



CHAPTER 1

Introduction

What are Dangerous Goods? Dangerous goods are articles and substances, which because of their nature, property or condition could in the course of transport, handling, or storage endanger public safety or order, human or animal life, the environment or property. Many substances used in daily life for example disinfectants, cleaning agents, paint and pesticides can also be hazardous.

In order to improve safety, the United Nations Committee of Experts on the Transport of Dangerous Goods has set out minimum requirements for the safe transport of dangerous goods by all modes of transport. International organisations and governments are encouraged to use the UN Recommendations on the Transport of Dangerous Goods as a framework in order to adapt and develop existing regulations with the aim of standardisation. FIATA strongly supports this aim and is involved in the working groups that are steadily improving and developing both recommendations and regulations.

Whilst some countries have already adopted and incorporated the UN Recommendations into national or international regulations, other countries have so far not achieved this either because of the complex nature of their regulatory systems or, in some cases, because they lack awareness of international regulations. FIATA recognises that freight forwarders also need to establish an effective system for the safe transport of dangerous goods within their own organisations.

The nature of the forwarders' role in the transport chain inevitably involves them in the transport of substances and articles that have potential to cause harm to people, property and the environment. In order to appreciate the extent of their responsibilities, forwarders must be able to recognise dangerous goods. The freight forwarders' relationship with his customers involved in the transport of dangerous goods should be clear with regard to their responsibilities and obligations especially when transmitting information. In some circumstances the freight forwarder could be acting as a consignor or carrier. For these reasons it is important that all freight forwarders have awareness training as part of their safety policy.

Recognised multimodal regulations applied worldwide and within Europe, based on the UN Recommendations, are those set out in the IMDG Code for sea transport, the ICAO technical instructions or IATA dangerous goods regulations for air transport, the ADR for European road transport and finally the RID for rail transport. In addition to those mentioned, the European Agreement Concerning the

International Carriage of Dangerous Goods by Inland Waterway, the ADN agreement, is about to be signed by the relevant European countries.

Failure to handle the transport and storage of dangerous goods in accordance with the regulations is an offence punishable by law. Forwarders who are not familiar with the regulations and their responsibilities are advised not to handle such goods.

These guidelines have been developed to assist forwarders to establish their own policy and to provide awareness and general information only. Forwarders should seek more technical assistance in order to ensure compliance with the regulations.

Liability Insurance

In some countries there are no legal obligations for companies within the freight forwarding sector to have third party liability insurance. There are, however, risks a freight forwarder might be held liable for (especially those freight forwarders who organise and handle the transport of dangerous goods). Each freight forwarder must therefore ensure that he is sufficiently insured to cover all risks and liabilities that may arise out of his freight forwarding activity. This includes insurance that covers accidents to visitors or employees in the workplace.

Liability insurance is therefore particularly important for the forwarder transporting dangerous goods. This does not only apply to the transport of dangerous goods in special containers such as petrol tankers, but also for packaged goods. All transport units should be clearly marked according to the regulations with regard to their degree of danger in the different classes and, where required, to carry written instructions on what to do in an emergency.

Companies who handle, transport or advise on dangerous goods must inform their liability insurers so that they are covered for this activity.

It is important for a freight forwarder to receive instructions in writing from his client should the consignment include dangerous goods. Freight forwarders are not, however, advised to sign dangerous goods declarations, as they cannot know the type and degree of danger the goods pose. This is the responsibility of the shipper and/or manufacturer. Freight forwarders who sign dangerous goods declarations may put their liability insurance cover at risk.



CHAPTER 2

Dangerous Goods Policy

Every company who handles dangerous goods should have a policy, which sets out the rules they apply to their staff and their procedures for the receiving handling and transport of dangerous goods. All staff should be made aware of the company policy and this includes office staff as well as warehouse operatives.

The policy of Non Acceptance

Simply stating that the company will not handle dangerous goods assumes that the shipper will declare them correctly. This may not always be the case. Shippers may be ignorant of the regulations or they may believe that they can ignore them by disguising them in the packaging in the belief that this will save money.

