حكومة رأس الخيمة
Government of Ras Al Khaimah

rakez
RAS AL KHAIMAH
ECONOMIC ZONE

Guidelines For Dangerous Goods

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1. PURPOSE

These guidelines provide basic safety information to minimise risk when working with hazardous chemicals. These guidelines help prevent chemical companies and their surroundings from having problems caused by undesirable events during use. While not all hazards associated with every chemical and toxic substance have been addressed here, the chemical companies are urged to adhere to the international relevant practices about chemical hazards and methods to control exposure in the workplace. These guidelines do not relieve the client from complying with the applicable UAE Local and Federal Laws and Regulations.

2. SCOPE

These guidelines apply to all existing and new companies including sub-leased establishments within RAKEZ jurisdictional areas.

3. DEFINITIONS

- **HSE Department** – Health, Safety & Environment Department
- **RAKEZ** – Ras Al Khaimah Economic Zone
- **RAK CD** – Ras Al Khaimah Civil Defense
- **EPDA** – Environment Protection and Development Authority

4. DESCRIPTION OF DANGEROUS GOODS

4.1. Classification

Dangerous goods are classified by a specialist committee of the United Nations (UN). The classification is determined by the type of risk involved although it should be noted that the numerical order of the UN classes is not that of the degree of danger.

The objective of the UN definitions is to indicate which goods are dangerous and in which class, according to their specific characteristics, they should be included. These definitions have been devised to provide a common pattern that should prove possible to follow in the various national and international regulations.

Dangerous goods (including mixtures and solutions) are assigned to one of nine classes according to the hazard or the most predominant of the hazards they present. Some of these classes are subdivided into divisions. These classes and divisions are described in Table 1 below:

Table 1: UN Classification of Dangerous Goods

Classification	Description
Class 1	Explosives
a. Division 1.1	Substances and articles that have a mass explosion hazard
b. Division 1.2	Substances and articles that have a projection hazard but not a mass explosion hazard
c. Division 1.3	Substances and articles that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard
d. Division 1.4	Substances and articles that present no significant hazard
e. Division 1.5	Very insensitive substances that have a mass explosion hazard
f. Division 1.6	Extremely insensitive articles that do not have a mass explosion hazard

Class 2	Gases
g. Division 2.1	Flammable gases
h. Division 2.2	Non-flammable, non-toxic gases
i. Division 2.3	Toxic gases
Class 3	Flammable Liquids
Class 4	Flammable solids; substances liable to spontaneous combustion; substances which, on contact with water, emit flammable gases
j. Division 4.1	Flammable solids, self-reactive substances, and solid desensitised explosives
k. Division 4.2	Substances liable to spontaneous combustion
l. Division 4.3	Substances which in contact with water emit flammable gases
Class 5	Oxidising substances and organic peroxides
m. Division 5.1	Oxidising substances
n. Division 5.2	Organic peroxides
Class 6	Toxic and infectious substances
o. Division 6.1	Toxic substances
p. Division 6.2	Infectious substances
Class 7	Radioactive material
Class 8	Corrosive substances
Class 9	Miscellaneous dangerous substances and articles

4.2. UN Numbers

A UN number is a four-digit number that identifies hazardous materials, and articles (such as explosives, flammable liquids, oxidisers, toxic liquids, etc.) in the framework of international transport. Some hazardous substances have their own UN numbers (e.g. acrylamide has UN 2074), while sometimes groups of chemicals or products with similar properties receive a common UN number (e.g. flammable liquids, not otherwise specified, have UN 1993). A chemical in its solid state may receive a different UN number than the liquid phase if its hazardous properties differ significantly; substances with different levels of purity (or concentration in solution) may also receive different UN numbers.

5. GENERAL REQUIREMENTS

5.1. Operational Procedures



As appropriate, each client is required to develop and implement operational procedures for the transport, handling, and storage of dangerous goods. These procedures must form part of a Safety Management System that enables the identification, assessment, and control of risks associated with the handling of dangerous goods, and take due into account best international practices, and all relevant UAE Regulations.

Employers shall establish and stipulate operating criteria where they are necessary for the prevention of injury or ill-health to employees and others. Operating criteria should be specific to the employer and its activities and operational requirements. Operational control shall relate to the identified hazards and risks, where any absence could lead to failure to comply with relevant Federal Laws.

