حكومة دبي
GOVERNMENT OF DUBAI

بلدية دبي
DUBAI MUNICIPALITY

Code of Practice for the Management of
Dangerous Goods
in the Emirate of Dubai

ISSUED BY DUBAI MUNICIPALITY
1997

INTRODUCTION

Dangerous Goods are an increasingly common cargo at Dubai Ports and other entry points, on Dubai's roads and in Dubai's industrial areas.

Improper handling of these materials poses significant community safety and environmental risks. In Dubai, administrative responsibility for Dangerous Goods matters is not assigned to a single department or agency. Therefore, to improve management of this issue and the coordination of dangerous goods affairs, this Code has been developed.

The code was prepared by an Interdepartmental Committee comprising:

- Dubai Municipality, Environmental Protection and Safety Section
- Federal Environmental Agency
- Federal Ministry of Health
- Dubai Police
- UAE Civil Defence (Dubai)
- Dubai Ports Authority
- Jebel Ali Free Zone Authority
- Department of Ports and customs/ Jebel Ali
- Emirates/ DNATA
- Dubai Civil Aviation/ Dubai Cargo Village

The Code outlines the terms, rules and procedures for the proper management of dangerous goods in Dubai.

The Code will be implemented by all government agencies in Dubai in so far as the code covers the administrative responsibilities of those agencies. Dubai Municipality will coordinate these efforts and act as the main administrative focus for dangerous goods affairs.

Qassim Sultan
Director- General
Dubai Municipality

CODE OF PRACTICE
FOR THE MANAGEMENT OF DANGEROUS GOODS
IN THE EMIRATE OF DUBAI

CONTENTS

PART 1
Definitions

For the purpose of this Code and the coordination management of dangerous goods in Dubai, the terms below shall be interpreted as having the following meanings:

Auto ignition Temperature means the minimum temperature required to initiate or cause self-sustained combustion in any substance in the absence of a spark or flame

Bag means a flexible packaging made of paper, plastic film, textile, woven material or other materials.

Box means a package with complete rectangular or polygonal faces made of metal, wood, plywood, reconstituted wood, fiber board, plastic or other materials.

Bulk Transport means in relation to the transport of dangerous goods, the transport of:

a. dangerous goods of Class 2 in a container having a capacity exceeding 500 L or the total quantity of containers so transported exceeding 1000 L.

b. dangerous goods other than class 2 in the form of a liquid or a paste in a container having a capacity exceeding 250 L or transported in smaller containers having a total capacity exceeding 1000 L.

c. dangerous goods in the form of a solid in the container or an undivided quantity exceeding 400 kg. or in a divided quantity exceeding 800 kg.

Carrier a company or person engaged in the land transport of dangerous goods.

Classes means the number assigned to dangerous goods which exhibits a common single or most significant risk determined from the criteria in Appendix 1

Class Labels means the labels described below for each class of dangerous goods.

Form and Colouring of Class Labels and Subsidiary Risk Labels

Class or Subsidiary Risk Category	Class Label (Notes 1,2)	Subsidiary Risk Label (Notes 1,2,3)	Colouring of Label
1.1, 1.2 or 1.3			Background of the colour Orange specified in Table 1.1 Black lettering, symbol, numerals (if any) and lines (Note 4)
1.4		N/A	Background of the colour Orange specified in Table 1.1 Black lettering, symbol, numerals and lines. (Note 5)

Class or Subsidiary Risk Category	Class Label (Notes 1,2)	Subsidiary Risk Label (Notes 1,2,3)	Colouring of Label
1.5		N/A.	Background of the colour Orange specified in Table 1.1 Black lettering, symbol, numerals and lines.
1.6		N/A	Background of the colour Orange specified in Table 1.1. Black lettering, symbol, numerals (if any) and lines (Note 4)
2.1			Background of the colour Red specified in Table 1.1 Black or white lettering symbol, numeral (if any) and lines.

Class or Subsidiary Risk Category	Class Label (Notes 1,2)	Subsidiary Risk Label (Notes 1,2,3)	Colouring of Label
2.2			Background of the colour Red specified in Table 1.1 Black or white lettering symbol, numeral (if any) and lines.
2.2 and Subsidiary Risk 5.1 (Only for use on cylinders and unit loads of NITROUS OXIDE, COMPRESSED and OXYGEN COMPRESSED)		N/A	Background of the colour Yellow specified in Table 1.1 Black lettering, symbol, numerals and lines.
2.3		N/A	White background. Black lettering, symbol, numeral (if any) and lines.

Class or Subsidiary Risk Category	Class Label (Notes 1,2)	Subsidiary Risk Label (Notes 1,2,3)	Colouring of Label
3			Background of the colour Red specified in Table 1.1 Black or white lettering symbol, numeral (if any) and lines.
4.1			Background : seven red and six vertical white stripes, all of equal width. The colour Red shall be as specified in Table 1.1 Black symbol, lettering and numeral (if any) and lines.
4.2			Background: upper half white; lower half of the colour Red Specified in Table 1.1 Black symbol, lettering and numeral (if any) and lines.

Class or Subsidiary Risk Category	Class Label (Notes 1,2)	Subsidiary Risk Label (Notes 1,2,3)	Colouring of Label
4.3			Background of the colour Blue specified in Table 1.1 Black or white lettering symbol, numeral (if any) and lines.
5.1			Background of the colour Yellow specified in Table 1.1 Black symbol, lettering numerals (if any) and lines .
5.2		N/A	Background of the colour Yellow specified in Table 1.1 Black or white lettering symbol, numeral and lines.

Class or Subsidiary Risk Category	Class Label (Notes 1,2)	Subsidiary Risk Label (Notes 1,2,3)	Colouring of Label
6.1			Background White. Black lettering symbol, and numeral (if any) and lines. (Note 6).
6.2		N/A	Background white. Black symbol, lettering and numeral and lines.

Class or Subsidiary Risk Category	Class Label (Notes 1,2)	Subsidiary Risk Label (Notes 1,2,3)	Colouring of Label
7	 (for use on vehicle only)	N/A	Background: Upper half of the colour Yellow specified in Table 1.1 with a white border; lower half white. Black symbol, lettering numeral and lines. Numerals shall be not less than 25 mm height, label size 250 mm x 250 mm.
7	 (Category I)	N/A	Background white. Black symbol lettering, numeral and lines. One vertical red bar of the colour specified in Table 1.1 shall follow the word 'Radioactive'.
7	 (Category II)	N/A	Background : upper half of the colour yellow specified in Table 1.1 with a white border; lower half white. Black symbol, lettering, numeral and lines. Two vertical red bars of the colour specified in Table 1.1 shall follow the word 'Radioactive'

Class or Subsidiary Risk Category	Class Label (Notes 1,2)	Subsidiary Risk Label (Notes 1,2,3)	Colouring of Label
7	 (Category III)	N/A	Background : upper half of the colour yellow specified in Table 1.1 with a white border; lower half white. Black symbol, lettering, numeral and lines. Three vertical red bars of the colour specified in Table 1.1 shall follow the word 'Radioactive'.
8			Background: upper half, white; lower half black with white border. Symbol black, lettering and numeral (if any) white.
9		N/A	Upper half: seven black and six white vertical stripes wall of equal width. Lower half: white background with black lettering and black numeral, underlines

Note 1: The lettering on Class labels and Subsidiary Risk labels may appear on one or more lines.

Note 2: The surface of each Class and Subsidiary Risk label shall have a line of the same colour as the symbol inside the edge and running parallel with it. This line shall be 5 mm inside the edge for a label of dimensions of 100 mm square. The distance of the line from the edge shall be reduced or increased in proportion to the size of the label. Labels shall be in the form of a square set at an angle of approximately 45° (diamond shaped).

Note 3: A Class label may be used as a Subsidiary Risk label provided the bottom corner of the Class label (including the numeral) is removed as shown below or the numeral is otherwise obscured.

Note 4: The classification code for explosives, shall appear in the space marked '*'.

Note 5: The compatibility group for explosives of Class 1.4 shall appear in the space marked '*'.

=Note 6: Outer packages, transport containers and vehicles containing dangerous goods of both Classes 6.1 (a) and 6.1 (b) shall be marked with the Class 6. (a) label only.

USE OF A CLASS LABEL AS A SUBSIDIARY RISK LABEL

A class Label may be used as a Subsidiary Risk label where the numerals is removed as shown below

Below is the resultant Subsidiary Risk label after the numeral is removed from the Class label.

Specification for Colours on Labels

The colours referred to in Column 4 above are set out in Column 1 of Table 1.1

The colour of a particular label shall, after it is marked on a package, unit load, freight container, bulk container or vehicle, match the sample of colour specified in Column 2 of Table 1.1. Inks used for the printing of labels shall have adequate resistance of fading.

TABLE 1.1

COLOURS FOR CLASS LABELS, SUBSIDIARY RISK LABELS AND MIXED CLASS LABELS

Column 1 **Colour of Label**	**Column 2** **Reference of Sample Colour Appearing in PMS***
Orange	Pantone 151
Red	Pantone 192
Green	Pantone 361
Blue	Pantone 300
Yellow	Pantone 109

* Pantone Matching System published by Pantone Inc., USA.

Combination Packaging a combination of packaging for transport purposes, consisting of one or more packaging secured in an outer packaging in accordance with the provisions of the Code

Composite Packaging packaging consisting of an outer packaging and an inner receptacle so constructed that the inner receptacle and the outer packaging from an integral packaging. Once assembled, it remains thereafter an integrated single unit; it is filled, stored, transported and emptied as such.

Consignor/Shipper means a person who engages a carrier to transport dangerous goods. For the import of dangerous goods the importer shall be the consignor for the first journey.

Competent Authority means the competent authority as described in Part II

Committee means the **Interdepartmental Dangerous Goods Committee** made up of representatives from the agencies listed in Part 2

Correct shipping name

means:

a. The proper shipping name used for the substance in the UN recommendations, IMDG Code, ICAO Rules or IATA Regulations.

b. For dangerous goods of Class 1, the name authorized by Dubai Police

c. For dangerous goods of Class 7, the name authorized by the Federal Ministry for Health.

Design Packaging Test Means Standard tests adopted under the UN guidelines to test the structural integrity of dangerous goods packaging.

Excepted Package means a package containing a material or item which does not require external labeling under the IAEA guidelines.

Flammable means capable of being ignited and of burning. The word flammable has the same meaning as "inflammable".

Flash Point means, when used in relation to a liquid, the temperature at which the liquid, when tested according to the standard method, first evolves vapour in a sufficient quantity to be ignited by the test flame specified in the method.

Fire Point means in relation to a liquid, the temperature at which the liquid, when tested according to the standard method, first evolves vapour at a sufficient rate to sustain burning for at least 5 seconds after application of the test flame specified in the method.

Gas Cylinder means a rigid packing not exceeding 500 l. capacity which is designed as a portable pressure vessel for the storage and transport of gases under pressure. This packaging is also sometimes used for other dangerous goods.

Hazchem sign means a placard affixed to a dangerous goods store which must be of the following format: The dimensions of the lettering must not be less than 100 mm

HAZCHEM

Hazchem Code means the emergency action code taken from the system developed by the United Kingdom fire services to be specified for any substance adopted in guidelines prepared in accordance with this Code (Refer to appendix 5).

IAEA Guidelines means the guidelines published on the proper management of radioactive substances published by the International Atomic Energy Agency

IATA Regulations means the Dangerous Goods Regulations published by the International Air Transport Association.

IMDG Code means the document titled "International Maritime Dangerous Goods Code" published by the International Maritime Organization.

Importer means a person in Dubai who arranges with an overseas supplier, overseas agent or any other person overseas, to provide dangerous goods to Dubai.

Inner Packaging packaging for which an outer packaging is required for transport.

LEL/Flammable range means the range in concentration of a flammable gas or vapour (% by volume in air) in which explosion can occur upon ignition. This range is expressed as being between the Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL).

MSDS means a Material Safety Data Sheet of the form shown in Appendix 3.

Occupier Means the person or registered company in management control of any site of premises storing or handling dangerous goods.

Outer Packaging the outer protection of a composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packaging.

Overpack an enclosure used to contain one or more packages and to form one handling unit for convenience of handling and storage. Dangerous goods packages contained in the overpack must be properly packed, marked, labeled and in proper condition as required by this Code Note: Shrink-wrap or banding may be considered an overpack.