In order to operate a policy of non-acceptance a company must at least provide awareness training for their staff. Without awareness it will be difficult if not impossible to detect "hidden" dangerous goods in transit.

Company Policy in Action

First it is essential to identify the company role in the transport chain. Does this include handling documentation only or do goods have to be received, stored and transported. Having a series of policy statements can be helpful. The following are intended as guidelines for company policy.

1. The company will handle dangerous goods in compliance with the prevailing regulations governing the handling and transport of dangerous goods.
2. The company aims to avoid personal injury and loss of human life
3. The company aims to avoid damage to the environment whilst handling and transporting dangerous goods.
4. The company aims to avoid damage to property whilst handling and transporting dangerous goods.
5. The company aims to limit financial loss and environmental consequences arising from accidents involving dangerous goods
6. The company aims to meet the demands of its customers and public authorities for handling dangerous goods in a safe and professional manner.

7. The company will ensure that all staff concerned will receive appropriate training for the handling and transport of dangerous goods.

Individual companies may wish to add to this list which is intended only as a guide.

The company resolves to maintain an up to date copy of the regulations of the transport of dangerous goods and appoint a competent person who has been trained in their use.

Transport Quality System – Road, Rail and Inland Navigation Transport

The European standard, EN 12798 has been developed in order to supplement the quality standards ISO 9001/9002 for the transport of dangerous goods with regard to safety.

Its purpose is to provide a model for a safety management system for the transport of dangerous goods covering customers needs and meeting the requirements of society.

SQAS Safety and Quality Assessment Systems for the Transport/Storage/Handling of Chemicals

In the early 1990's chemical companies recognised the need to take a look at the safety, quality and environmental aspects related to the provision of logistic services. Within the framework of the chemical industries Responsible Care programme, initiatives were started, which have since evolved into a number of Safety and Quality Assessment Systems (SQAS), each related to a particular transport mode or logistic operation.

SQAS enables chemical companies to have the quality and safety management systems of their logistic service providers assessed. The results of an SQAS assessment, carried out by an independent body, do not lead to a certificate but are used by an individual chemical company to evaluate the performance of its service providers.

Training and Awareness

The regulations governing the handling and transport of dangerous goods contain detailed rules that must be complied with. It is essential to be aware of the regulations and how they are applied if a professional and comprehensive service is to be offered to the customer.



It is necessary therefore that every company has a policy to train those staff who provide advice and information to the Customer on the shipping and transportation of goods. This includes sales staff as well as operational staff in the office and warehouse. Even the telephone operator needs some level of understanding if the initial request from the customer is to be properly handled.

Any policy statements should identify the person or persons in the company who has responsibility for implementation of the company policy and also include issues relating to staff training.

In the airfreight mode and the ADR agreement for road transport, training is compulsory. However, this does not mean that forwarders specialising in other modes of transport are able to ignore training. Every responsible company should ensure that appropriate staff receive adequate instruction.

Forwarders are always quick to promote themselves as transport experts but very often this is not carried out in practice. Training is often considered only as a cost factor despite the benefit to the companies' activities.

Training Plan

It is recommended that a training plan be drawn up recognising that different personnel have different training needs. New employees should receive training appropriate to their needs as part of their introduction into the company. Office based staff as well as cargo handlers must also be included in any training programme. The UN recommendations identify the need for:

- general awareness training,
- function specific training,
- safety training.

Appropriate refresher training will be required to take account of changes to the regulations and all training should be documented and records retained.

Common national regulations in the European countries

Member states of the European Union co-operate to implement the various regulations and enforce their application. For example the Council Directives on the harmonisation of the laws of the member states with regard to the transport of dangerous goods by road and rail (Council Directive 94/55 and 96/49 EC).

Dangerous Goods Safety Adviser

With effect from 1st January 2000 the European Union introduced legislation to require companies who transport, load and unload dangerous goods being moved by road rail or inland waterway to appoint a Dangerous Goods Safety Adviser (DGSA) (Council Directive 96/35 EC).

A DGSA must obtain a vocational training certificate to demonstrate that they have sufficient knowledge of the risks inherent in the transport of dangerous goods. This requires the candidate to take an examination and to revalidate his/her knowledge every fifth year.