Employers using dangerous goods shall have an HS&E Plan or procedure for the management of HS&E within their workplace. The information contained in the HS&E Plan or procedure shall be prepared as per **Section 4.7 Operational Controls in RAKEZ HS&E Regulations**.

5.2. Risk Assessment

Risk assessments are undertaken for specific work activity, equipment, location, operation, etc., or a combination of all of these. A risk assessment is a method used to rank the risk of safety and health issues. The employer will ensure to perform risk assessments on foreseeable safety and health issues and other identified hazards.

The risk assessment should contain the following information:



a. Identify the hazards;
b. Identify who/what may be harmed;
c. Evaluate the risk;
d. Determine the severity;
e. Determine the likelihood;
f. Define the level of risk.

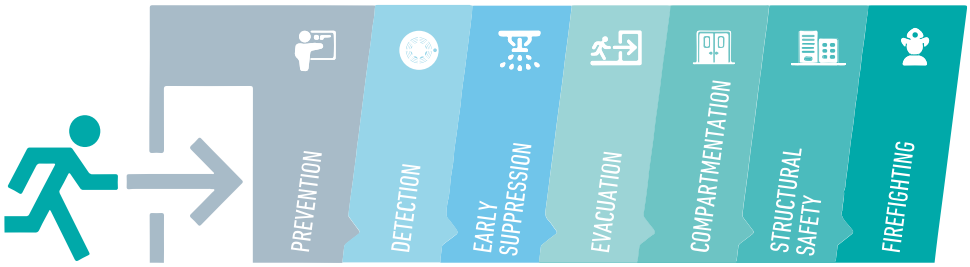
5.3. Fire & Life Safety Requirements

A client who intends to keep dangerous goods at licensed premises must:

a. Ensure compliance with the UAE Fire Code and obtain RAK Civil Defence's relevant approval/NOC prior to the start of any activity.

RAK CIVIL DEFENSE NOC

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



A client must ensure that:

c. Sprinklers, fire hose reels, fire hydrants, or fire pumps are provided at the premises and they are maintained in good working order;
d. If portable fire extinguishers are required to be provided, the specification, rating, and number shall be in accordance with the RAK Civil Defence requirements.
e. The firefighting equipment shall be maintained in good condition and serviced as per the UAE Fire code through RAK Civil Defense approved by the third party.

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



g. Additionally, particular care should be taken to refer to an individual product's SDS and comply with the requirements specified therein.

5.4. Environmental Requirements

A client who intends to keep dangerous goods at licensed premises should follow the below:

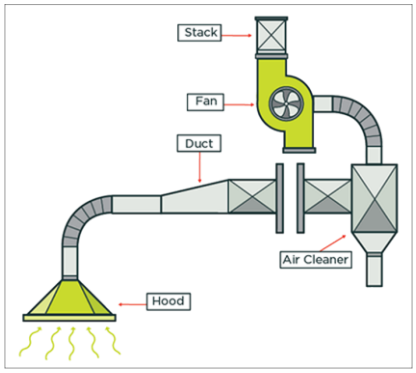
a. Ensure compliance with Federal Law no. 24 for 1999 and its subsequent executive orders and accordingly obtain EPDA relevant permit/NOC prior to the start of any activity.

EPDA NOC

b. 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 EPDA and implement these requirements within the period specified by the EPDA.

c. The ventilation system shall be installed as per EPDA/ASHRAE guidelines.

d. Additionally, particular care should be taken to refer to an individual product's SDS and comply with the requirements specified therein.



5.5. Declaration and Regular Updates

RAKEZ HS&E Team must be advised of all dangerous goods to be imported, handled, and stored by getting the NOC for chemical storage. (Please refer to GUIDANCE FOR OBTAINING HSE NOC for more information.

RAKEZ HSE NOC

The client is required to submit updated inventory on a quarterly basis using the INVENTORY UPDATE FORM FOR CHEMICALS. All dangerous goods including the finished products must be included in the inventory updates. An appropriate SDS for finished products shall be developed and submitted during the inventory updates.