Owner means the legal sole owner, joint owner, or part owner of any vehicle, tank or equipment used in relation to dangerous goods and includes a person who has possession of any equipment under a hire agreement.

Packing the art and operation by which articles or substances are enveloped in wrappings and/or enclosed in packaging or otherwise secured.

Packaging receptacles and any other components or materials necessary for the receptacle to perform its containment function and to ensure compliance with the minimum packing requirements of this Code.

Package the complete product of the packing operation consisting of the packaging and contents prepared for transport.

Packaging Group an indication of the relative degree of danger presented by various articles and substances within a class or division. Roman number's I, II and III are used to represent "great danger", "medium danger" and "minor " respectively.

Radioactive Substance means any substance containing natural or man made radio nuclides with an activity in excess of 100 Bq g^{-1} and any substance whose activity cannot be disregarded for the purposes of radiation protection.

Radioactive Material shall mean any radioactive substance, sealed source, or any equipment or item or substance or material containing a radioactive substance or a sealed source.

Sealed Radioactive Source and Sealed Source shall both mean any source of ionizing radiations consisting of a radioactive substance which is encapsulated so as to prevent release of that radioactive substance during

normal use.

Shipping Document means a document completed by the consignor signifying the consignees request or instruction to have goods transported and in which is included a description of the goods nominated in the Contract of carriage agreed with the transport operator. The term "Shipping Document" includes consignment note.

Security Forces means the forces under the control of the Central Military Command and Police under the command of the Commander Dubai Police.

Shipper see Consignor

Single Packaging packaging which do not require any inner packaging in order to perform their containment function.

Subsidiary Risk means the number(s) denoting the other risks additional to the class of a substance determined from the criteria in Part 13.

Transfer means any process which involves:

a. the filling, loading, pouring or pumping of dangerous goods into any container or;

b. the discharging, unloading, pouring, pumping of dangerous goods from a road tank vehicle or bulk container.

Tank means a receptacle having a capacity exceeding 250 l for liquids and a capacity in excess of 500 L for gases "tank" includes de- mountable tanks, portable tanks, and tank containers.

UN Number means the number assigned to any dangerous goods by the UN Committee of Experts on the Transport of Dangerous Goods and as published in the current edition of the UN Recommendations, IMDG Code, ICAO Rules or IATA Regulations.

Vehicle Placard means the placard attached to any vehicle transporting Dangerous Goods in bulk and which is of the form shown in Appendix 2

PART 2
Competent Authorities and Their Responsibilities

The following table lists the contact details of the government agencies responsible for the life cycle of dangerous goods in Dubai and their respective responsibilities.

COMPETENT AGENCY & ADDRESS	RESPONSIBILITY FOR DANGEROUS GOODS ISSUES IN DUBAI
Radiation Protection Department Ministry of Health P. O. Box 12318 Dubai Tel: 494391 Fax: 348714	The preparation of guidelines regarding the packaging, storage, use and disposal of radioactive sources and wastes. Radiation Safety Monitoring provision of advise on storage and use of radioactive sources.
Explosives Branch Dubai Police Department P. O. Box 1493 Dubai Tel: 665112 Fax: 621744	The importation, transport, storage, use and disposal of all non military, class 1 explosives
Transport Branch Dubai Police Department P. O. Box 1493 Dubai Tel: 225111 Fax: 215158	The safe carriage of dangerous goods on Dubai's road network

Environmental Protection & Safety Section (Health Dept.) Dubai Municipality P. O. Box 67 Dubai Tel: 225769 Fax: 270160	The storage, use and disposal of all class 2 - 8 dangerous goods. The coordination of interagency issues under the Code. The provision of advise on the hazardous properties of dangerous goods. Implementation of comprehensive dangerous goods legislation.
Emergency Department Civil Defence P. O. Box 11743 Dubai Tel: 669999 Fax: 621387	Approval of Fire prevention and protection systems for flammable materials. Joint approval of the entry, exit, transport and storage of radioactive sources with Dubai Municipality. Response to all incidents involving dangerous goods such as spills, accidents and fires.
Dubai Civil Aviation/ Dubai Cargo Village P. O. Box 2525 Dubai Tel: 822323 Fax: 822793	The correct labeling, documentation and handling of all dangerous goods carried into Dubai by air. Proper labeling and documentation for transshipment from Dubai.
Dubai Ports Authority P. O. Box 1700 Dubai Tel: 815000/ 816048 Fax: 816271	The correct labeling documentation and safe handling of all dangerous goods imported to Dubai through Dubai Sea Ports. Proper labeling and documentation for transshipment from Dubai.

Jebel Ali Free Zone Authority P. O. Box 3258 Dubai Tel: 815000 Fax: 815227	The storage, use and handling of dangerous goods within the boundaries of the Jebel Ali Free Zone
Ports and Customs P. O. Box 63 Dubai Tel: 459575 Fax: 451121	The clearance of dangerous goods to importers in accordance with guidelines specified in this Code.

PART 3
Explosives - Class 1

3.1. General

3.1.1. The management of Explosives- Class 1 shall be in accordance with the relevant UAE Federal Laws and Regulations.

3.1.2. The General Commander, Dubai Police is regarded throughout this Code of Practice as the Licensing Authority. Any correspondence relating to Explosives should be addressed to:

Manager, State Security
Attention of Explosive Section
Dubai Police Headquarters
P. O. Box 1493
Dubai, U.A.E.

3.2. Importation and Exportation

Authority must be granted by the Licensing Authority before any Explosive Class 1 items are imported into or exported from Dubai. At least 10 days notice in writing should be given to the Licensing Authority, giving the following information:

a. UN Serial Number and Hazard Division of each Explosive item.
b. Correct Technical name of the each Explosive item.
c. Explosive weight of each Explosive item
d. Expected Date and Time of conveyance.
e. Full name, address and contact number of the Shipping Agent, Consignor and Consignee.
f. No objection letter from the country the explosives are being exported to, if applicable.

3.3. Storage, Use and Movement

3.3.1. No person/company shall store, use or manufacture explosives unless they are possession of a valid License to do so, issued by the Licensing Authority.

3.3.2. Explosives shall be stored and transported in accordance with:

a. Appendices B, C and D of the Fire Protection Regulations. Part 2 - Dangerous Goods, issued by the Civil Defence.
b. Any instructions issued by the Licensing Authority.

3.3.3. All explosives should be correctly packaged, labeled and sealed in accordance with the IMDG Code or the IATA Regulations.

3.3.4. Authority must be granted by the Licensing Authority before any Explosives are transported within Dubai. At least 10 days notice in writing should be given to the Licensing Authority, giving following information:

a. UN serial number and hazard division of each explosive item.
b. Correct Technical name of the each explosive item.
c. Explosive weight of each explosive item.
d. Expected date and time of conveyance.
e. Full name, address and contact telephone number of the consignor and consignee

3.4. Disposal

All unserviceable, life expired and unwanted explosive items are to be notified in writing to the Licensing Authority, who will make the necessary arrangements for their safe disposal. The following information is required by the Licensing Authority:

a. UN serial Number and Hazard Division of each Explosive item.
b. Correct technical Name of the each explosives items

c. Explosive weight of each explosive item
d. Location Explosives items are stored.

3.5. Fireworks Displays

3.5.1. No person/company shall hold a fireworks display unless they have written authority to do so, issued by the Licensing Authority.

3.5.2. At least 28 days notice in writing should be given to the licensing authority, giving the following information.

a. Date and time of the fireworks display
b. Location of fireworks display
c. Name and contact number of the person/company organizing the fireworks display.
d. Name and contact number of the person who will be technically responsible for the fireworks display.
e. Details of fireworks to be used, including:
    1. UN Serial Number and Hazard Division
    2. Total explosive weight
    3. Maximum projected height of fireworks.

3.5.3. The following Authorities require notification of any fireworks displays:

One.	Civil Defence
Two.	Dubai Police
Three.	Dubai Municipality
Four.	Dubai Civil Aviation

PART 4
Radioactive Substances - Class 7

These special provisions cover the importation, transport, storage, use and disposal of radioactive substances.

The Management of radioactive substances shall be in accordance with relevant UAE Federal Laws, Dubai Local Orders, and the best practices specified in IAEA Guidelines.

4.1. Labeling and Packaging

The consignor must ensure that the following requirements are met:

a. Except as otherwise stated in these regulations all consignments of radioactive materials must be packed in accordance with the requirements of IAEA Regulations. (It is the responsibility of the consignor to ensure that he is knowledgeable about the IAEA Regulations).

b. Depending on the level of radioactivity present and the physical form of the radioactive material, packages must meet the specified requirements for excepted packages, Type A packages, Type B packages, or other package types as specified in the IAEA Regulations.

c. Consignors of radioactive materials will be required to provide, at the request of the competent authority, written evidence that any packages they are using comply with the relevant requirements of the IAEA Regulations.

d. Where the suitability of a package for its radioactive contents requires that the contents be one or more sealed sources which are in the form of 'Special Form Sources' within the meaning of the IAEA Regulations, the consignor will be required, at the request of the Dubai Municipality, to provide written evidence that the sealed radioactive sources conform to the relevant specification described in the IAEA Regulations.

e. The surface dose rate and surface contamination level of any excepted, type A or type B package must not exceed the limits described in **Schedule 4.1**. In the case of other types of package, dose

rate and surface contamination levels should not exceed the levels specified in the IAEA Regulations.

f. All packages labeled with white category- I, yellow category II or yellow category - III labels shall be marked at the correct location on each label with the names of the principal radio nuclide(s) present and the activity in Becquerels.

g. **Excepted packages**, which do not require any external labeling must be clearly marked inside such that any person opening the package is made immediately aware that radioactive materials are present. In the case of an instrument or article incorporating a radioactive source it shall be sufficient that the radioactive source or its immediate containment is clearly and durably marked.

4.2. Class labels and Categories

a. All packages containing radioactive materials must be labeled in accordance with the IAEA Regulations, using, where appropriate white category - 1, or yellow category II, or yellow category - III labels.

b. The form and layout of white category - I, yellow category II, and yellow category III labels shall be as illustrated in Part 1.

c. The type of label used for each package shall be determined, as appropriate, by the maximum dose rate at the surface of the package and the maximum dose rate at 1 m from any surface, such that the limits specified in **Schedule 4. 2** shall not be exceeded.

d. The actual maximum dose rate at 1 m from the surface of any package requiring a yellow category II or yellow category III label shall be measured and used to calculate the Transport Index which shall be entered on the transport label.

e. The transport index shall be calculated from the maximum dose rate at 1 m from any surface by use of the formula.

$$\text{Transport index} = \frac{\text{Maximum dose rate (uSv h}^{-1}\text{)}}{10}$$

f. Except as described in schedule 4.1 below all packages should also be labeled with the United Nations class number 7 and the United Nations number as specified in the IAEA Regulations.

Schedule 4.1

Maximum Permissible Dose Rates and Surface Contamination levels for Excepted, type A and type B Packages

Type of Package	Maximum surface dose rate uSv h^{-1}	Maximum dose rate at 1 m for surface uSv h^{-1}	Maximum surface contamination (1) Bq cm^{-2}	
Excepted	5	Not applicable	Alpha emitters Beta/gamma emitters	0.04 0.40
Type A	2000 (2)	100 (2)	Alpha emitters Beta/gamma emitters	0.4 4.0
Type B	2000 (2)	100 (2)	Alpha emitters Beta/gamma emitters	0.4 4.0

Notes

1. ***Where measurements of surface contamination are used to confirm compliance with the limits given above the surface contamination shall be the maximum averaged over any 300 cm^2 area of the package.***

2. ***Higher levels may be permitted by special arrangement with the (COMPETENT AUTHORITY).***

Schedule 4.2.

Maximum Surface Dose Rates for Packages Labeled with White Category - I, Yellow Category II and Yellow Category III Transport

Label Category	rt Index		Maximum Surface dose rate uSv/h	Maximum dose rate at 1 m uSv/h
	Minimum	Maximum		
White - 1	0	(< 0.5)	5	(< 5)
Yellow - II	0	1	500 *	10
Yellow - III	1	10	2000 *	100

**** Higher dose rates may be permitted by special arrangement with the competent authority.***

4.3. Importation

4.3.1 Any company intending to import radioactive substances into Dubai must hold a permit from Dubai Municipality (Health Department) specifying the approved source, types and the conditions on transport, storage and use.

