximum Quantity of Explosives Permitted on Vessels in Transit

Port/ Terminal/ Berth No.	Length	Location	Distance from Protected Areas (Meters)	Net Explosive Quantity (NEQ) permitted aboard ship (kilograms)			
				Class 1.1, 1.5 & 1.6	Class 1.2	Class 1.3	Class 1.4
KP/ HM Berth	315 m	West Quay	90	400	400	2500	Unlimited
KP/ADT / Berth - 1	247.5m	West Quay	273	2500	7500	75000	Unlimited
KP/ADT/Berth - 2	247.5m	West Quay	231	1500	3000	40000	Unlimited
KP/ADT/Berth - 3	400m	North Quay	482	10000	>250000	>250000	Unlimited
KP/ADT/Berth - 4	400m	North Quay	882	50000	>250000	>250000	Unlimited
KP/ADT/Berth - 5	400m	North Quay	882	50000	>250000	>250000	Unlimited
KP/ADT/Berth - 6	400m	North Quay	970	100000	>250000	>250000	Unlimited
KP/COSCO/Berth - 7	400m	North Quay	570	15000	>250000	>250000	Unlimited
KP/COSCO/Berth - 8	400m	North Quay	659	25000	>250000	>250000	Unlimited
KP/COSCO/Berth - 9	400m	North Quay	762	40000	>250000	>250000	Unlimited
KP/ATK/Berth - 10	400m	North Quay	643	20000	>250000	>250000	Unlimited
KP/ATK/Berth - 11	200m	North Quay	567	15000	>250000	>250000	Unlimited
KP/EMAL Berth	800m	EMAL Berth	278	2500	7500	75000	Unlimited

Table 2-B: ZP-
Maximum Quantity of Explosives Permitted on Vessels in Transit

Port/ Terminal/ Berth No.	Length	Location	Distance from Protected Areas (Meters)	Net Explosive Quantity (NEQ) permitted aboard ship (kilograms)			
				Class 1.1, 1.5 & 1.6	Class 1.2	Class 1.3	Class 1.4
ZP/Berth No-1	198	GC Operation	200 m	1500	1500	30000	Unlimited
ZP/Berth No-2	210	GC Operation	400 m	5000	75000	200000	Unlimited
ZP/Berth No-3	292	GC Operation	600 m	15000	>250000	>250000	Unlimited
ZP/Berth No-4	249	GC Operation	300 m	3000	15000	100000	Unlimited
ZP/Berth No-5	198	GC Operation	200 m	1500	150	30000	Unlimited
ZP/Berth No-6	80	GC Operation	400 m	5000	75000	200000	Unlimited
ZP/Berth No-7	192	GC Operation	600 m	15000	>250000	>250000	Unlimited
ZP/Berth No-8	208	GC Operation	400 m	5000	75000	200000	Unlimited
ZP/Berth No-9	218	GC Operation	200 m	1500	1500	30000	Unlimited
ZP/Berth No-10	146	SAFEEN	100 m	500	500	3000	Unlimited
ZP/Berth No-11	234	SAFEEN	200 m	1500	1500	30000	Unlimited
ZP/Berth No-12	286	SAFEEN	500 m	11500	>250000	>250000	Unlimited
ZP/Berth No-13	256	Navy	300 m	3000	15000	100000	Unlimited
ZP/Berth No-14	163	Cruise Terminal	52 m	200	200	2000	Unlimited
ZP/Berth No-15	195	Cruise Terminal	52 m	200	200	2000	Unlimited
ZP/Berth No-16	180	Cruise Terminal	52 m	200	200	2000	Unlimited
ZP/Berth No-17	180	Cruise Terminal	100 m	500	500	3000	Unlimited
ZP/Berth No-18	180	ADVOC	200 m	1500	1500	30000	Unlimited
ZP/Berth No-19	205	Grand Mills	300 m	3000	15000	100000	Unlimited
ZP/Berth No-20	261	Tenant- ADSB	52 m	200	200	2000	Unlimited
ZP/Berth No-21	240	Tenant- ADSB	100 m	500	500	3000	Unlimited

7.2.4 Export & Import Explosives (Class 1)

Export & Import of explosives except class 1.4 permitted to on the following Ports Berths as shown in below tables (2C, 2D).