5.6. Reporting of Incidents

Any incident involving dangerous goods must immediately be reported to the nearest RAKEZ Security checkpoint by telephone, as per the emergency contact number, (refer to Incident Notification Form) which is available 24/7, and send to hse@rakez.com within 24 hours of the incident, using Incident Notification Form.



5.7. First-Aid Measures

The client shall provide first-aid box(s) containing bandages, antiseptics, and such other first-aid material as may be required as per the SDS. The box shall be located in a conspicuous place and within easy reach of the employees. The use of the box shall be entrusted to a person specialised in giving first aid in accordance with Federal Labor Law no. 8 of 1980 and Ministerial Decision no. (37/2) of 1982, Ministerial Order no. 32 of 1982. **(Refer to Appendix B: First Aid Arrangements in RAKEZ HSE Regulations).** Additionally, particular care should be taken when referring to an individual product's SDS and comply with the requirements specified therein.

5.8. Packaging and Labelling

Dangerous goods must be packed in the packaging of good quality. Packaging must be free of any indication that its integrity has been compromised. Packages must be constructed, closed, and prepared for transport 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 packaging is reused, all measures must be taken to prevent contamination.

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 recognisable and legible at all times.



All labels (hazard and handling) used on packages of dangerous goods must conform, in shape, color, format symbol, and text, to the specimen designs as per GHS and UN guidelines.

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.

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



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.

Additionally, particular care should be taken to refer to an individual product's SDS and comply with the requirements specified therein.

5.9. Segregation and Safe Storage of Dangerous Goods

Certain dangerous goods are incompatible with other goods. They may also present a risk if exposed to high temperatures, solar radiation or moisture, etc. Appropriate safety signage shall be posted for awareness.

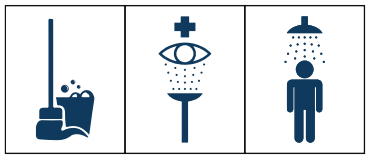


Each client handling dangerous goods, as determined through SDS must ensure to have the required environmental conditions, segregation, and engineering controls, for example, mechanical ventilation, metal cabinets, etc. For additional reference, please see **Appendix A Segregation of Dangerous Goods**. Additionally, particular care should be taken to refer to an individual product's SDS and comply with the requirements specified therein.

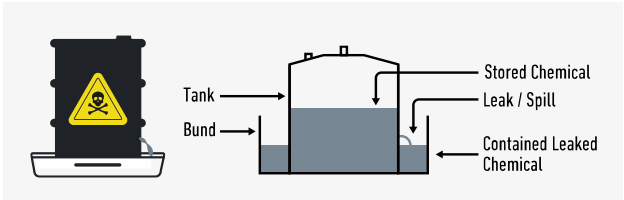


5.10. Emergency Preparation/Accidental Release Measures

- Each client must have a written emergency plan in place for dealing with any dangerous situation arising from the transport or handling of dangerous goods. The emergency plan must be developed in consultation with the emergency services authorities.
- All persons engaged in transport or handling of dangerous goods must be aware of the emergency plan, and competent in operating any necessary response equipment that they may be required to use. Any safety equipment that may be required for an emergency must be readily available.
- Adequate spillage kits shall be available and all spillages shall be cleared immediately. An eyewash station and emergency showers shall be provided.



- Ensure adequate drip trays/appropriate bunding shall be provided to catch any leakage of the chemicals. The volume of the containment/bund areas shall be 110% of the volume of the largest tank within the bunded area.



- An appropriate leak detection system shall be installed for the early detection of leakage.
- Additionally, particular care should be taken to refer to an individual product's SDS and comply with the requirements specified therein.

5.11. Inspections and Audits

The client shall have an internal inspection and audit plan/program for evaluating and ensuring compliance with applicable regulations.

5.12. Personal Protective Equipment (PPE)/Exposure Controls

The client shall provide appropriate PPE by assessing the risks involved in working with dangerous goods and ensuring all staff is complying with the usage of PPE.

Depending on the size and nature of the hazardous material handling activity, there may be a need for specialist protective equipment, e.g. protective foot coverings and a respirator mask may be needed, clarity will be provided on the SDS or the manufacturer's guidance.