4.3.2 The importation of radioactive sources shall be in accordance with the flowing requirements:

One. Dubai Ports Authority shall control the conditions of sea transport in accordance with the IMDG code.

Two. Department of Civil Aviation (Cargo Village) shall control the conditions of safe air transport in accordance with IAEA and IATA guidelines.

Three. Dangerous Goods shall not be cleared without the approval in writing of Civil Defence and Dubai Municipality (Health Department).

Documentation to be provided with and to accompany any consignment

4.3.3. The consignor shall provide for each consignment of radioactive material a consignment note containing in respect of each package, the information listed in Schedule 4.3, and shall pass this consignment note to the carrier at the same time as the consignment is presented to the carrier.

4.3.4. The carrier shall ensure that the consignment note accompanies the consignment throughout that part of the journey over which the consignor has responsibility and that at the end of this journey the consignment note is handed over either to the recipient of the consignment or to the next consignor, as appropriate.

Schedule 4.3
Information to be Entered on the Consignment Note

A **For all packages**

1. The United Nations class number 7,
2. The United Nations number and proper shipping name as described in the IAEA Regulations.
3. The words "RADIOACTIVE MATERIAL" unless these are contained in the United Nations proper shipping name.

B **For Excepted Packages only**

4. The words 'EXCEPTED PACKAGE' and the United Nations proper shipping name as described in the IAEA regulations.

C. **For all other Packages**

5. A description of the principal radio nuclides present and their activity in Becquerels.
6. The physical and chemical form of the radioactive materials, including if appropriate to the presence of sealed radioactive sources which are special form sources' within the meaning of the IAEA Regulations.
7. The category of package, i.e. White - I , Yellow - II or Yellow - III.
8. The transport index, in the case of yellow -II or yellow - III packages.
9. Any additional designator or information required for a particular package by the IAEA Regulations.

D **For all Packages**

10. In addition to the information given in Section A, B and C above all consignment notes must include a consignor's declaration which is in the following terms.
"It is hereby declared by (name of the consignor) that the contents of this consignment are fully and accurately described above the proper shipping name and are classified, packed, marked, and labeled and are in all respects in a proper condition for transport by (means of transport) according to UAE and IAEA Regulations".
11. The consignor shall also provide in the consignment note any special instructions that are to be followed by the carrier or driver.

4.4. Transport

4.4.1. The consignor and carrier of radioactive material shall take all reasonable care to ensure that in the course of transport of radioactive materials no injury is caused to the health of any person.

4.4.2. Radioactive materials shall not be transported together with the following:

a. persons under the age of 18 years or women who are pregnant.
b. explosive substances
c. flammable substances including flammable liquids, except for those contained in the normal fuel tank(s) of the vehicle.
d. corrosive substances likely to cause damage to the package in the event of an accident.
e. undeveloped photographic film or other materials which are sensitive to radiation.

4.4.3. Radioactive materials may not be carried by land in any vehicle which is being used for public transport.

4.4.4. No person, other than the driver may travel in a vehicle used to carry radioactive materials unless they have the permission of the carrier.

4.4.5. Radioactive materials may not be transported by any postal service.

4.4.6. Before any radioactive substance is transported to any other Emirate or a country by road, the person responsible must inform Dubai Police Operations, Dubai Civil Defence, and Dubai Municipality. The notification should be in writing showing the date of transport, appointment times, vehicle number, description of the substance, proposed route, and destination.

Duties of carriers of radioactive materials

4.4.7. A carrier may not transport radioactive materials unless he is certain, beyond reasonable doubt, that the consignment is properly packaged, marked, labeled, correctly described in the consignors certificate, and in all other respects safe to transport.

4.4.8. A carrier may not transport radioactive material which is not accompanied by a consignment note and the carrier shall ensure that the consignment note is given to the driver.

4.4.9. The carrier must ensure that the vehicle(s) used to transport radioactive materials is (are) fit for the purpose intended in accordance with the requirements of the competent authority.

4.4.10. The carrier must ensure that road vehicles carrying radioactive materials carry external warning placards as described in this Code on both sides of the vehicle and on the rear of the vehicle. The carrier shall also ensure that road vehicles which are not carrying radioactive materials do not show these placards.

4.4.11. The carrier shall ensure that within the drivers compartment of any road vehicle there is a fireproof warning placard which is clearly visible on opening that compartment - as shown in Schedule 4.4. The consignor shall also ensure that this placard is not displayed or visible during periods when radioactive materials are not being carried.

4.4.12. The carrier shall ensure that the driver of a vehicle carrying radioactive materials is adequately trained and instructed in respect of the hazards of ionizing radiations, the requirements of the regulations and the procedures to be followed in the event of accidents during the carriage of radioactive materials, in accordance with Part 12.

4.4.13. The carrier shall ensure that the driver carries with him written instructions describing the procedures to be followed in the event of any accident during the carriage of radioactive materials.

4.4.14. The carrier is responsible for ensuring that packages are correctly stowed in accordance with these requirements

4.4.15. The carrier is responsible for ensuring that the radiation exposure of drivers and other persons is kept as low as reasonably practicable and in this respect shall comply with all relevant requirements of the (UAE General regulations for the protection of persons exposed to ionizing radiations as a result of any work activity).

4.4.16. Any carrier who is made aware of any accident involving radioactive materials for which he is responsible for transporting , must immediately notify.

a. the police and Civil Defence and
b. the consignor if he is with in the UAE.
c. Radiation Protection Department (Federal Ministry of Health)

Stowage of Radioactive Materials in Road Vehicles

4.4.17. Yellow category II and category III packages must wherever practicable be stored in the goods compartment of any vehicle and not in any passenger compartment.

4.4.18. In situations where the physical design of the road vehicle prevents exact compliance with the above all yellow category II and yellow category III packages must be stowed as far as possible away from the drivers position and the position of any passenger.

4.4.19. All packages of radioactive materials must be securely stowed.

4.4.20. The number of yellow category - II and yellow category - III packages transported in any single road vehicle shall be such that the combined sum of their transport indices shall not exceed 10, except where prior special arrangements have been made with the competent authority.

Duties of Drivers of Vehicles Carrying Radioactive Material

4.4.21. Drivers shall exercise all reasonable care to ensure that no radioactive package is damaged, lost or unlawfully removed in transit.

4.4.22. Drivers shall not without reasonable cause leave any road vehicle carrying yellow category II or yellow category III packages unattended in a public place.

4.4.23. Drivers shall not park any road vehicle containing yellow category II or yellow category III packages for any continuous period of more than 1 hour in any place unless when parked there is a clear space of at least 2 m around the vehicle and this clear space is unoccupied by persons.

4.4.24. Drivers must immediately notify the carrier and the consignor in the case of the following:

a. if any package of radioactive material has been lost or unlawfully removed from a vehicle.

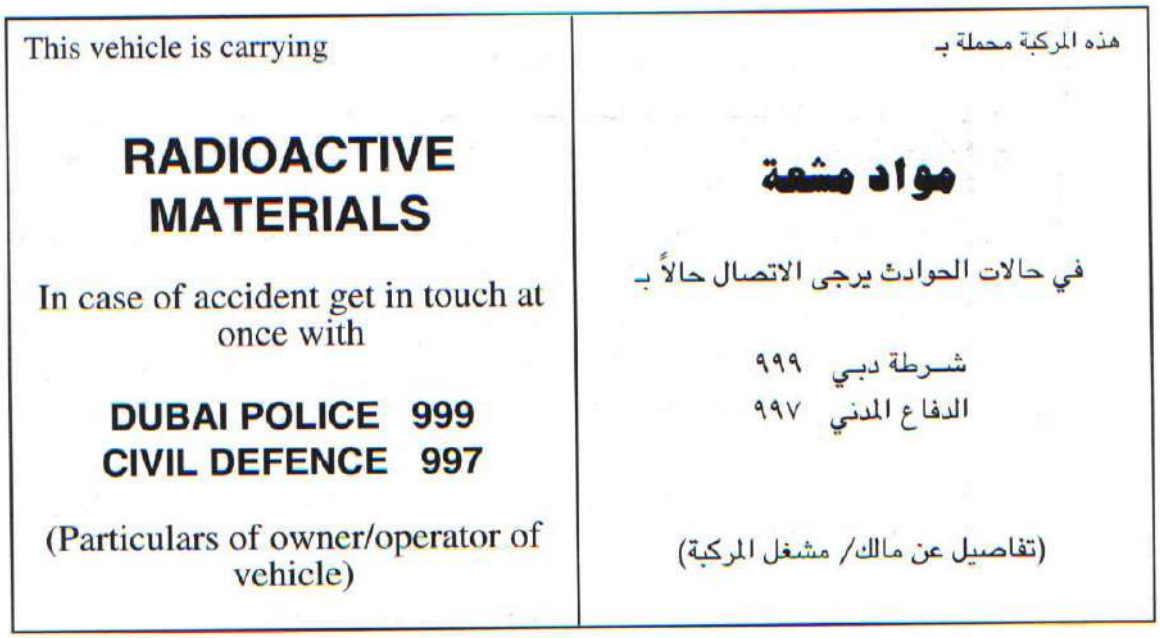
b. if any package of radioactive material has been damaged or opened or if the vehicle or its load are in danger of damage or destruction.

Storage of Radioactive Materials in Transit

4.4.25. Radioactive materials should not be stored in transit unless this is unavoidable, and never for any longer than reasonably necessary.

Schedule 4.4.

Design of Fireproof Placard for Display Inside the Drivers Compartment of a Road Vehicle



* This placard should be in both Arabic and English.

The notice shall have minimum dimensions of 120 mm x 120 mm, inside with the letters engraved or embossed and clearly legible.

The placard shall be fireproof to the extent that the words on the notice shall remain legible after exposure to a fire involving the vehicle.

The notice shall include the name, address and telephone number of the carrier.

4.5. Storage

Keeping and Storage of Radioactive Materials

4.5.1. Every employer shall ensure that whenever practicable radioactive materials which are not in use at work are safely stored either in suitable storage areas or facilities , unless they are fixed or contained within equipment or similar.

4.5.2. Every employer shall take special care to supervise the keeping of mobile pieces of equipment containing radioactive substances which

by their nature present a greater potential risk of loss or unlawful removal from the workplace.

4.5.3. All storage areas and facilities for radioactive materials should be suitably labeled to indicate that they contain radioactive materials and should if appropriate be designed as controlled or supervised areas.

4.5.4. Storage areas and facilities should be designed to provide adequate shielding and containment of radioactive materials and must be secure so as to prevent unauthorized removal or interference with their contents.

4.5.5. Every employer shall maintain records of the radioactive materials he holds including, in the case of sealed radiation sources, the following details:

a. the radio nuclides present
b. the physical form of the radioactive source, e.g. capsule or foil source
c. the radioactivity in Becquerels, specified at a fixed date if necessary, e.g. for short half life radio nuclides.
d. the serial number or other unique identifier
e. the date that the source was received onto the premises
f. the date and manner of disposal of the source, including the receiving destination if it is removed from the premises.

4.5.6. Stores used to contain radioactive material in transit must be physically secure and weatherproof and provide sufficient protection for packages from extremes of heat, cold and humidity.

4.5.7. Where the store is used routinely to contain yellow category I or yellow category II packages it shall be marked with the trefoil (radiation sign) and be approved by the competent authority..

4.5.8. Radioactive materials in transit must not be stored in proximity to:

a. explosive substances
b. flammable substances including liquids (except those present in the normal fuel tanks of vehicles)
c. corrosive substances
d. undeveloped photographic film or other materials sensitive to radiation.

4.6. Handling

Restriction of Exposure to Ionizing Radiation

4.6.1. Every employer undertaking work with ionizing radiation shall ensure that the radiation exposures of his employees and of all other persons are kept as low as reasonably achievable.

4.6.2. Every employer shall, so far as is reasonably achievable, ensure that the restriction of exposure prescribed by Federal Regulations is achieved by means of engineering controls including where appropriate, shielding, ventilation, containment of radioactive substances, and safety features including safety systems (interlocks) and warning signals.