Any company failing to appoint a DGSA is not authorised to transport or handle dangerous goods and is in breach of the law in the European Union if it does so. Those countries that are signatories to the ADR/RID regulations are also adopting the principles of DGSA legislation for the purposes of international transport. The DGSA is responsible to the management of the company to ensure compliance with applicable regulations and the improvement of safety.



CHAPTER 3

The Role of the Parties in the Transport Chain

The transport chain from manufacturer and shipper to final consignee can involve many organisations, some of which will have the dangerous goods in their custody and control and consequently, will be exposed to the potential hazards. By the nature of their role in the transport chain, freight forwarders will almost inevitably be involved with the transport of substances and articles that have the potential to cause harm to persons and the environment.

The freight forwarder may also act as carrier, consignee, warehouse keeper, loading and unloading company or as stuffing and de-stuffing company. Because the freight forwarder has such a key role in the transport chain his relationship to the other parties, such as shippers or carriers, involved in the transport of dangerous goods, should be understood and his responsibilities and obligations recognised. This is especially true when transmitting information. All parties in the transport chain who physically handle dangerous goods need an accurate and detailed description of the goods and their associated hazards in order to take the appropriate precautions in case of an accident.

The freight forwarder must ensure that he receives full written instructions from his client for all consignments containing dangerous goods. The person who signs the dangerous goods declaration is legally responsible for the information it contains and freight forwarders are strongly advised not to sign these declarations.

Shippers' Responsibility

The shipper (for example manufacturer, supplier, trader or exporter) is the principal of the freight forwarder. He has the prime responsibility to ensure that the goods are correctly packed, marked and labelled according to their classification and the mode of transport. In particular, the shipper must ensure that dangerous goods are:

- permitted to be transported,
- classified in accordance with the relevant regulations,
- packed appropriately according to hazard and mode of transport,
- stowed safely
- labelled and marked according to regulations

He must also

- provide a dangerous goods declaration,
- issue shippers' instructions to transport,
- make available transport documents and relevant information,
- train his personnel to correctly handle dangerous goods.

Freight Forwarders' Responsibility

The forwarder must only accept dangerous goods for transport if accompanied by a declaration. The safe transport, handling and if required warehousing of the goods must then be arranged in compliance with the regulations. The forwarder's personnel should receive training commensurate with their duties in the company. Note that if a forwarder acts as a shipper or a carrier, he must also take into consideration their responsibilities.

Carriers' Responsibility

The carrier of dangerous goods must comply with the regulations having regard to the method of transport. In particular, the carrier must ensure that dangerous goods are:

- transported only if the goods comply with the regulations,
- correctly loaded,
- accompanied by relevant transport documents,
- correctly marked and labelled

He must also

- pass on transport documents and relevant information as appropriate
- train his personnel



CHAPTER 4

REGULATIONS

United Nations Recommendations on the Transport of Dangerous Goods

The first initiatives to establish an international safety standard for the transport of dangerous goods appeared in the 1950's, when international trade began to recover after the Second World War. In 1956 the United Nations Economic and Social Council (ECOSOC) established the Committee of Experts on the Transport of Dangerous Goods.

Co-operation between The UN Committee and The International Atomic Energy Agency (IAEA) has developed recommended procedures for the safe transport of radioactive materials. These procedures are published in the Regulations for the Safe Transport of Radioactive Material and are also incorporated into the UN Recommendations.

The "UN Recommendations" known as "the Orange Book" have been continuously developed by the United Nations Economic and Social Council's Committee of Experts (ECOSOC) on the Transport of dangerous goods. They are addressed to governments and international organisations.

The recommendations are now in the form of "Model Regulations on the Transport of Dangerous Goods".