Table 2-C: KP-
Explosives (Class 1) Permitted on Ports/ Terminal/ Berth (Export & Import)

Port/ Terminal/ Berth No.	Length	Location	Distance from Protected Areas (Meters)
KP/ADT/Berth - 4	400m	North Quay	882
KP/ADT/Berth - 5	400m	North Quay	882
KP/ADT/Berth - 6	400m	North Quay	1,282
KP/COSCO/Berth - 7	400m	North Quay	570
KP/COSCO/Berth - 8	400m	North Quay	659
KP/COSCO/Berth - 9	400m	North Quay	762

Table 2-D: ZP- Explosives (Class 1) Permitted on Ports/ Terminal/ Berth (Export & Import)

Port/ Terminal/ Berth No.	Length	Location	Distance from Protected Areas (Meters)
ZP/Berth No-3	292	GC Operation	600 m
ZP/Berth No-7	192	GC Operation	600 m
ZP/Berth No-12	286	SAFEEN	500 m

Notes:

"Protected Place" means any of the following:

- A dwelling, place of worship, public building, school or college, hospital, theatre or any building or open area in which persons are accustomed to assembling, whether within or outside the port area.
- A factory, workshop, office, store, warehouse, shop or building where people are employed that is outside the boundary of the site where the dangerous cargoes are handled.
- A vessel lying at permanent berthing facilities.
- Any storage facility for dangerous cargoes that is outside the property boundary of the port area, except those used for minor storage.
- The separation distance nominated (and the corresponding allowable NEQ) must be reduced to the distance from accommodation quarters on other ships if present at nearby berths.

- Where a vessel is carrying explosives of more than one sub-class, the total net weight of explosives which may be permitted is the weight applying to the most restrictive sub-class aboard in the order 1.1 (most dangerous). 1.5, 1.2, 1.3, 1.6 and 1.4 (least dangerous).
- For one type of article of Division 1.6, the total NEQ shall be that of one article. Where different types of articles of Division 1.6 are involved, the total NEQ of all articles shall be used.

In extreme conditions, the exceedance to the NEQ and separation distance requirements in the above Tables (2A, 2B, 2C & 2D) shall be obtained by Terminal Manager in consultation with Harbour Master.

Transhipment of Class 1 IMDG (except class 1.4) are not allowed in Abu Dhabi Ports unless Group CEO grants exemption in special case/s.

7.2.5 Berth Designation and Marking

Explosives must only be handled at a designated berth(s) as per Tables (2A, 2B, 2C & 2D). When designating an explosives berth, terminal, or berth operator must take due account of :

- The total quantity, type, and class of explosives to be transported or handled.
- The method of packaging, containment, and stowage of the explosives.
- The total quantity, type, and classification of other Dangerous Goods on the vessel.
- The geography of the port and the location of the berth within the port area.

Its proximity to:

- protected places.
- other vessels.
- other berths.
- main roads.
- The construction of the berth.
- The type and availability of transport for the immediate removal of explosives from the berth.
- The immediate availability of adequate fire-fighting resources at the berth.
- Re-routing of land or waterborne traffic.
- Proximity to tanks and pipelines.
- The separation distances defined in Section 7.2.7.

Each berth designated for the handling of explosives must be provided with markings that extend at least 15 metres from the immediate handling area.

7.2.6 Safety Requirements

The following safety requirements apply to the handling and transport of explosives in Abu Dhabi Ports:

1) Explosives (excluding Division 1.4) must not be unloaded from a vessel unless the means of transport, by which they are to be removed from the port area, are on the terminal or berth and ready to receive them.

2) Explosives (excluding Division 1.4) must be taken directly to or from a vessel, and in no circumstances be held on a berth. Trucks receiving the delivery must be located in proximity of the vessel in an area as assigned.

3) Explosives must be unloaded as soon as reasonably practicable (within 2 hours of the vessel being secure at the berth).