4.6.3. In addition to meeting the general requirements above, every employer who has designated any controlled or supervised area which is entered by his employees or other persons shall provide safe systems of work and where appropriate, personal protective equipment, including respiratory protective equipment and protective clothing, in order further restrict so far as is reasonably achievable the exposure of persons entering those areas.

4.6.4. Any employee engaged in work with ionizing radiation shall exercise reasonable care and shall not expose himself or any other person to any greater degree than is necessary.

4.6.5. No person shall intentionally or recklessly misuse or interfere with any radioactive substances, sealed radiation source or radiation generator, or with any safety system (interlock) or warning signal provided to meet the requirement of these regulations.

4.6.6. Every employer shall ensure that no radioactive source is directly held by the hand unless the instantaneous dose rate to the skin of the hand is less than 75 uSv h-1.

Designation of Areas where Work with Ionizing Radiations Takes Place.

4.6.7. Every employer shall designate as a controlled area any area within his premises or elsewhere in which special protection measures and special practices are necessary to achieve the requirements of this section.

4.6.8. The employer shall always designated as a Controlled Area any area where any employees might in the course of any calendar year receive a radiation dose in excess of three tenths of any annual dose limit.

4.6.9. In determining whether an area should be designated as a Controlled area employers must take into account possible deviations from normal working practice including the possibility of minor accidents.

4.6.10. Every employer shall ensure that wherever practicable Controlled areas which he has designated are physically demarcated using radiation warning signs and that appropriate instructions are displayed at points where employees or other persons may enter each Controlled Area.

4.6.11. Procedures for handling radioactive substances in Controlled areas should be specified in writing , based on guidelines provided by the Radiation Protection Department, Ministry of Health.

4.6.12. Employers shall ensure that those working in Controlled areas are:

a. subject to individual monitoring and assessment procedures
b. subject to 6 monthly medical checks.

Local Rules for Radiation Safety

4.6.13. Every employer shall prepare written radiation safety procedures (local rules for radiation safety) for the purpose of ensuring that work with ionizing radiation is carried out safely and in compliance with these regulations.

4.6.14. Every employer shall ensure that the local rules for Radiation Safety which he has prepared are brought to the attention of all employees and other persons who are affected by them.

4.6.15. Every employer shall ensure that the local rules for radiation safety always include the following information:

a. the name of the employer and premises and a description of the work with ionizing raditions to which the rules apply.

b. a description of the persons to whom the rules apply.

c. any written system of work required for persons who enter any Controlled Area.

d. the name(s) of the Radiation Protection Supervisors appointed in accordance with this Code.

e. the procedures to be followed in the event of unplanned incidents or emergencies involving ionizing radiation and the

roles of key personnel involved in implementing these procedures.

f. where appropriate, the special precautions to be taken to restrict the exposure of female employees who are (or may be) pregnant.

g. the practical arrangements for issue and wearing of any radiation dosimeters.

Radiation Protection Supervision

4.6.17. Every employer shall appoint in writing one or more of his employees as a Radiation Protection Supervisor to assist the employer in ensuring that work with ionizing radiation is supervised to the extent necessary to meet the requirements of these regulations.

Information, Instruction and Training

4.6.18. Every employer must ensure that employees who are engaged in work with ionizing radiations receive sufficient information, instruction and training to enable them to be able to carry out their work safely and in compliance with these regulations.

4.6.19. Every employer shall ensure that sufficient information and instruction is given to other persons (who are not employees), such as visitors to ensure the safety of these persons so far as is reasonably practicable.

Hazard Assessments and Contingency Plans (Emergency Procedures)

4.6.20. Every employer shall carry out an assessment of the hazards associated with his work with ionizing radiation sufficient to identify the foreseeable incidents which could lead to unplanned exposure of employees or other persons.

4.6.21. Where the hazard assessment identifies that a foreseeable incident could give rise to unplanned exposure of employees and other persons, including exposure in excess of any dose limit the employer shall prepare written contingency plans (emergency procedures) to be followed in the event of the incident.

4.7. Disposal of Radioactive Substances

4.7.1. Aqueous radioactive wastes from medical treatment must be flushed into the sewage system as soon as possible, except for long half life radioactive isotopes.

4.7.2. Contaminated materials and other unsealed sources shall be stored for 4 half-lives in secure facilities and then disposed off as general waste.

4.7.3. All sealed sources should be re- exported on an exchange basis for the importation of new material.

4.7.4. No person shall store or dispose of any sealed source without the approval of the Dubai Municipality (Health Department).

PART 5
Importation of Dangerous Goods other than classes 1 and 7

5.1. All Dangerous Goods imported into Dubai by road, sea or air must comply with the placarding, packaging, marking, labeling, transport and handling provisions of this Code.

5.2. Prohibited Substances

The dangerous Goods listed in Table 5.1 are prohibited from entry to Dubai by any means , except for packages containing analytical grade reagents for laboratory uses. (NB: Table 5.1 may not list all prohibited substances and is only intended as a guide. - refer to the competent authority).

5.3. Entry by Air

a. All dangerous goods cargoes must be accompanied by:

* Original shippers declaration
* Original Air waybill
* Original "Checklist for the acceptance of dangerous goods"

(IATA Format)

b. All dangerous goods of Class 1 must be approved by Dubai Police in accordance with the procedures in Section 1 before they can be cleared through customs.

c. All dangerous goods of Class 7 must be approved by the Civil Defence and Dubai Municipality (Health Department), in accordance with the procedures of Section 4 before they can be cleared through customs. For sources stored and used in Jebel Ali Free Zone, the Free Zone Authority must also be informed.

d.. Dangerous goods of all other classes can be cleared in accordance with normal customs procedures.

5.4. **Entry by Sea**

a. At least 48 hours (or 7 days in the case of Class 1) prior to the arrival of dangerous goods through Dubai Ports the shipping agent must forward to the DPA Operations Department copies of the -

1.	Cargo Storage Plan	3 Copies
2.	Cargo Manifest	3 Copies
3.	Hatch list	3 Copies
4.	Hazardous and dangerous goods declarations *	3 Copies

* **In the absence of any hazardous cargo a "Nil" declaration must be made.**

b. All Dangerous Goods of Class 1 must be approved by Dubai Police in accordance with the procedures given in Section 3, before they can be permitted to enter the Port.

5.5 Correct Labeling, Packing, etc.

It shall be the responsibility of Dubai Ports Authority and Department of Civil Aviation (Dubai Cargo Village) to ensure that dangerous goods, not so packed, labeled and marked are dealt with in accordance with procedures agreed between the EPSS and the handling authority:

Table 5.1.
LIST OF PROHIBITED IMPORTS

General	Prohibiting Agency
Parathion Aldrin Dieldrin Chlordane Heptachlor Arsenic Compounds (Arsenious oxide white arsenic) Petachlorophenol Hexachlorobenzene Hexachlorocyclohexane Ethylenedibromide (EDB) DDT Chlordime form Mercury Compounds (phenyl mercury, mercury-acetate) Dinoseb/Caldon 245 - T Sodium Fluoroacetate Chlorobenzelate Cyhexatin/Plictran Chloropicrin Disulfoton/Disyston Methoxychlor Demeton/systox TEPP/Ethyl Pyrophosphate Amitrole/Aminotriazol	**Ministry of Agriculture and Fisheries**

Captafol Sodium Fluoride Fluoroacetimide Nitrophen Endrin Camphechlor /Toxaphene Paraquat Parathion Phosphamidon/Dimecron Chlordecane DBCP/Dibromo Chloropropane Mirex/Dechlorane Strobane Schradan Thallium Sulphate Leotophos Telodrin Kelevan Aldicarb	
Substances covered by the Montreal Protocol Trichlorofluoromethane (CFC-11) Dichlodifluoromethane (CFC-12) Trichlorotetrifluoromethane (CFC- 113) Dichlorotetrafluoromethane (CFC- 114) Chloropentafluoromethane (CFC- 115) Dichlorodifluoro/difluoromethane (R-500) Chlorodifluoro/Chloropentafluoromethane (R- 502) Bromochlorodifluoromethane (Halon 1211)	**Dubai Municipality** **(Refer to Dubai Municipality for current rules regarding these substances)**

Bromotrifluoromethane (Halon 1301) Dibromotetrafluooromethane (Halon 2402) Carbon Tetrachloride (CC14) Methyl Chloroform (CH3CC13) Methyl Bromide (CH3Br)	
Any hazardous waste materials as defined by Dubai Municipality Local Orders	**Dubai Municipality**

PART 6
Packing and Labeling

6.1. GENERAL PACKING REQUIREMENTS

6.1.1. Dangerous Goods must be packed in packaging of good quality. Packaging must be free of any indication that their integrity has been compromised. Packages must be constructed, closed and prepared for transport so as to prevent any leakage. No harmful quantity of a dangerous substance must adhere to the outside of the package. These provisions apply to both new packaging and packaging which are reused. When a packaging is reused, all measures must be taken to prevent contamination.

6.1.2. New, manufactured, reused or reconditioned packaging must meet the applicable packaging specifications and performance test requirements. Such packaging must be manufactured and tested under a quality assurance program which satisfies the competent authority, in order to ensure that such packaging meet those applicable requirements. Every packaging must be inspected to ensure that it is free from corrosion, contamination or any other damage. Any packaging which shows signs of reduced strength as compared with the approved design type must no longer be used or must be so reconditioned that it is able to withstand the specified design packaging test.

6.1.3. Packaging (including closures) in direct contact with dangerous goods must be resistant to any chemical or other action of such goods; the materials of the packaging must not contain substances which may react dangerously with the contents, form hazardous products or significantly weaken the packaging. Materials, such as some plastics, which can be significantly softened or rendered brittle or permeable by the change in temperatures likely to occur or because of the

chemical action of the contents or the use of a refrigerant, must not be used. It must be ensured that packaging are, in every way, compatible with the articles or substances to be contained within them. This particularly applies to corrosivity, permeability, softening, premature aging and embrittlement.

6.1.4. The body and closure of any packaging must be so constructed as to be able adequately to resist the effects of vibration. Stoppers, corks or other such friction-type closures must be held in place, securely, tightly and effectively, by positive means. The closure device must be so designed that it is unlikely that it can be incorrectly or incompletely closed, and must be such that it may be checked easily to determine that it is completely closed.

6.1.5. **Inner Packaging - Cushioning material:**

Inner packaging must be packed, secured or cushioned so as to prevent their breakage or leakage, and so as to control their movement within the outer packaging. Cushioning material must not react dangerously with the contents of the inner packaging. Any leakage of the contents must not substantially reduce the protective properties of the cushioning material.

6.1.6. **Inner Packaging - Absorbent material:**

Unless otherwise specified, liquids in Classes 3,4 or 8, or Division 5.1 or 6.1 of articles/substances having great and medium danger, in glass or earthenware inner packaging must be packaged using material capable of absorbing the liquid.

Absorbent material is not required if the inner packaging are so protected that breakage of them and leakage of their contents from the outer package will not occur during normal conditions of transport. Where absorbent material is required and an outer package is not liquid tight, a means of containing the liquid in the event of a leakage

must be provided in the form of a leak-proof liner, plastic bag or other equally efficient means of containment.

6.1.7. **Other packaging requirements:**

The nature and the thickness of the outer packaging must be such that friction during transport does not generate any heat likely to alter dangerously the chemical stability of the contents.

6.1.8. Combination packaging containing liquid dangerous goods, excluding flammable liquids in inner packaging of 120 ml (4 Fl. oz) or less, or infectious substances, must be packed so that the closures on the inner packaging are upward and the upright position of the package must be indicated on it by the "Package Orientation" label (referred to in Section 6.2 of this Code). The words "THIS SIDE UP" or "THIS END UP" may also be displayed on the top cover of the package.

6.1.9. A package must be of such size that there is adequate space to affix all required markings and labeling as required by this Code and other national legislation.

6.1.10. UN Specification Packaging are to used as per the current regulations prescribed by the Untied Nations, based on the recommendations of the UN Committee of Experts. These are published in the Recommendations of the Committee of Experts on the Transport of Dangerous Goods (Current Edition).

6.2. LABELING

Note: The following paragraphs are applicable to labeling of packages only. For guidelines on labeling containers or other items, refer to the appropriate Sections of this Code.

Quality and Specifications of Labels

6.2.1. **Durability:** The material of every label, the printing and any adhesive thereon, must be sufficiently durable to withstand

normal transport conditions and to ensure that the label remains recognizable and legible at all times.