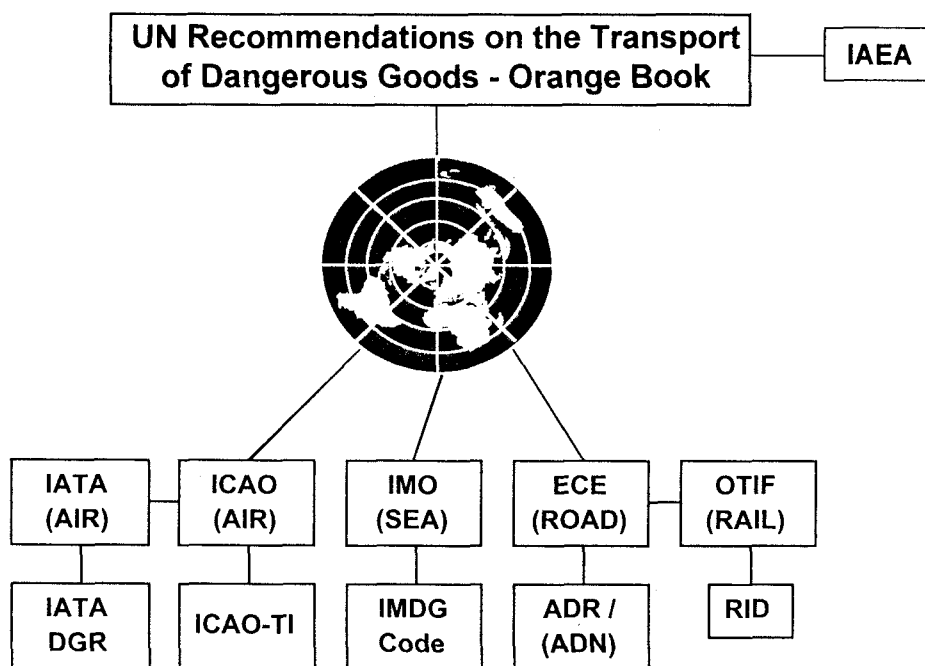
The Model Regulations suggest a basic scheme of provisions that will allow uniform development of national and international regulations governing the various modes of transport. It is expected that governments, intergovernmental organisations and other international organisations, when revising or developing regulations for which they are responsible, will conform to the principles laid down in the Model Regulations.

The Model regulations cover the principles of classification and definition of classes, listing of the principal dangerous goods, general packing requirements, testing procedures, marking, labelling or placarding and transport documents.

It is important to note that neither the UN Recommendations, nor the international sea, air or land transportation regulations derived from them, address general transport policy aspects or matters such as emergency procedures and response, enforcement etc. Such policies remain the responsibility of governments and authorities in individual states.

The UN Committee of Experts, consisting of 21 countries as voting member states, meets every two years to revise the Recommendations.

The UN recommendations are the basis for all Dangerous Goods regulations irrespective of the mode of transport.





Rules Governing the Transport of Dangerous Goods by Air, ICAO

The Convention on International Civil Aviation met in Chicago in 1944 and established international rules which were published in a document known as Annex 18. The procedures to be followed are detailed in the International Civil Aviation Organisation Technical Instructions (ICAO TI) which are updated every two years and form the basis of legislation in most countries.

The International Air Transport Association (IATA) produces a working manual for their member airlines, which is called the IATA Dangerous Goods Regulations. This manual is updated every year and, in some cases, is more restrictive than the ICAO TI. Dangerous goods offered to IATA member airlines must be prepared and transported in accordance with the IATA Dangerous Goods Regulations.

Rules Governing the Transport of Dangerous Goods by Sea, IMDG Code

The rules governing the transport of dangerous goods by sea, the IMDG Code, are formulated by the IMO, which is a UN body based in London. The code is part of the Convention for the Safety of Life at Sea (SOLAS) and has been adopted as a national set of rules by the majority of countries affiliated to SOLAS.

The IMDG Code represents the basic standard for the safe shipment of packaged dangerous goods by sea, and covers classification, packaging, marking, labelling/placarding, securement, compatibility, stowage, limited quantities, documentation and container/vehicle packing certificates. It is regularly updated.

The rules are to be found in a series of four volumes and one supplement, designated the IMDG Code, which stands for "International Maritime Dangerous Goods Code". Amendments to the IMDG Code are issued every second year.

The European Agreement concerning the International Carriage of Dangerous Goods by Road, ADR

The ADR deals with international transport by road.