4) Explosives (excluding Division 1.4) must not be brought to a berth for loading onto a vessel unless the vessel is ready to receive them.

5) The handling of explosives once commenced, must proceed without delay or interruption, except during bad weather condition, operations must be suspended and not resumed until it is confirmed by VTS and Harbour Master.

6) Explosives must not be handled unless they have been classified in accordance with the IMDG Code.

7) The vessel must depart from the port area within 2 hours of completion of loading of explosives, (excluding Division 1.4), any delay shall be approved by Harbour Master.

8) A vehicle must leave the port area as soon as possible on completion of being loaded with explosives and in all circumstances within 1 hour of the explosive being loaded to the vehicle.

9) Where more than 100kg of explosives (excluding Division 1.4) are to be loaded or unloaded in the port area, a customer's representative who has immediate access to specialist advice in the case of an emergency, must be contactable by phone and be immediately available while the explosives are being loaded and/ or unloaded.

10) Emergency Procedures for the Terminal or Berth Operator, developed in conjunction with Abu Dhabi Ports and the emergency services, must be in place before any explosives are handled.

11) All non-essential persons are excluded from the immediate handling area, taking into account the separation distances defined in Section 7.2.7.

12) A traffic management plan for the terminal or berth must be in place for road vehicles carrying explosives.

13) Whilst explosives are being handled, ignition sources must not be permitted in or near handling areas. Smoking must be strictly prohibited on the vessel and on the berth (except in safe areas).

14) Adequate and appropriate firefighting facilities and water must be immediately available on the vessel and fire hoses on it laid out ready for use (not applicable to Division 1.4 explosives).

15) Vessel and shore personnel must receive prior instruction regarding the hazards, handling methods and emergency procedures for explosives.

16) No bunkering of a vessel must take place whilst explosives are being handled (excluding Division 1.4).

17) Repairs involving hot work are prohibited on the vessel or on the berth whilst explosives (excluding Division 1.4) are being transported or handled.

18) Repairs involving engine repairs resulting in the vessel being immobilised are prohibited whilst explosives are on-board the vessel (excluding Division 1.4).

19) If emulsion precursors are handled on the same vessel or in the same area as explosives, then the total quantity of these materials must be considered as IMDG Class 1 and the relevant separation distances must apply.

20) Explosives must be segregated from incompatible cargoes, combustibles and other Dangerous Goods at all times.

21) The vessel must be kept ready at all times, so that the vessel can leave the berth at short notice.

7.2.7 Separation Distances

The separation distances from protected places, including the accommodation blocks of vessels (other than the vessel handling explosives) specified in Table 3 are to be maintained at all times whilst handling explosives in Abu Dhabi Ports.

Table 3: Explosives Separation Distances

Net Explosive Quantity (kg)	Separation Distance (Metres)			
	IMDG Class 1 Division			
	1.1, 1.5, 1.6	1.2	1.3	1.4
25	10	50	10	10
50	25	50	10	10
100	33	50	10	10
200	52	52	10	10
300	68	68	10	10
400	82	82	10	10
500	95	95	10	10
1000	150	150	10	10
1500	191	191	10	10
2000	240	210	10	10
2500	257	220	87	10
3000	284	225	92	10
4000	350	235	105	10
5000	380	245	110	10
7500	424	265	125	10
10000	480	280	140	10
15000	546	300	158	10
20000	610	320	175	10
25000	650	340	186	10
30000	689	340	199	10
40000	762	360	218	10
50000	820	375	240	20
75000	940	400	273	20
100000	1040	410	300	20
150000	1300	410	375	20
200000	1400	410	405	20

Notes:

Where a vessel is carrying explosives of more than one sub-class, the total net weight of explosives which may be permitted is the weight applying to the most restrictive sub-class aboard in the order 1.1 (most dangerous). 1.5, 1.2, 1.3, 1.6 and 1.4 (least dangerous).

For one type of article of Division 1.6, the total NEQ shall be that of one article. Where different types of articles of Division 1.6 are involved, the total NEQ of all articles shall be used. Maximum permitted time period 2 hours for class 1.6 dangerous goods.