Types of Labels:

6.2.2. Labels are of two types:

a. Hazard labels (in the shape of a square set at 45º), which are required for most dangerous goods in all classes, refer to "Definitions - Section 1"; and

b. Handling labels (in various rectangular shapes), which are required, either alone or in addition to hazard labels, for some dangerous goods .

Label Specifications:

6.2. 3 All labels (hazard and handling) used on packages of dangerous goods must conform, in shape, colour, format symbol and text, to the specimen designs reproduced in this Code. The minimum dimensions of hazard labels must be 100 mm x 100 mm unless otherwise specified. The dimensions shown for handling labels in Section 6.4. are the minimum dimensions, unless otherwise specified. Hazard labels have a line of the same colour as the symbol, 5 mm inside the edge and running parallel to it.

The upper half of the label is reserved for the pictorial symbol and the lower half for text and the class or division number, except for Divisions 1.4, 1.5 or 1.6 labels.

Exception: In the case of Infectious Substances, hazard and handling labels having dimensions not smaller than half of those indicated in Appendix A may be used when the packages are of such dimensions that they can bear only smaller labels.

6.2. 4 Text indicating the nature of the risk may be inserted in the lower half of the hazard label(s) in addition to the class or division number or compatibility group. This text should be in English, unless specified otherwise. In such a case, an Arabic translation should be provided with both languages given equal prominence. The same language provisions apply to handling labels. A label may contain identification information, including the name of the maker, provided that the information is printed outside the solid line border in no larger than 10 point type.

Applicability of hazard labels

6.2.5. A primary hazard label is specified for each listed article and substance and a secondary label for each article and substance having subsidiary risks as specified in the UN recommendations.

6.2.6. The label identifying the primary hazard of the dangerous goods must bear the Class or Division number as appropriate at the bottom corner of the label. A label identifying a subsidiary risk must not show the Class or Division number and this number must be obliterated, if already included.

Prohibited Labeling

6.2.7 Cylindrical packages, and other slim packages, must be of such peripheral dimension that a label cannot overlap itself.

6.2.8 Arrows for purposes other than indicating proper package orientation must not be displayed on a package containing liquid dangerous goods.

Affixing of Labels

6.2.9. The following requirements shall apply:

a. All labels must be securely affixed or printed on the packaging so that they are readily visible and legible and not obscured by any part of the packaging or by any other label.

b. Each label must be affixed or printed on a background of contrasting colour or must have a dotted or solid line outer boundary.

c. Labels must not be folded or affixed in such a manner that parts of the same label appear on different faces of the package.

d. If the surface of the package will not accept labels, it is acceptable to attach the label(s) to the package by means of strong tag(s).

6.2.10. Subsidiary hazard labels, when applicable, should be affixed adjacent to the primary hazard label.

6.2.11. When package orientation (This Way Up) labels are used, at least two of those labels must be used. One label must be affixed to each of two opposite sides of the package, with the arrows pointing in the correct direction.

Others

6.2.12. Labels required by other appropriate Regulations are permitted provided they cannot be confused with or in conflict with these provisions.

6.3. Marking of Packages

All packages must be marked with the proper shipping name in accordance with UN Guidelines and the symbol "UN" followed by the unique UN identification number.

6.4 Handling Labels See Appendix 4

PART 7
Storage and Handling of Dangerous Goods

7.1. APPROVAL REQUIREMENTS FOR WAREHOUSES STORING DANGEROUS GOODS.

7.1.1. Approval of a Proposal to Keep Dangerous Goods

a. An occupier must obtain prior approval from the Environmental Protection and Safety Section, Dubai Municipality if the occupier proposes to keep dangerous goods as defined in the code in excess of the quantities specified in Table 7.1

b. Any premises licensed to store the dangerous goods shall conform to the specifications detailed in the Code.

7.1.2. Modification of Approved Stores.

Person holding an approval for storage of dangerous goods must not

a. Construct, materially alter or extend any building; or
b. Construct, establish or materially alter a storage tank or a storage or manufacturing area for dangerous goods or
c. Remove or alter security fences at a licensed premises unless the licensee has obtained approval for that construction, extension, alteration or removal.

Table 7.1
Minimum quantities for licensed dangerous goods stores

Dangerous goods class	Minimum quantity
2	20 Cylinders
3	50 drums or 10000 liters in bulk *
4	500 kg.
5	1 tonne or 1 cubic meter
6	5 tonne or 5 cubic meters
7	see Part 4
8	10 cubic meters

*** Excludes petroleum sales outlets**

7.2. FIRE SAFETY REQUIREMENTS

7.2.1. **An occupier who intends to keep dangerous goods at a licensed premises must**

a. Obtain the prior approval from the Civil Defence for the fire protection measures to be provided at the premises.

b. Implement the requirements before the dangerous goods are brought onto the premises.

7.2.2. If at any premises, dangerous goods were stored or handled on the date of commencement of this Code of Practice, the occupier must obtain the approval of the Civil Defence and implement these requirements within the period specified by the Civil Defence.

7.2.3. An occupier must ensure that

a. Where sprinklers, fire hose reels , fire hydrants or fire pumps are to be provided at premises that they are maintained in good working order;

b. If portable fire extinguishers are required to be provided the specification, rating and number shall be in accordance with the Civil Defence requirements.

7.2.4. The fire fighting equipment shall be maintained in good condition and serviced once in a year by a competent and trained person.

7.2.5. A person must not smoke, cook or take into the store or have in his possession any substance to cause fire or an explosion in the place in which dangerous goods are stored.

7.3. STORAGE OF DANGEROUS GOODS

7.3.1. Design of Warehouses

a. Stores for hazardous materials should be designed to minimize the risk of fire, spills and physical hazards and to ensure separation and segregation of incompatible materials.

b. The construction material should be non-combustible and the frame of the building should be reinforced concrete or steel. A steel frame should preferably be protected from heat by insulation. Insulation materials should be non-combustible e.g. mineral wool or glass fiber. The materials

best suited to combine fire resistance with physical strength and stability are concrete, solid brick or concrete blocks. Where piping, ducting and electric cables penetrate fire-resistant walls, they should be placed in fire retardant sand cups.

c. Escape should be possible from any large enclosed area in at least two directions. Emergency exits should be clearly marked and of a design that provides easy exit in case of emergency. They should be easy to open in the dark or in dense smoke and preferably be equipped with panic bars.

d. The warehouse should be well-ventilated taking into account the products stored. Adequate ventilation shall be achieved by providing opening in the roof or in the wall below the roof as well as near the floor.

e. Floors should be impermeable to liquids. They should be smooth, but not slippery and free from cracks to allow for easy cleaning and be designed to contain leakage and contaminated fire-fighting water, for instance, by means of a surrounding sill or curb.

f. Open drains should be avoided in stores housing toxic chemicals in order to prevent the uncontrolled release of contaminated fire-fighting water and spilled product. Any drain should connect to an interceptor pit for later disposal.

g. Where lighting and other electrical facilities are required, they should be installed and maintained by a competent electrician. No temporary electrical installation shall be allowed. All electrical equipment must be adequately earthed and electrical circuits must be provided with Earth Leakage Circuit Breakers and over load protection devices.

h. Where low-flash point solvents or fine dust generating chemicals are stored, the use of flame-proof fitting/equipment should be adopted.

i. Battery charging or shrink-wrapping, plastic sheet sealing or welding shall not be allowed or performed inside the storage area.

j. **Outdoor storage:** Where hazardous materials are stored outdoors, bundling arrangements and a roof or a cover to protect from sun and rain should be provided.

k. Drums should be stored upright on pallets. All drums must be stored in such a way that there is always sufficient space for fire fighting access.

l. An occupier must ensure that if dangerous goods are of a type which may generate static electricity during handling.

1. All tanks, pipework, transfer system and process plant are earthed or otherwise protected by other approved means.

2. Operating procedures must account for the avoidance of problems associated with the generation and discharge of static electricity.

m. No mess room, changing room, shall be built as an integral part of the warehouse. These structures shall be separated from the storage area by at least 10 meters.

n. An adequate washing facilities, emergency eyewash fountain and shower shall be provided.

o. No living accommodation or kitchen shall be allowed in the premises of dangerous goods warehouses.

Bulk Storage Tanks.

p. 1) All bulk above ground storage tanks shall be located in impervious bunded areas where the volume of the storage bund is not less than 110% of the largest storage tank contained within the bund.

2) Hazardous materials in above ground tanks shall not share common bunded areas unless the materials are of the same UN Classification.

3) Bunded areas shall be of an impervious material.

4) Bulk flammable liquid storage tanks shall not be located within 500m of residential areas. or 200 m of labour accommodation.

Underground Storage Tanks.

q. All new underground storage tanks (including petroleum products) shall be equipped with a means of inspection for

leaks and shall be of a double walled design where installed in sensitive areas.

r. The installation of all underground tanks shall be under the supervision of an experienced engineer.

7.3.2 Storage Layout and Manifests.

a. A clear space should be left between all outside walls and the nearest packs and within block stacks to allow access for inspection, free movement of air and fire fighting.

b. Material must be placed in such a way that the movement of forklift truck and other handling or emergency equipment is not obstructed.

c. All aisles, gangways should be clearly defined by markings on the floor and kept free from obstructions.

d. Stacking heights should not exceed 3 meters unless the racking system is used.

e. A plan should be prepared showing the nature of the hazard in each part of the storage area comprising a manifest showing the location and quantities of the stored materials or groups of materials with their hazardous characteristics, location of available emergency and fire-fighting equipment, access and escape routes.

f. The store-keeper shall keep a copy of this plan, updated weekly in the store and also in the office remote from the site.

g. Hazardous materials shall be segregated in accordance with their UN Classification and requirements specified in the table detailed below:

Hazardous Materials Segregation Requirements

Class	1.1	2.1	2.2	2.3	3.1	4.1	4.2	4.3	5.1	5.2	6.1	8
1.1		C	C	C	C	C	C	C	C	C	C	C
2.1	C			C	B	B	C	B	C	C	B	B
2.2	C			C	A	A	B	A	A	B	A	A
2.3	C	C	C		C	C	C	C	C	C	C	C
3.1	C	B	A	C		B	B	B	C	C	B	A
4.1	C	B	A	C	B		B	B	C	C	B	A
4.2	C	C	B	C	B	B		B	C	C	B	A
4.3	C	B	A	C	B	B	B		C	C	B	B
5.1	C	C	A	C	C	C	C	C		B	B	B
5.2	C	C	B	C	C	C	C	C	B		C	B
6.1	C	B	A	C	B	B	B	B	B	C		A
8	C	B	A	C	A	A	A	B	B	B	A	

Note: The separation or segregation of 2 different classes of hazardous materials is indicated by the code shown at the intersection of the vertical column corresponding to one class and the horizontal row corresponding to the other class.

A : Must be separated by at least 3 m.
B : Must be separated by at least 5 m.
C : Must not be stored in the same room or space. Minimum separation of 10 m between storage areas.

These limits may be reduced if fire proofing is installed to the satisfaction of the EPSS.

h. Hazardous material storage areas shall, where practicable, be external to the workplace. Where hazardous materials are stored within industrial premises, there shall be a minimum of 3 meters separation to any production facilities for non-flammable material and 10 meters between flammable materials and any source of ignition.

i. Hazardous materials shall be separated from areas frequented by the public in accordance with the following requirements.

	Minimum Separation (Meters)
1	50
2.1	5
2.2	5
2.3	15
3.1	10
4.1 - 4.3	5
5.1 - 5.2	5
6.1 - 6.3	5
7	DEPENDENT ON ACTIVITY LEVEL
8	5

j. Within the warehouse, operations must be closely supervised by a trained and experienced supervisor.

k. The following written instructions must be readily available to all warehouse personnel:

- Instructions for the safe and correct operations of any equipment and storage of materials.
- Material Safety Data Sheets for all stored and transported products.
- Hygiene and safety instructions and procedures.
- Emergency instructions and procedures.

l. Dangerous goods shall not be
   i. Stored in warehouses along with food stuff
   ii. Load and transported along with food stuff on the same vehicle.