5.13. Training

a. Scope of Required Dangerous Goods Training

The scope, or depth, of dangerous goods training, required is broadly dependent on the risk presented by the task performed by the individual. Consequently, any person, or persons, appointed to be a Dangerous Goods Advisor must receive more extensive training for all persons involved in handling dangerous goods. All safety-related training shall be done through the RAKEZ third-party registered list.

b. General Awareness/Familiarisation Training:

Every person engaged in the handling of chemical materials must receive training designed to provide familiarity with the general provisions of dangerous goods. Such training must include:

- a description of the classes of dangerous goods;
- labeling, marking, placarding, packing, stowage, segregation, and compatibility provisions;
- a description of available emergency response documents.

c. Function-Specific Training

Where function-specific training is required, each person must receive detailed training concerning specific dangerous goods handling that apply to the function that person performs.

d. Safety Training

Commensurate with the risk of exposure in the event of a release and the functions performed, each person should receive training on:

- Methods and procedures for accident avoidance, such as proper use of package-handling equipment and appropriate methods of storage of dangerous goods;
- Available emergency response information and how to use it;
- General dangers presented by the various classes of dangerous goods and how to prevent exposure to those hazards, including, if appropriate, the use of personal protective clothing and equipment; and
- Immediate procedures are to be followed in the event of an unintentional release of dangerous goods, including any emergency response procedures for which the person is responsible and personal protection procedures to be followed.

5.14. Dangerous Goods Safety Advisor

Each client transporting, handling, or storing dangerous goods must appoint a Dangerous Goods Advisor. The functions of a Dangerous Goods Advisor include:

a. Monitoring compliance with applicable laws governing the transport, handling, or storage of dangerous goods

b. Monitoring the following practices and procedures relating to the activities of the facility which concern dangerous goods:

- the procedures for compliance with the regulations governing the identification of dangerous goods;
- the procedures for checking the equipment used in connection with the transport, handling, or storage of dangerous goods;
- adequate training of personnel and the maintenance of records of such training;

- the implementation of appropriate emergency procedures in the event of an accident or incident that may affect safety during the transport, handling, or storage of dangerous goods;
- the investigation of and, where appropriate, preparation of reports on serious incidents or infringements recorded during the transport, handling, or storage of dangerous goods;
- the implementation of appropriate measures to avoid the recurrence of incidents or infringements;
- the account taken of the legal prescriptions and special requirements associated with the transport, handling, or storage of dangerous goods in the choice and use of sub-contractors or third parties;
- verification that personnel involved in the transport, handling, or storage of dangerous goods have detailed operational procedures and instructions;
- the introduction of measures to increase awareness of the risks inherent in the transport, handling, or storage of dangerous goods,
- the implementation of verification procedures to ensure the presence of the documents and safety equipment that shall be required in dangerous goods storage areas transporting dangerous goods;
- the compliance of the documents and equipment required to accompany any vehicle transporting dangerous goods with health and safety regulations; and
- Two or more individuals may be appointed to fulfill the role of the Dangerous Goods Advisor subject to each being appropriately trained and all the functions listed above being addressed.

5.15. Waste Management

Disposal of waste and residues of dangerous goods shall be in line with RAK Public Service Department (PSD) and in accordance with individual products SDS.

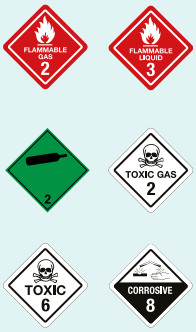




6. Identification of Materials

Hazard Class	Pictograms		Permitted/Not Permitted	Non-compatible chemical
	UN Model Regulation	GHS		
Explosives			Not Permitted	
a. Division 1.1			Not Permitted	
b. Division 1.2			Not Permitted	
c. Division 1.3			Not Permitted	
d. Division 1.4			Not Permitted	

e. Division 1.5		No Pictogram	Not Permitted	
f. Division 1.6		No Pictogram	Not Permitted	
Compressed and Liquefied Gases				
g. Division 2.1			Permitted	
h. Division 2.2			Permitted	
i. Division 2.3			Permitted	
Flammable Liquids			Permitted	
Flammable Solids				
j. Division 4.1			Not Permitted	
k. Division 4.2			Not Permitted	
l. Division 4.3			Not Permitted	
Oxidising Substances				
m. Division 5.1			Not Permitted	
n. Division 5.2			Not Permitted	
Toxic Substances				
o. Division 6.1			Permitted	
p. Division 6.2			Permitted	