7.2.8 Radio or Radar Transmitting Equipment

Only radio or radar transmitting equipment approved for this purpose may be used within 50 metres of any handling operation involving explosives.

The terminal or berth operator must satisfy itself through inspection that arrangements are in place to prevent the inadvertent operation of any fixed radio and radar installations on the vessel during the handling of explosives.

7.2.9 Temperature-Controlled Explosives

Where temperature-controlled explosives are to be handled, suitable facilities must be provided to maintain the required temperature. These facilities must be provided with suitable back up to ensure no single-point failure leads to a loss of temperature control of the explosives CTU.

7.3 IMDG Class 2 – Compressed and Liquefied Gases

7.3.1 Overview

Compressed and liquefied gases are classified as Dangerous Goods due to one or more of the following:

- Flammable properties when mixed with air.
- Toxic properties.
- Displacement of oxygen in the air and potential to cause asphyxiation.
- Stored energy from being held under very high pressure.
- Potential to cause freezing when released or vaporised.

Gases are divided into three IMDG sub-classes according to their predominant hazard, namely:

- Class 2.1 Flammable Gases – e.g. acetylene, natural gas, and hydrogen.
- Class 2.2 Compressed Gases (non-flammable, non-toxic) – e.g. nitrogen, carbon dioxide and argon.
- Class 2.3 Toxic Gases – e.g. liquefied chlorine, sulphur dioxide and anhydrous ammonia.

It should be noted that IMDG Class 2 Dangerous Goods are not assigned a Packing Group; gases are normally packaged in metal containers for which there are specific standards dependant on the properties of each gas.

7.3.2 Quantity Limits

Except in the case of toxic gases, there are no limitations on the quantities of compressed and liquefied gases that may be handled in Abu Dhabi Ports. The toxic gases are allow as single shipment quantity and storage is not permitted.

7.3.3 General

Safety Requirements

The general safety requirements applicable to the handling of gases are those listed in Section Chapter 4.0.

7.4 IMDG Class 3 – Flammable Liquids

7.4.1 Overview

Flammable liquids are classified as Dangerous Goods due to their ability to burn in the presence of oxygen. These are perhaps the most commonly encountered Dangerous Goods, encompassing day-to-day products such as petrol, kerosene, paints, solvents, and alcohol.

Some flammable liquids are more hazardous (flammable) than others due to differences in either the temperature at which they ignite, the energy required for ignition or the range of concentrations in air at which they are flammable. For this reason, each flammable liquid is assigned a Packing Group to indicate the relative level of hazard it presents. An extremely flammable substance such as carbon disulphide that can be ignited at 100ºC (the temperature of boiling water) is assigned Packing Group I. A lower flammability substance such as kerosene is assigned Packing Group III.

7.4.2 Quantity Limits

There are no limitations on the quantities of flammable liquids that may be handled in Abu Dhabi Ports. However, any packaged flammable liquids of Packing Group I and un-cleaned CTUs are subject to time limitations in a port area as per section 5.

7.4.3 General Safety Requirements

The general safety requirements applicable to the handling of flammable liquids are those listed in Section Chapter 4.0.

7.5 IMDG Class 4 – Flammable Solids

7.5.1 Overview

Whilst IMDG Class 4 is generally referred to as flammable solids it encompasses the following three sub-classes:

- Class 4.1 – flammable solids (e.g. sulphur, matches).
- Class 4.2 – substances liable to spontaneous combustion (e.g. xanthates).
- Class 4.3 – substances, which in contact with water emit flammable gases (e.g. calcium carbide, iron swarf).

It is sufficient to note that the substances are generally solid and will either burn readily in the presence of oxygen (sometimes without an ignition source) or will release a flammable substance when wet. Flammable solids are each assigned a Packing Group.

7.5.2 Quantity Limits

There are no limitations on the quantities of packaged flammable solids that may be handled in Abu Dhabi Ports. However, for flammable solids of Packing Group I, there are time limitations for the keeping of these substances in a port area as per section 5.

7.5.3 General Safety Requirements

The general safety requirements applicable to the handling of flammable solids are those listed in Section Chapter 4.0.