7.3.3 Contingency planning for spillages and leaking containers.

a. All spillages and leakages must be dealt with immediately after the appropriate material safety data sheet has been referred too.

b. On no account must even a small amount of spilled material of any potentially hazardous material be flushed into drainage system or sewers.

c. For dealing with spillages the following equipment is required and must be maintained:

- Personal Protective Equipment
- Empty drums
- Self adhesive paper labels for marking drums
- Absorbent material i.e. sand or sawdust
- Detergent solution
- brooms
- Shovels
- Drum spanners
- Metal funnels
- Wooden Wedges for plugging holes in drums
- Chemical resistant sealant.

d. All emergency and safety related equipment must be regularly checked and maintained to ensure that it is in good condition.

e. Personal Protective Equipment must be decontaminated and cleaned after use and properly maintained.

f. Liquid spills should be absorbed into a suitable dustless solid absorbent such as sand or saw dust. Saw dust should not be used with flammable or oxidizing liquids of classes 3 and 5.

g. Spilt solids must be cleaned with an industrial vacuum cleaner.

h. Spillages or fire situations releasing toxic or poisonous gases should be dealt with appropriate ventilation and respiratory protective system dependent on the gas.

i. All wastes including packaging materials, broken pallets etc. must be disposed of in a safe and environmentally responsible manner.

j. All contaminated containers not intended for re-use must be decontaminated where necessary and made unusable by puncturing before disposal.

7.3.4. Personal Protection and First aid

a. For routine work in hazardous materials stores, the following items of protective equipment should be made available for use as appropriate

- Protective helmet and or cap
- Safety spectacles, goggles, face shield
- Respiratory protection consistent with the nature of the materials being handled
- Coverall
- Rubber or plastic apron or gauntlets when handling materials.
- Safety boots with protective toe caps.

for specific requirements, reference should be made to EPSS Technical Guidelines on Personal protective equipment.

b. First aid should be provided in accordance with EPSS Technical Guideline No. 25.

c. Eye wash fountains and showers must be provided within easy reach of work areas.

d. No sleeping accommodation shall be provided in the premises and no person shall be allowed or required to sleep in the premises. This will include security staff.

7.4. HANDLING OF DANGEROUS GOODS

7.4.1. The handling instructions including any special precautions to protect the personnel and environment must be followed strictly.
In particular-

- **Read the container label and MSDS before starting a job.**
- **Keep your work area clean.**
- **Use protective clothing and equipment .**
- **Follow safety rules.**
- **Use approved and labeled containers for storing and transporting hazardous materials.**
- **Do not transfer dangerous goods into non standard containers.**
- **Follow manufacturer's instructions when removing hazardous materials from containers.**
- **Make sure there is enough ventilation.**
- **Keep compressed gas, flammable and explosive materials away from heat.**

7.4.2. House Keeping

a. Good housekeeping shall be maintained to minimize damage, leakage and fire risks as well as to achieve safe and efficient operation.

b. The following practices should be observed:

- **Stocks should be frequently inspected for leakage or mechanical damage and used on a first-in first out basis.**
- **Floors should be kept clean.**
- **The whole area should be free of rags, rubbish.**
- **Empty, combustible packing materials should be kept away from storage areas.**
- **All access to exits, emergency equipment etc. must be kept clear.**
- **All parts of the installation shall be kept in good repair.**

PART 8
Trade in Dangerous Goods

8.1. Only properly licensed companies may trade in dangerous goods

8.2. Licensed companies which trade but do not have a warehouse must not store Dangerous Goods at any place, they must be transported directly from port to user.

8.3. Trading companies shall be responsible for incidents which occur in Transport and must provide insurance cover for transport in Dubai.

8.4. Trading company must ensure imported material is correctly labeled.

8.5. Trading companies are responsible for obtaining and passing on the MSDS to end user.

8.6. Exported goods or goods sent to other Emirates must meet the labeling and documentation standards of Dubai or of the importing country/Emirate which ever are the higher.

8.7. Producers of Dangerous Goods in Dubai must have regular analysis reports of contents, purity etc.

8.8 Companies distributing petroleum products must prominently display safety warnings to clients and should not fill vehicle fuel tanks unless the vehicles engine is stopped and it is safe to do so.

PART 9
Transport of Dangerous Goods

These provisions must be implemented by any person transporting dangerous goods by any means in or into Dubai.

9.1 Transport by road

9.1.1 Dangerous goods must only be transported in a safe and secure manner on the road network within Dubai

9.1.2 Drivers of dangerous goods must stay within posted speed limits , designated heavy vehicle lanes and must not use the Shundaga Tunnel.

9.1.3. The vehicles carrying dangerous goods under Class 1, shall be of type approved by the Dubai Police Authorities. The vehicle shall be taken into use for the transport of dangerous goods under class 1 only after obtaining the necessary approval from the Dubai Police.

9.1.4. All transport drivers handling dangerous goods must be trained in accordance with section 12 of this code.

Transport of dangerous goods in Bulk Quantity in tankers.

The tankers intended for the transport of dangerous goods in bulk shall satisfy these general requirements:

9.1.5. Tank shells should be made of metallic material suitable for the external environment as well as substance carried.

9.1.6. Tank containers should be constructed to an approved internationally accepted technical code. For example:-

NFPA-385 Tank vehicles for Flammable & Combustible Liquids

NFPA -407 Standard for Aircraft Fuel Servicing.

9.1.7. The design and construction of tanks should take into consideration, permissible load, forces, pressure build-up, temperature etc., and the properties of substance.

9.1.8. Service equipment such valves, fittings, safety devices, gauging devices etc. should be so arranged as to be protected against the risk of being damaged during transport of handling.

9.1.9. A tank container of each of its compartments should be provided with an opening large enough to enable the container or compartment to be inspected.

9.1.10. All tank connections should be clearly marked and all piping should be of suitable material.

9.1.11. All tank- containers should be fitted with a suitable pressure relief device.

9.1.12. The shell and fitting of each tank container should be inspected and tested by a competent person approved by Dubai Municipality, EPSS.

a. First before being put into service.
b. periodic inspection once in 3 years.

The initial/ periodical inspection and test should include an Internal and external examination and hydraulic pressure test / leak proofing test.

9.1.13. If any tank is found to be unsafe in transport, the tank should not be placed in or returned to service until it has been repaired and a re-test conducted.

9.1.14. Dubai Police may stop any vehicle at any time and conduct tests and inspections as necessary to determine the safety of the vehicle. If in the opinion of the Director Traffic Department a vehicle requires an engineering safety inspection, this will be carried out at the cost of the owner.

9.1.15. Placards should be fixed to the exterior surface of transport units to provide a warning that the contents of the tank are dangerous goods and present risk. The vehicles carrying dangerous goods should placard as per Dubai Municipality Environmental Protection and Safety Section Technical Guideline No. 43.

9.1.16. No trailer shall be used for the conveyance of dangerous goods in ISO containers except those with properly equipped twist locks.

9.1.17. The bulk transportation of dangerous goods by road shall be done with special reference to Journey Management.

Journey Management shall include:

a. Vehicle condition.
b. Trained Driver
c. Driving Techniques
d. The Route
e. Travel time schedule
f. Communication to responsible person of destination, route and estimated time of arrival, on either side about transportation of dangerous goods.

9.1.18. All bulk dangerous goods vehicles, unless escorted by police, must have a yellow flashing light on the drivers cabin while in use.

9.2. Transport of Dangerous Goods by Air

9.2.1. Introduction:

a. The United Nations Committee of Experts (COE) develops recommended procedures for the transport of all types of Dangerous Goods, except Radioactive Materials. The International Civil Aviation Organization (ICAO) has used these recommendations as the basis for developing the regulations for the Safe Transport of Dangerous Goods. **The IATA Dangerous Goods Regulations (**the **Regulations),** contain all the requirements of the Technical Instructions. IATA has included additional requirements which are more restrictive than the Technical Instructions and reflect industry standard practices or operational considerations.

b. An extensive as well as intensive application of the current IATA Dangerous Goods Regulations manual, which is updated every year, would conform to the requirements of Carriage of Dangerous Goods by Air.

c. Carriage of Radioactive materials by air is governed by International Atomic Energy Agency (IAEA) through its Recommended Procedures for the Safe Transport of Radioactive materials

9.2.2. Shipper's Responsibilities

a. A shipper must comply fully with these **Regulations** when offering a consignment of Dangerous Goods. In addition, they
must comply with any applicable regulations set forth by the State of origin, transit and destination.

b. These **Regulations** are fully compliant with the ICAO Technical Instructions. A shipper, offering articles or substances in violation of these **Regulations**, may be in breach of National Law and may be subject to legal penalties.

c. The shipper is also responsible for the following:

- To ensure that the articles or substances are not prohibited for transport by air (given in Table 5.1 of the **Regulations**);

- To ensure that the articles or substances are properly:

  - Classified (Section 3)
  - Identified (Section 4)
  - Packed (Section 5 and 10)
  - Marked (Section 7)
  - Labeled (Section 7)
  - Documented (Section 8)

- To ensure that the State/Operator Variations are complied with, and

- To ensure that the package is free from damage or leakage.

d. In addition, the shipper has special responsibilities to comply with in connection with the transportation of Infectious Substances, temperature sensitive substances, dangerous goods in consolidations.

9.2.3. Dangerous Goods carried by Passengers or Crew

Detailed provisions with regard to Carriage of Dangerous Goods by the passengers, crew and operators are given in Section 2 of the **Regulations**. This section covers those items which are:

a. Acceptable for carriage by the passengers or crew with or without the approval of the operators.
b. Restricted for carriage and
c. Forbidden for carriage

9.2.4. Dangerous Goods in Excepted Quantities

Carriage of Dangerous Goods in excepted quantities is exclusively dealt with in Section 9.4 of the Code.

9.2.5. Handling of Dangerous Goods

All provisions relating to the handling, storage, inspection and loading of Dangerous Goods as well as provision of information to all concerned are given in Part 7 of the Code.

9.2.6. Training Requirements

Mandatory provisions with respect to the Training requirements are specified in Part 12 of the Code.

9.3 Transport of Dangerous Goods by Sea

9.3.1 Application

This part applies to all dangerous goods which are carried in packed form or in solid form in bulk on all ships.

The carriage of dangerous goods on ships has increased substantially. Transport by sea of dangerous goods is regulated in order reasonably to prevent injury to persons or damage to the ship.

Although the information contained in this section is directed at the mariner, the provisions may effect industries and services from the manufacturer to the Customers including packers, shippers, rail, road and harbor feeder services. All effected bodies should be guided by the advise given in this Code.

9.3.2 Packaging

The packing of dangerous goods shall be:

a. Well made and in good condition.

b. Capable of withstanding the ordinary risks of handling and carriage by sea.

c. Where the use of absorbent or cushioning material is customary in packaging of liquids in receptacles, the material shall be capable of minimizing the dangers to which the liquid may give rise.

d. Receptacles containing dangerous liquids shall have an ullage at the filling temperature sufficient to allow for the highest temperature during the course of normal carriage.

e. Cylinders or receptacles for gases under pressure shall be adequately constructed, tested, maintained and correctly filled.

f. All types of package should be in accordance to the IMDG Code.

9.3.3 Identification, Marking Labeling and Placarding.

a. Identification when dangerous goods are offered for transport by sea, it is essential that they be identified as such in order to allow those in any way involved to take the necessary care and precautions. The purpose of indicating the proper shipping name and the UN number or a substance, material or article and the purpose of marking the proper shipping name in accordance to the IMDG Code are to ensure that the substance, material or article can be readily identified during transport. This ready identification is particularly important in the case of an incident involving these goods, in order to determine what emergency procedures are necessary to deal properly with the situation.

b. Packages containing dangerous goods shall be durably marked with the correct Technical name and the United Nations number. Trade names alone shall not be used.

c. Packages containing dangerous goods shall be provided with distinctive labels or stencils of the labels or placards as per the IMDG Code, so as to make clear the dangerous properties of the goods contained therein.

d. The methods of marking the correct Technical name and of affixing labels or applying stencils of labels or of affixing placards on packages containing dangerous goods, shall be in accordance to the IMDG Code and that this information will still be identifiable on packages surviving at least three months immersion in the sea.

e. For the classes in this Code, labels and placards provided in the IMDG Code which denote the hazard by means of colours and symbols are to be used. The labels for packages should not be less than 100 mm x 100 mm except in the case of packages which because of their size can only bear smaller labels. Placards should not be less than 250 mm x 250 mm.