Radioactive Substances			Permitted	
Corrosive Substances			Permitted	
Miscellaneous			Permitted	
Health Hazard			Permitted	
Irritants			Permitted	
Environmental Hazard			Permitted	

7. Applicable Regulations & Procedures

- RAKEZ HS&E Regulations
- Guidance to obtain HS&E NOC

Appendix A: Segregation between the Dangerous Goods Storage

DANGEROUS GOODS COMPATIBILITY CHART

This chart is designed to provide the user with practical guidance for the storage of dangerous goods. It is not intended for use of minor quantities. The segregation chart shows the dangerous goods class diamond and the equivalent pictogram as per Globally Harmonized System (GHS).

DANGEROUS GOODS CLASS DIAMONDS & GHS PICTOGRAMS	1	2.1	2.2	2.3	2.5	3	4.1	4.2	4.3	5.1	5.2	6.1	7	8	9
1	●	×	×	×	×	×	×	×	×	×	×	×	×	×	♣
2.1	×	▲	★	▲	×	◗	■	×	■	×	×	▲	×	■	■
2.2	×	★	▲	■	■	★	★	★	★	■	★	■	×	■	■
2.3	×	▲	■	▲	▲	▲	▲	▲	▲	▲	▲	■	×	■	■
2.5	×	×	■	▲	▲	×	×	×	×	▲	×	♣	×	×	♣
3	×	◗	★	▲	×	▲	■	×	■	×	×	▲	×	■	■
4.1	×	■	★	▲	×	■	▲	×	■	×	×	▲	×	■	■
4.2	×	×	★	▲	×	×	×	▲	■	×	×	▲	×	■	■
4.3	×	■	★	▲	×	■	■	■	▲	×	×	▲	×	×	■
5.1	×	×	■	▲	▲	×	×	×	×	▲	×	♣	×	×	♣
5.2	×	×	★	▲	×	×	×	×	×	×	▲	♣	×	×	♣
6.1	×	▲	■	■	♣	▲	▲	▲	▲	♣	♣	▲	×	■	■
7		×	×	×	×	×	×	×	×	×	×	×	▲	×	×
8	×	■	■	■	×	■	■	■	×	×	×	■	×	◆	■
9	♣	■	■	■	♣	■	■	■	■	♣	♣	■	×	■	▲

CLASS TYPES

1 Explosives
2.1 Flammable Gas
2.2 Non-flammable Non-toxic Gas
2.3 Toxic Gas
2.5 Oxidising Gas
3 Flammable Liquid
4.1 Flammable Solid
4.2 Spontaneously Combustible
4.3 Dangerous When Wet
5.1 Oxidising Agent
5.2 Organic Peroxide
6.1 Toxic
7 Radioactive
8 Corrosive
9 Miscellaneous

KEY

● Most classes of explosives cannot be stored with different classes of explosives. All explosive classes are not permitted within RAKEZ areas

▲ Dangerous goods of the same class are normally considered compatible and can be stored together. Dangerous goods of different classes and normally unreactive with, can be stored together but consideration should be given to an escalation of risks in the event of fire, etc.

★ If Class 2.2 has a subsidiary risk of 5.1, then do not store together. Cannot be stored together when both classes are in bulk (A container with a capacity exceeding 500 l or 500 kg. If the dangerous goods are solids, an undivided quantity not exceeding 500 kg)

× Don't keep together

■ Normally these can be stored together. There may be some exceptions and the SDS should be consulted for compatibility.

♣ If Class 6.1 or 9 is a fire risk then don not store with oxidizing agents. In the case of an explosive (Class 1), it relates only to Class 9.

◆ If one material is a concentrated strong acid and the other a concentrated strong alkali they cannot be stored together.

◗ When both classes are in bulk they must be segregated. Bulk is defined as:
a. in a container with a capacity exceeding 500 l or net mass of more than 500 kg; or
b. if the dangerous goods are solids, an undivided quantity exceeding 500 kg