7.6 IMDG Class 5 – Oxidising Substances

7.6.1 Overview

Oxidising substances obtain their title due to the fact that (generally) when in contact with other substances capable of burning they supply oxygen to enable the other substances to burn (in place of the oxygen normally obtained from the air).

Oxidising substances provide a plentiful supply of oxygen exactly where it is needed (in direct contact with the combustible material) hence substances that may burn slowly in air will often burn fiercely or even explode when in contact with an oxidising substance. The combination of oxidising substances with flammable liquids can lead to fire or explosion without the presence of an ignition source hence it is critical that oxidising substances and flammable liquids/ gases/ solids be separated at all times.

Some oxidising substances can ignite and explode when heated or contaminated, due to rapid decomposition (Note: Some organic peroxides have an explosive subsidiary risk assigned and must be handled as though they are explosives).

Oxidising substances are divided into oxidising agents (Class 5.1) and organic peroxides (Class 5.2), the main difference being that the organic peroxides are generally unstable and require the addition of stabilisers and/ or temperature control in order to be stored and handled safely. Typical examples of oxidising agents are ammonium nitrate and solid pool chlorine. Methyl Ethyl Ketone Peroxide (MEKP) and benzoyl peroxide are examples of organic peroxides.

Oxidising agents are each assigned a Packing Group.

7.6.2 General Safety Requirements

The general safety requirements applicable to the handling of oxidising substances are those listed in Section Chapter 4.0.

7.6.3 Ammonium Nitrate and Calcium Hypochlorite

Ammonium nitrate and calcium hypochlorite are oxidising substances that present specific risks. Their ability to decompose rapidly giving off toxic fumes and (under extreme conditions) to explode requires particular attention. The key to safe handling of these substances lies in the avoidance of fire and contamination and a sound knowledge of their properties should an emergency response be required. To minimize the risk of fire, where possible, ignition sources should not be taken inside the exclusion zone that must be established around any vessel handling these cargoes.

Ammonium nitrate is a major component of many blasting explosives, although it is not itself an explosive. However, when mixed with the appropriate ingredients it forms an explosive. It can also demonstrate explosive properties under the combination of extreme conditions of temperature, pressure, and impact.

Calcium hypochlorite is a commonly used form of solid pool chlorine. Calcium hypochlorite decomposes readily when contaminated, in contact with moisture or heated. Decomposition leads to the generation of toxic gases and heat and more rapid decomposition which can lead to explosion.

Any spillage of these materials must not be returned to the original package and/ or consignment. All spillages should be recovered separately using dedicated clean, dry containers and disposed of or treated in accordance with the manufacturer's instructions.

7.7 IMDG Class 6 – Toxic Substances

7.7.1 Overview

Toxic substances may be solid or liquid. They can cause harm through inhalation, ingestion or absorption and they can vary significantly in respect to their degree of toxicity.

The use of Packing Groups plays a significant role for toxic substances in giving an immediate indication of the degree of harm presented by the material. Packing Group I toxic substances such as sodium cyanide are extremely toxic whilst Packing Group III toxic substances such as many of the household pesticides/ herbicides present a much lower hazard.

7.7.2 Quantity Limits

There are no limitations on the quantities of packaged toxic substances that may be handled in Abu Dhabi Ports. However, as with all packaged Dangerous Cargoes of Packing Group I, there are time limitations for the keeping of these substances in a port area as per section 5.

7.7.3 General Safety Requirements

The general safety requirements applicable to the handling of toxic substances are those listed in Section Chapter 4.0.

7.8 IMDG Class 7 – Radioactive Substances

7.8.1 Overview

Any material with a specific activity greater than 70 kBq/kg is declared radioactive.

The International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Materials specify requirements for packages and freight containers for radioactive substances. No radioactive substances may be brought into a port area unless they conform to these requirements.

All radioactive materials are dangerous because they emit invisible radiation that may damage body tissue. This damage arises either from external irradiation or from internal irradiation following the intake of radioactive material into the body. The degree of hazard presented by radioactive materials varies significantly, being a function of the type of material, its specific activity, and the duration of exposure.