9.3.4. Documents

a. When dangerous goods are offered for shipment, similar documents to those required for other categories of goods have to be prepared. The basic items of information necessary for each dangerous substance, material or article are:

1. The proper shipping name.

2. The class and when assigned, the division of the goods.
3. The United Nations number.

b. The shipping document prepared by the shipper shall include as signed certificate or declaration that the shipment offered for carriage is properly packed and marked, labeled or palcarded, as appropriate and in proper condition for carriage.

c. Each ship carrying dangerous goods shall have a special list or manifest showing the dangerous goods onboard and the location thereof.

d. The persons responsible for the packaging of dangerous goods in a freight container shall provide a signed container packaging certificate stating that the cargo in the unit has been properly packed and secured and that all applicable transport requirements have been met.

9.3.5. Stowage and Segregation Requirements

a. Dangerous goods shall be stowed safely and appropriately in accordance with the nature of the goods and as per the IMDG Code. Incompatible goods shall be segregated from one another.

b. Explosives (except ammunition) which present a serious risk shall be stowed in a magazine which shall be kept securely closed while at sea.

c. Dangerous goods in packaged form which give off dangerous vapour shall be stowed in a mechanically ventilated space or on deck. Dangerous goods in solid form in bulk which give off dangerous vapour shall be stowed in a well ventilated space.

d. In ships carrying flammable liquids or gases, special precautions shall be taken where necessary against fire or explosion.

e. Substances which are liable to spontaneous heating or combustion shall not be carried unless adequate precautions have been taken to minimize the likelihood of outbreak of fire.

9.3.6 Reporting of Incidents Involving Dangerous Goods.

When an incident takes involving the loss or likely loss overboard of packaged dangerous goods into the sea, the master, or other person having charge of the ship, shall report the particulars of such an incident without delay and to the fullest extent possible to the coastal state.

9.4. Transport through postal services

Dangerous goods shall generally not be sent through the postal system. Under specific conditions, using approved packages, certain classes of dangerous goods in limited quantities, may be sent by post. Check the General Postal Authority for current Regulations.

9.5. Special Recommendations for Transport of Dangerous Goods in Limited Quantities

9.5.1. The recommendations in this Section concern the transport of dangerous goods of certain classes in limited quantities. These quantity limits are specified in Tables 9.1 and 9.2, subject to the listed exceptions. The full provisions of the United Nations Recommendations apply equally to limited quantities except as provided in this chapter.

9.5.2. The recommendations contained in this Chapter do not apply to:

a. Explosives - Class 1;

b. Gases of Class 2 (other than in an aerosol) which exhibit a flammable, corrosive, oxidizing or toxic risk;

c. Self-reactive and related substances and desensitized explosives of Division 4.1.;

d. Substances which are liable to spontaneous combustion - Division 4.2.;

e. Organic peroxides - Division 5.2.;

f. Infectious substances - Division 6.2.;

g. Radioactive material - Class 7 ; and

h. Dangerous goods in Packing Group 1.

9.5.3. Dangerous goods transported according to these special recommendations should be transported only in inner packaging

placed in suitable outer packaging. However, the use of inner packaging is not considered to be necessary for the transport of articles such as aerosols or receptacles, small, containing gas. The packaging should meet the requirements of the code. The total gross mass of the package should not exceed 30 kg.

9.5.4. Shrink-wrapped or stretch-wrapped trays are acceptable as outer packaging for articles or inner packaging containing dangerous goods transported in accordance with the recommendations. The total gross of the package should not exceed 20 kg.

9.5.5. Packages of dangerous goods transported according to these special recommendations need not be labeled. Any segregation requirements for dangerous goods need not apply within a vehicle or freight container.

9.5.6. In addition to the requirements for documentation specified in the code, the words "limited quantity" or LTD QTY" should be included with the description of the consignment.

9.5.7. Limited quantities of dangerous goods that are packaged and distributed in a form intended or suitable for sale through retail agencies for consumption by individuals for purposes of personal care or household use may furthermore, be exempted from marking of the proper shipping name and UN number on the packaging and from the requirements for a dangerous goods transport document.

Table 9.1

Quantity limitations for classes other than class (9)

Class	Packing Group	State	Maximum Quantity per inner packaging
2	-	Gas	120 ml [a] (maximum inner volume in metal or plastic packaging)
2	-	Gas	120 ml (maximum inner volume in glass packaging)
3	II	Liquid	1 L (metal) 500 ml (glass or plastic)
4	III	Liquid	5 L
4.1	II	Solid	500 g
4.1	III	Solid	3 kg
4.3	II	Liquid or Solid	500 g
4.3	III	Liquid or Solid	1 kg
5.1	II	Liquid or Solid	500g
5.1	III	Liquid or Solid	1 kg
5..2 [b]	II	Solid	100 g
5..2 [b]	II	Liquid	25 ml
5.2 [c]	II	Solid	500 g
5.2 [c]	II	Liquid	125 ml
6.1	II	Solid	500 kg
6.1	II	Liquid	100 ml
6.1	III	Solid	3 kg
6.1	III	Liquid	1 L
8	II	Solid	1 kg
8	II	Liquid	500 ml [d]
8	III	Solid	2 kg
8	III	Liquid	1 L

[a] This limit may be increased to 1,000 ml for aerosols not containing toxic substances(s)

[b] The organic peroxide should be of type B or C and should not require temperature control.

[c] The organic peroxide should be o type D, E or F and should not require temperature control.

[d] Glass, porcelain or stoneware inner packaging should be enclosed in a compatible and rigid intermediate packaging.

Table 9.2

Quantity Limitations For Class 9

UN Number	Proper Shipping Name	Maximum Quantity per inner Packaging
1941	Dibromodifluoromethane	5 L
2071	Ammoniumnaitrate Fertilizers	5 kg.

PART 10
Disposal of Expired or Damaged Dangerous Goods

10.1. Disposal Policy

10.1.1. It is strictly prohibited to import hazardous wastes into Dubai for disposal.

10.1.2. Dangerous goods imported into Dubai that are damaged during transport are not permitted for disposal as waste in Dubai. Instead the damaged goods must be re-exported to their country of origin at the expense of the shipping agent or consignee. This includes the cost of repackaging. Dubai Municipality will require proof of re-export of such materials in the form of a Bill of Lading from Dubai Ports.

10.1.3. Dangerous goods or other substances which are imported in a sound condition but become damaged or expire in Dubai will be considered as wastes generated in Dubai and these will be acceptable for disposal under the procedures outlined in the EPSS Technical Guideline Number 26.

10.1.4. Waste materials which are difficult to deal with, being an extremely hazardous or toxic or environmentally persistent materials, are not acceptable for land filling into the Jebel Ali Disposal Site. These waste material must be stored, treated or rendered less hazardous in accordance with the directions of the EPSS.

Some of the materials which are considered difficult wastes and are generally not acceptable for disposal into any disposal site in Dubai.

- All types of Explosives (Class 1)
- Cylinders with compressed gas (Class 2)
- Organic solvents (Class 3)

- PCB and PCB contaminated wastes pesticides, organochlorides and similar wastes (Class 6)
- All radioactive wastes (Class 7)
- Reactive chemicals

10.2. **Disposal Procedures**

EPSS Technical Guideline Number 26 outlines the procedures for the disposal of locally generated wastes including the waste material described in item 10.1.3 above. The Guideline is summarized below and as follows:

a. Waste generator must apply in writing to the Environmental Protection and Safety Section using the prescribed application form available free from EPSS office.

b. The submitted application must include documents containing the following data:

1. a brief description of how the waste was generated;
2. an MSDS in the case of a pure substance and/or an analytical report on the nature of the waste prepared by a Dubai licensed laboratory and;
3. documents showing proof of date of its importation and other relevant data in the case of a waste described in item 10.1 (iv) above.

c. Waste generators must submit 1 original plus 4 copies of the application form and 2 copies of supporting documents.

d. Once an application is approved the waste generator will be notified and required to pay a disposal fee to Dubai Municipality. Instructions as to how the waste will be disposed off will be stated in the approval note.

e. Approved waste must then be transported to the approved disposal site by the waste generator or its authorized transported. The approval paper and pertinent documents must be carried with the waste material while in transit and lodges at the disposal site.

f. Certificates of destruction can be provided once a stamped copy of the disposal note is presented to the EPSS.

PART 11
Emergency Incident Management

11.1. Responsibilities

11.1.1. Civil Defence shall maintain a capability to respond to incidents involving dangerous goods.

11.1.2. At the scene of any incident the most senior Civil Defence Officer shall be the incident commander.

11.1.3. Civil Defence shall ensure that Police and EPSS are called out to all incidents.

11.1.4. EPSS shall advise the incident commander of the environmental impacts of the incident and shall organize clean up of the site.

11.1.5. All wastes from dangerous goods incidents shall be treated as hazardous wastes unless EPSS advises to the contrary.

11.2. Warehouses and factories.

11.2.1. Any person storing dangerous goods in quantities greater than those in Table 7.1 shall prepare an incident response plan in accordance with guidelines prepared by the EPSS.

11.2.2. All staff working on the premises must be trained to implement the plan.

11.2.3. In the event of any incident, i.e. spill, fire, leak etc., the company must contact Civil Defence and activate the Hazmat System.

11.2.4. The company must immediately activate the local incident system to stabilize the problem until the Hazmat agencies arrive on the scene.

11.2.5. Companies must provide at their cost all necessary materials and equipment to implement the local incident plan.

PART 12
Training in Dangerous Goods Management

Policy:

EVERY PERSON HANDLING DANGEROUS GOODS MUST KNOW

a. The properties of the material
b. The risks in its use
c. How to protect themselves from those risks, and
d. What to do in an emergency

12.1. Approved Trainers and Courses

a. All training courses given under this Code must be approved by the Committee

b. Dubai Municipality will on a two yearly basis, advertise for Consultant companies with the staff and capability to provide training courses .

c. The applications (with the information contained in 12.1 e) shall be assessed by the Committee and the Committee shall publish a list of approved trainers for the use of industry.

d. The approved trainers shall offer courses in :

1. Basic dangerous goods safety (12.4)
2. Storage and handling (12.5)
3. Transport of Dangerous Goods (12.6)
4. Or in any one of these subjects

e. Information required from approved TRAINER

1. List of key staff
2. Their qualifications and training experience
3. Experience and qualifications on dangerous goods management
4. Training experience of the company
5. Costs to provide group training on daily rate basis
6. Training facilities of the company

12.2. Transport of Dangerous Goods

No person shall transport dangerous goods unless he has sat for an approved dangerous goods drivers course in the last 2 years. Companies may seek to have their internal training courses accepted as approved courses by the committee.

12.3. Storage and handling of dangerous goods

a. Any person managing or supervising a dangerous goods store must have sat for an approved basic dangerous goods storage and handling course.

b. All persons working in dangerous goods stores or regularly handling dangerous goods must be sufficiently trained to understand the basic policy issues outlined above. Such training may be given in-house by persons who have sat the qualifying courses given in 12.3 (a).

12.4. Details of model courses

a) Model Course outline for Basic Course in Dangerous Goods Management

- Classes of Dangerous Goods
- Proper labeling and packaging
- Properties of dangerous goods classes
- Safe handling of dangerous goods
- Personal protective equipment for dangerous goods handling
- Understanding an MSDS
- Laws and Regulations

b) Model Course outline for Storage and handling of dangerous goods

In addition to the basic course

- UN numbers /Hazardous symbols
- Design of storages
- Emergency contingency planning
- Segregation within stores
- Handling drums, sacks etc.
- Occupational health standards
- Respiratory protection
- Skin protection
- Static charge mitigation

c) Model Course outline "Transport of Dangerous Goods"

- Static charges
- Correct loading /unloading
- Safe driving techniques
- Vehicle placarding
- UN numbering
- Hazchem warnings
- Emergency response and accident procedures.

APPENDIX 1
Classification of Dangerous Goods

1 In determining the correct classification of any dangerous goods reference shall be made to the current United Nations Guidelines and testing procedures for that substances.