ADR is an agreement drawn up by the United Nations Economic Commission for Europe (UN-ECE) in Geneva, whereby most countries in Europe have agreed common rules for the movement of dangerous

goods by road across their frontiers and through their territories. The abbreviated name "ADR" comes from key words in the French title (Accord européen relatif au transport international des marchandises Dangereuses par Route). There are 34 contracting parties to the ADR-agreement

Rules for the International Transport of Dangerous Goods by Rail, RID

Rules governing the international transport by rail in 39 countries in Europe, Northern Africa and Asia are presented in the COTIF, the convention of international rail transport. Appendix B to COTIF, CIM-the international treaty on the transport of goods by rail, covers international cargo transport. RID (Règlement international concernant le transport des marchandises dangereuses par chemin de fer), covers special regulations for the transport of dangerous goods by rail. The content of RID has been essentially harmonised with the UN recommendations. The structure and the provisions of RID is similar to the annexes of the ADR.

Combi-transport is understood to mean transport of road vehicles by rail. The vehicles transported by rail may be applying the relevant provisions of the ADR only. The situation is an excellent example of harmonisation between two transport modes. Amendments to RID are issued every second year.

The Basel Convention on the Control of Transboundary Movements of Hazardous Waste and its Disposal

The Convention is the response of the international community to the problems caused by the annual world-wide production of 400 million tonnes of waste which is hazardous to people or the environment because it is toxic, explosive, corrosive, flammable, eco-toxic, or infectious. This global environmental treaty strictly regulates the transboundary movements of hazardous waste and provides obligations to its Parties to ensure that such waste is managed and disposed of in an environmentally sound manner. The main principles of the Basel Convention are:

- Transboundary movements of hazardous waste should be reduced to a minimum consistent with their environmentally sound management.
- Hazardous waste should be treated and disposed of as close as possible to its source of generation.
- Hazardous waste generation should be reduced and minimised at source.



In order to achieve these principles, the Convention aims to control the transboundary movement of hazardous wastes, monitor and prevent illegal traffic, provide assistance for the environmentally sound management of hazardous wastes, promote co-operation between Parties in this field, and develop Technical Guidelines for the management of hazardous waste.

Hazardous waste fulfilling the criteria for dangerous goods shall be transported in accordance with the dangerous goods regulations in addition to those regulations covering the transport of hazardous waste.

Other regional instruments

MERCOSUR countries (Argentina, Brazil, Paraguay and Uruguay) have concluded an agreement for the facilitation of transport of dangerous goods by road and rail which is based on the seventh edition of the UN Recommendations and on RID and ADR.

Development of regulations for international transport between the NAFTA countries (United States of America, Mexico and Canada) on the basis of the UN Model Regulations is under consideration.

CHAPTER 5

The UN Classification System for Dangerous Goods

Substances and articles are classified by type of risk involved. The classification criteria are set out in the UN recommendations as well as in all international regulations governing the transport of dangerous goods. There are nine main classes.

Class	Description
1	Explosives
2	Gases
3	Flammable liquids
4	Flammable solids; substances liable to spontaneous combustion; substances which, on contact with water, emit flammable gases
5	Oxidising substances and organic peroxides
6	Toxic and infectious substances
7	Radioactive material
8	Corrosive substances
9	Miscellaneous dangerous substances and articles

Note: Class 1, 2, 4, 5, 6 are further divided into divisions.

Identification

The UN Recommendations use two basic methods to describe a dangerous substance or article. These are the United Nations Substance Identification Number, (the UN-Number) and the Proper Shipping Name.

The UN-Number is a four-digit number, which is assigned to individual substances or to groups of

substances or articles exhibiting similar physical and hazard properties. To each UN-Number there is a corresponding name, the Proper Shipping Name, which must be used when describing the actual substance or article in the shipping documents.

Examples of UN numbers and Proper Shipping Names as they may appear on the shipping documents

UN No	Proper Shipping Name
1207	Hexaldehyde
1993	Flammable liquid N.O.S. (technical name)

Note: For UN 1993, the N.O.S. indicates that the Proper Shipping Name should be supplemented with the technical name of the substance.