Radioactive material assigned to class 7 of the IMDG Code, should only be permitted to enter the port area for direct shipment or delivery if permitted by the regulatory authority (FANR).

When radioactive material cannot directly go to or from a ship for unforeseen reasons it should only be kept in port areas with the permission of the regulatory authority.

Packaged radioactive material should not be brought into the port area unless it is in conformity with the International Atomic Energy Agency's (IAEA) Regulations for the Safe Transport of Radioactive Materials, and the requirements of the IMDG Code or similar national legal requirements.

Packages containing radioactive material should be stowed and segregated in compliance with the detailed requirements of the IMDG Code. Guidance on segregation distances required on shore is set out in annex 3.

In the event of any accident or incident involving radioactive material or packages of radioactive materials or any theft or loss of any such materials or packages, the port authority and relevant national authorities (Police, FANR, Civil Defence, NCEMA) should be notified immediately. If there is any possibility of loss of containment of radioactive material, the area should be isolated, and the appropriate contingency plans put into operation.

Where necessary, special areas, which include buildings built in accordance with international safety standards, should be provided for radioactive material.

7.8.2 Quantity Limits

The radioactive substances that may be handled in Abu Dhabi Ports subject to approval from government authorities (FANR) and in compliance with IMDG Code and The International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Materials for packages and freight containers for radioactive substances. The radioactive substances are allowed as single shipment quantity and storage not permitted.

Time restrictions relating to the keeping of radioactive substances in a port area are also applicable depending on the specifics of the material.

7.8.3 General Safety Requirements

The general safety requirements applicable to the handling of radioactive substances are those listed in Section Chapter 4.0. Additionally, all precautions must be taken to avoid unnecessary exposure of persons to radioactive substances e.g. persons should be instructed to withdraw to a distance of 5 metres from any CTUs unless required for the handling operation. Cargo operations must be arranged so that persons spend minimal time close to the radioactive substances. Lifting apparatus used to handle CTUs should utilise spreader bars or other means to prevent the possibility of tines puncturing the containers.

7.8.4 Damage, Spillage and Leakage

In the event of damage to a CTU containing radioactive substances, the terminal or berth operator must:

- Take all practicable steps to avoid contact with, or inhalation of, the radioactive substances.
- Immediately inform Abu Dhabi Ports and all other relevant authorities.
- Ensure the spillage is immediately cleaned up by properly equipped and trained persons.
- Ensure unauthorised persons are not allowed to return to the incident area.

7.8.5 Additional Regulatory Requirements

Port users should note, amongst others, UAE Law No. (20) of 2006 amending Articles (1), (2), (3) and (8) in Federal Law No. (1) of 2002 concerning Regulation and Control of the use of Radioactive Sources and Protection against its hazards. (this section includes Abu Dhabi Ports measures)

Abu Dhabi Ports to develop and implement the emergency response plan in coordination with FANR / CUSTOMS.

7.9 IMDG Class 8 – Corrosive Substances

7.9.1 Overview

Corrosive substances may be solid or liquid, acidic or caustic and mildly or extremely corrosive. They range from general household products through to industrial reagents. As the predominant impact of corrosives is on living tissue (organic material) and metals, the criteria upon which they are classified involves skin and metal corrosively testing.

Some corrosives can cause severe burns to skin, eyes, and mucous membranes. Many are sufficiently volatile to evolve vapour and subsequently cause harm. Others are capable of producing toxic gases when decomposed by high temperatures. In addition to a direct destructive action in contact with skin, some substances in this class are toxic and poisoning may result if they are swallowed, or if their vapour is inhaled. Some of them may penetrate the skin.

The use of Packing plays a significant role for corrosive substances in giving an immediate indication of the degree of harm presented by the material. Packing Group I corrosive substances such as anhydrous hydrofluoric acid are extremely corrosive (small amounts absorbed through the skin can cause death) whilst Packing Group III corrosive substances such as many of the concentrated household products present a much lower hazard.