.2 As a guide to classification schemes Dangerous Goods are generally classified as follows:

Class 1 Explosives
2 Compressed or Liquefied Gases
3 Flammable Liquids
4 Flammable Solids
5 Oxidizing Agents
6 Toxic materials
7 Radioactive Materials
8 Corrosive Materials
9 Miscellaneous Dangerous Goods

3. Class 1 - EXPLOSIVES

3.1 Class 1 comprises:

a. Explosive substances, except those which are too dangerous to transport or those where the predominant hazard is one appropriate to another Class (Note: a substance which is not itself explosive but which can form an explosive atmosphere of gas, vapour or dust is not included in Class 1);

b. Explosive articles, except devices containing explosive substances in such quantity or of such a character that their inadvertent or accidental ignition or initiation during transport shall not cause any manifestation external to the device either by projection, fire, smoke, heat or loud noise; and

c. Substances and articles not mentioned under (a) or (b) above which are manufactured with a view to producing a practical explosive or pyrotechnic effect.

3.2. Class 1 is sub-divided as follows:

Class 1.1.

Substances and articles which have a mass explosion hazard i.e. one which effects virtually the entire load practically instantaneously.

Class 1.2.

Substances and articles which have a projection hazard but not a mass explosion hazard.

Class 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.

This class comprises substances and articles which:

a. Give rise to considerable radiant heat; or
b. Burn one after another, producing minor blast or projection effects or both.

Class 1.4

Substances and articles which present no significant hazard.

This Class comprises substances and articles which present only a small hazard in the event of ignition or initiation during transport. The effects are largely confined to the package, and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause practically instantaneous explosion of virtually the entire contents of the package.

Class 1.5

Very insensitive substances which have a mass explosion hazard.

This class comprises substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation of or transition from burning to detonation under normal conditions of transport.

Class 1.6.

Extremely insensitive articles which do not have a mass explosion hazard. This class comprises articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation.

3.3. Class 1 is unique in that the type of packaging frequently has a decisive effect on the hazard, and therefore on the assignment to a particular division of Class 1.

4. Class 2 - GASES: COMPRESSED, LIQUEFIED OR DISSOLVED UNDER PRESSURE

4.1 The class comprises compressed gases; liquefied gases; gases in solution; refrigerated liquefied gases; mixtures of one or more gases with one or more vapours of substances of other classes; articles charged with a gas; tellurium hexafluoride gas; and aerosols of capacity greater than 1L.

4.2. Class 2 comprises those gaseous substances which:

a. at 50^{O}C have a vapour pressure greater than 300 kPa; or
b. are completely gaseous at 20^{O}C at a standard pressure of 101.3 kPa.

4.3. The transport condition of a gas is described according to its physical state as:

a. **Compressed gas** - a gas (other than in solution) which when packaged under pressure for transport is entirely gaseous at 20^{O}C;

b. **Liquefied gas** - a gas which when packaged for transport is partially liquid at 20^{O}C;

c. **Refrigerated liquefied gas** - a gas which when packaged for transport is partially liquid because of its low temperature; or

d. **Gas in solution** - a compressed gas which when packaged for transport is dissolved in a solvent.

4.4 Assignment of Substances to Class 2:

Class 2 is sub-divided as follows:

Class 2.1.	Flammable gases
Class 2.2.	Non-flammable, Non-toxic gases
Class 2.3.	Poisonous Gases.

a. Class 2.1: Flammable gases

Gases which at 20°C and a standard pressure of 101.3 kPa:

- are ignitable when in a mixture of 13 % or less by volume with air; or
- have flammability range with air of at least 12 percentage points regardless of the lower explosive limit. Flammability shall be determined by tests or by calculation in accordance with methods adopted by ISO (see ISO Standard 10156/1990). Where insufficient data are available to use these methods, tests by a comparable method endorsed by the Competent Authorities may be used.

Note: Aerosols of capacity greater than 1 L(UN 1950) and small receptacles, containing gas (UN 2037) shall be regarded as being in Class 2.1.

b. Class 2.2. Non-flammable, Non-toxic Gases

Gases which are transported at a pressure not less than 280 kPa at 20°C, or as refrigerated liquids, and which are:

- asphyxiate gases which dilute or replace the oxygen normally in the atmosphere;
- oxidizing gases which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does; or
- neither Class 2.1 nor Class 2.3.

c. Class 2.3. Poisonous Gases

Gases which are:

- known to be so poisonous or corrosive to humans as to pose a hazard to health; or
- presumed to be poisonous or corrosive to humans because they have an LC_{50} value equal to or less than 5000 ppm

5. Class 3 - FLAMMABLE LIQUIDS

5.1 Class 3 comprises liquids capable of being ignited and burning and which meet the criteria in below:

Except as exempted below a liquid shall be assigned to Class 3 if it has a flash point not greater than 61^{O}C.

5.2. Exemptions

The following substances are excluded from Class 3:

a. Liquids having a flash point not less than 23^{O}C nor greater than 61^{O}C, but which have a fire point greater than 104^{O}C or which boil before the fire point is reached. This criterion exempts many flammable liquids, water mixtures and blends of petroleum products for which the flash point does not truly represent the flammability hazard;

b. Aqueous solutions containing not more than 24% ethanol by volume;

c. Alcoholic beverages and other products for human consumption, when packaged in inner packaging of not more than 5L capacity; and

d. Substances otherwise classified on account of their other more dangerous characteristics.

6. Class 4 - FLAMMABLE SOLIDS, SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION AND SUBSTANCES WHICH IN CONTACT WITH WATER EMIT FLAMMABLE GASES.

6.1. Class 4 is sub-divided as follows:

a. Flammable solids;
b. Self-reactive and related substances; and
c. Desensitized explosives.

a. Properties of Flammable Solids

Flammable solids are those which are readily combustible and those which may cause fire through friction. Readily combustible solids are powered, granular, or pasty substances which are dangerous if they can be easily ignited by brief contact with an ignition source, such as a burning match, and if the flame spreads rapidly. The danger may come not only from the fire but also from toxic combustion products. Metal powders are especially dangerous because of the difficulty of extinguishing a fire since normal

extinguishing agents such as carbon dioxide or water can increase the hazard.

b. Properties of Self-reactive and Related Substances

Self-reactive substances are substances liable to undergo (at normal or elevated temperatures) a strongly exothermic decomposition. Substances shall not be considered to be Self- reactive substances of Class 4.1., if:

- They are explosives according to the criteria of Class 1;
- They are Oxidizing substances according to the assignment procedures of Class 5.1.;
- They are Organic Peroxides according to the criteria of Class 5.2.;
- Their heat of decomposition is less than 300J/G; or
- Their self-accelerating decomposition temperature is greater than 75^{o}C.

Note: The heat of decomposition can be determined using any internationally recognized method, e.g. differential scanning calorimetry.

c. Properties of Desensitized Explosives

Desensitized explosives are substances which are wetted with water or alcohol or are diluted with other substances to suppress their explosive properties. For example:

1310	AMMONIUM PICRATE, WETTED etc.;
1320	DINITROPHENOL, WETTED etc.;
1321	DINITROPHENOLATES, WETTED etc.;
1322	DINITRORESORCINOL, WETTED etc.;
1337	NITROSTARCH, WETTED etc.;
1344	TRINITROPHENOL, WETTED etc.;
1347	SILVER PICRATE, WETTED etc.;
1348	SODIUM DINITRO-o-CRESOLATE, WETTED etc.;
1349	SODIUM PICRAMATE, WETTED etc.;
1354	TRINITROBENZENE, WETTED etc.;
1355	TRINITROBENZOIC ACID, WETTED etc.;
1356	TRINITROTOLUENE, WETTED etc.;
1357	UREA NITRATE, WETTED etc.;
1571	ZIRCONIUM AZIDE, WETTED etc.;
2555	NITROCELLULOSE WITH WATER etc.;
2556	NITROCELLULOSE WITH ALCOHOL etc.;
2557	NITROCELLULOSE WITH PLASTICIZING SUBSTANCE etc.;
2852	DIPICRYL SULFIDE, WETTED etc.;
2907	ISOSORBIDE DINITRATE MIXTURE etc.;

6.2 Class 4.2 - Substances Liable to Spontaneous Combustion

Class 4.2 comprises:

a. Pyrophoric substances; and
b. Self -heating substances.

Properties of Pyrophoric and Self-heating Substances

Self-heating of substances, leading to spontaneous combustion, is caused by reaction of the substance with oxygen (in the air) and the heat developed not being conducted away rapidly enough to the surroundings.

Spontaneous combustion occurs when the rate of heat production exceeds the rate of heat loss, and the auto ignition temperature is reached. Two types of substances can be distinguished with spontaneous combustion properties:

a. Substances, including mixtures and solutions (liquid or solid), which even in small quantities ignite within 5 minutes of coming in contact

with air. These substances are the most liable to spontaneous combustion and are called Pyrophoric substances; and

b. Other substances which in contract with air without energy supply are liable to self-heating. These substances will ignite only when in large amounts (Kilograms) and after long periods of time (hours or days) and are called self-heating substances.

6.3. Class 4.3 - Substances which in Contact with Water Emit Flammable Gases

Certain substances in contact with water may emit flammable gases that can form explosive mixtures with air. Such mixtures are easily ignited by all ordinary sources of ignition, for example naked lights, sparking handtools or unprotected light bulbs. The resulting blast wave and flames may endanger people and the environment. For example calcium carbide.

7. Class 5 - OXIDIZING AGENTS AND ORGANIC PEROXIDES

7.1. Class 5 is sub-divided as follows:

a. Class 5.1 - Oxidizing Agents

These are substances which, although not necessarily combustible, may readily liberate oxygen, or be the cause of oxidation processes and which, as a result, may start a fire in other materials or stimulate the combustion of other materials and therefore increase the violence of a fire.

b. Class 5.2. - Organic Peroxides

Most substances in this Class are combustible and all contain the bivalent --O-O structure. They act as oxidizing substances and may be liable to explosive decomposition. In either liquid or solid form they may react dangerously with other substances. Most will burn rapidly and are sensitive to impact or friction.

7.2. Because of the different properties exhibited by substances within classes 5.1 and 5.2, it is impracticable to establish a single criterion for classification of substances in either class. Tests and criteria for assignment of substances to Class 5.1 and 5.2 can be obtained from the competent authorities.

7.3. For the purpose of marking packages, transport containers and vehicles, and for the purposes of packing segregation and transport, Class 5.1 and Class 5.2 shall be treated as separate Classes.

8. Class 6 - POISONOUS (TOXIC) AND INFECTIOUS SUBSTANCES ('TOXIC' HAS THE SAME MEANING AS 'POISONOUS').

8.1. Class 6 is subdivided as follows:

a. Class 6.1 (a) - Poisonous (toxic) Substances:

Substances which are liable to cause death or serious injury to human
health if swallowed, inhaled or by skin contact.

b. Class 6.1 (b) - Harmful (toxic) Substances:

Substances which are harmful to human health if swallowed, inhaled or by skin contact.

c. Class 6.2 - Infectious Substances:

Substances containing viable micro-organisms including a bacterium, virus, rickettsia, parasite, fungus, or a recombinant, hybrid or mutant, that are known or reasonably believed to cause disease in humans or animals.

8.2. Toxicity Criteria for Assignment to Class 6.1.

Physical Sate of Substance	Oral LD_{50} (mg/kg)	Dermal LD_{50} (mg/kg)	Inhalation LC_{50} (mg/l)
Solid	**200**	**1000**	**10**
Liquid	**500**	**1000**	**10**

9. Class 7 - RADIOACTIVE SUBSTANCES

Class 7 comprises materials or combinations of materials which spontaneously emit radiation.

10. Class 8 - Corrosive Substances

Class 8 comprises substances which by chemical action , will cause severe damage when in contact with living tissue, or in the case of leakage will materially damage or even destroy other goods or the means of transport.

11. Class 9 - Miscellaneous Dangerous Goods

Class 9 comprises substances and articles which during transport present a danger not covered by other classes. Class 9 includes a number of

substances and articles which present a relatively low transport hazard and environmentally hazardous substances which do not meet the criteria for another Class.

Disclaimer

The information provided on our website is for general information purposes only. While WKC endeavours to provide the most up to date and accurate information, documents and links on our website, we will not be held liable for any loss or damage including without limitation, indirect or consequential loss or damage, or any loss or damage whatsoever arising from the use any of the information provided on our website. For any queries regarding the information on our website, please contact us on enquiries@wkcgroup.com.