7.9.2 Quantity Limits

There are no limitations on the quantities of packaged corrosive substances that may be handled in Abu Dhabi Ports. However, as with all packaged Dangerous Cargoes of Packing Group I, there are time limitations for the keeping of these substances in a port area.

7.9.3 General Safety Requirements

The general safety requirements applicable to the handling of corrosive substances are those listed in Section Chapter 4.0.

a. Packaging Requirements

Only UN certified packaging is permitted to transport IMO class 8 Cargo. In case if the packaging is not UN certified, then the following Port EHS requirements shall be complied

1. For plastic drums capacity of 200 Litres and above, only single tier storage is permitted and no drums shall be stowed one over other.

2. For Plastic Jerri-cans, only maximum three tier stowage is permitted and no Pallets/ Palletised Jerri-cans shall be stowed one over other.

3. Concentrated Nitric Acid is a strong oxidizing agent and can cause a fire risk if it comes into contact with combustible materials such as wood etc., which is used in packages/container. Hence, adequate control measures shall be taken to prevent fire and cargo spill by taking into consideration of all potential hazards and risks.

4. "Container Packing Certificate" shall be obtained for all containers at the point of loading and submitted to Port Authority. Photographic evidence of packaging shall be presented, if requested from the Port Authority.

5. Port Authority shall conduct random inspection on packages to ensure compliance requirements.

b. Temperature Control.

If the cargo requires temperature control, then the temperature controlled container only shall be used in line with IMDG requirements. It is the responsibility of the shipper, consignee and agent to evaluate the prevailing temperature at Abu Dhabi Ports in UAE (e.g. Khalifa / Zayed Ports) and accordingly utilize such a suitable container with adequate control measures.

7.10 IMDG Class 9 - Miscellaneous

7.10.1 Overview

IMDG Class 9 substances and articles (miscellaneous dangerous substances and articles) are substances and articles which, during transport, present a danger not covered by other classes. As such many different products, and consequential potential hazards, fall within the scope of the classification. Examples include life-saving appliances, lithium batteries and genetically modified organisms which do not meet the definition of infectious substances but which are capable of altering animals, plants or microbiological substances in a way not normally the result of nature reproduction.

7.10.2 Quantity Limits

There are no limitations on the quantities of packaged miscellaneous dangerous substances and articles that may be handled in Abu Dhabi Ports. However, as with all packaged Dangerous Cargoes of Packing Group I, there are time limitations for the keeping of these substances in a port area.

7.10.3 General Safety Requirements

The general safety requirements applicable to the handling of miscellaneous dangerous substances and articles are those listed in Section Chapter 4.0.

In addition, particular care should be taken to refer to an individual product's SDS and comply with the requirements specified therein. Under no circumstances must it be assumed that all substances and articles that fall within the scope of IMDG Class 9 are compatible with one another, or that each substance or article so classed has a similar risk profile in respect of, amongst other things, emergency response.

CHAPTER 8.0 SITE SECURITY

All terminal or berth operators that transport, handle or store Dangerous Goods must adopt, implement, and comply with a security plan in accordance with the requirements of the IMO International Ship and Port Facility Security Code (ISPS), applicable national legislation and Abu Dhabi Ports Security requirements.

Site access to all terminal or berth shall adhere to Abu Dhabi Ports' gate pass access procedure and should only permitted if holding a valid gate pass and fulfil the roles and guidelines established by Abu Dhabi Ports and Terminal or Berth Operators.

CHAPTER 9.0 TRAINING

9.1 Introduction

All shore-based personnel engaged in the transport, handling or storage of Dangerous Goods must comply with the relevant training requirements of the IMDG Code and / or Abu Dhabi Public Health Center (ADPHC) OSHAD-SF CoP 1.0 Hazardous Materials.

9.2 Personnel Requiring Training

The IMDG Codes requires that shore-based personnel engaged in the transport of dangerous goods intended to be transported by sea be provided with "training in the contents of dangerous goods provisions commensurate with their responsibilities".

9.3 Scope of Required Dangerous Goods Training

The scope, or depth, of Dangerous Goods training required is broadly dependent on the risk presented by the task performed by the individual. It is the responsibility of Terminal and Berth Operators to determine:

- Which personnel need to be training
- The degree of training required.
- The method of training to use to enable compliance with the provisions of the IMDG Code.

Function-specific training divided into three specific roles:

- Pertaining to those engaged in packing of Dangerous Goods (includes those that load and unload Cargo Transit Unit and Bulk units).
- Pertaining to those engaged in the marking, labelling, or placarding of Dangerous Goods.
- Pertaining to those engaged in the preparing and/or signing of transport documentation (shipper and container packing declarations).

The recommended training for Dangerous Goods includes:

- General Dangerous Goods' awareness and familiarization.
- Classification of Dangerous Goods and PSN requirements.
- International Convention for Safe Containers (CSC) requirements.
- Classes Packaging requirements & UN marking for approved packaging.
- Classes Marking, labelling, and placarding requirements.
- Documentation Classes Marking, labelling, and placarding
- Load/unload Dangerous Goods into/from ships.
- Dangerous Goods Safe handling procedures

- Transport documents for Dangerous Goods.
- Handle Dangerous Goods in transport; IMDG Code Local requirements at loading and discharging ports.
- Dangerous Goods Stowage requirements, Segregation requirements & Document of compliance.
- Dangerous Goods National transport regulations.
- Emergency response procedures & First aid measures.
- Operation Team participation in emergency response that includes proper use of Chemical Suite and PPE Apparatus.
- Dangerous Goods security requirements.
- Use of PPE.

Consequently, any person, or persons, appointed to act as a Dangerous Goods Advisor from HSE Team must receive more extensive training.

Training is to be periodically supplemented with refresher courses to comply with the IMDG Code and in order to consider changes in regulations and practices.

9.4 Maintenance of Training Records

Each terminal or berth operator, as appropriate, must maintain records of all Dangerous Goods training. These records must be made available to the employee and Abu Dhabi Ports, if requested.

9.5 Related Codes and Publications for Training

1) International Maritime Dangerous Goods (IMDG) Code, as amended.
2) The EmS Guide: Emergency Response Procedures for Ships Carrying Dangerous Goods (EmS), as amended.
3) Medical First Aid Guide for Use in Accidents involving Dangerous Goods (MFAG), as amended.
4) United Nations Recommendations on the Transport of Dangerous Goods-Model Regulations, as amended.
5) United Nations Recommendations on the Transport of Dangerous Goods-Manual of Tests and Criteria, as amended.
6) The IMO/ILO/UN ECE Guidelines for Packing of Cargo Transport Units (CTUs).
7) Recommendations on the Safe Transport of Dangerous Cargoes and Related Activities in Port Areas.
8) International Convention for Safe Containers (CSC), 1972, as amended.
9) Code of Safe Practice for Cargo Stowage and Securing (CSS Code), as amended.
10) The Recommendations on the Safe Use of Pesticides in Ships, as amended.

11) International Convention for the Safety of Life at Sea (SOLAS) 1974, as amended.

12) International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978 (MARPOL 73/78), as amended.

9.6 Additional Training Resources

There are a number of resources available that may be referenced by terminal or berth operators to develop training packages to comply with the requirements of these Abu Dhabi Ports Dangerous Goods Guidelines. These include:

(i) IMO Model Course 1.10 (Dangerous, Hazardous and Harmful Cargoes – 2014 edition) - if this publication is used care must be taken to ensure the content is updated to reflect current requirements.

2) IMO Model Course 3.18 (Safe packing of Cargo Transport Units – 2001 edition).

3) Container Handbook – Cargo Loss Prevention Information, Published by German Marine Insurers (Gesamtverband der Deutschen).

4) Dangerous, Hazardous and Harmful Cargoes – Handbook: Published by the Australian Maritime Safety Authority.

5) DNVGL-ST0013:2014-04 - Standard for Certification for Competence of Shore-Side Personnel Handling Dangerous Goods.

6) Australian National Training Authority – Transport and Distribution Training Package TDT02 (Stevedoring), Units. TDTD397C Handle Dangerous Goods / Hazardous Substances, TDTD1597B Identify and Label Explosives and Dangerous Goods.