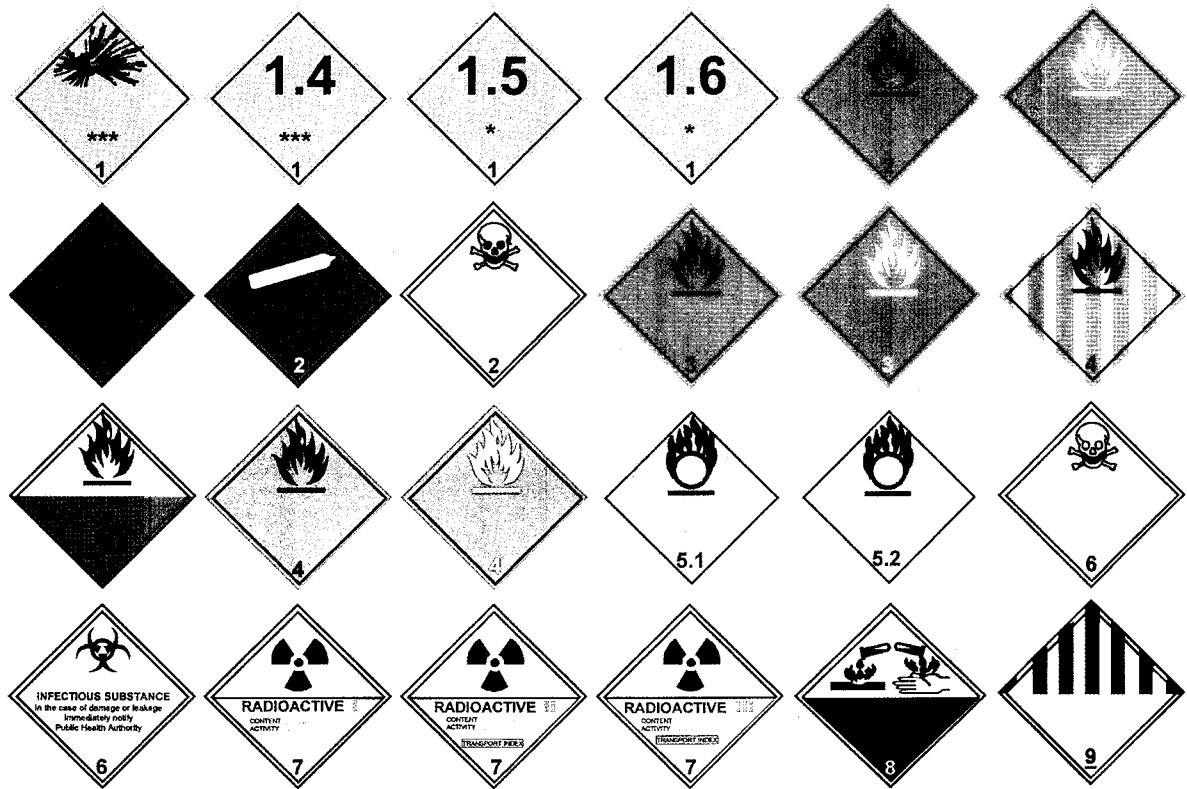
The UN Recommendations (the Orange Book) provide a list of the most common substances and articles each with a unique UN Number and Proper Shipping Name. However, it is impractical to list every possible article or substance that could be offered for transport therefore "generic entries" appear in the list which refer to generic groups and other substances "not otherwise specified" (N.O.S).

Labelling

The use of labels has several advantages, which include independence from language barriers and better visibility. With this in mind, the UN Committee has developed a set of labels corresponding to the different hazard classes. The symbols are printed on diamond-shaped labels to be affixed to packaging and transport units. The dimensions of the labels are prescribed for packages and for transport units. The latter labels are referred to as "placards".



UN HAZARD LABELS



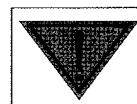
Examples of Additional Labelling

Other labels are used for different purposes such as warnings or instructions. Some examples of warning labels are:

Examples of instruction labels are:



Marine Pollutant, IMDG Code



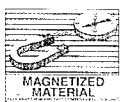
Careful shunting, RID regulations



Elevated Temperature Mark, all modes of transport except air



Cargo Aircraft Only



Magnetized Material, IATA regulation



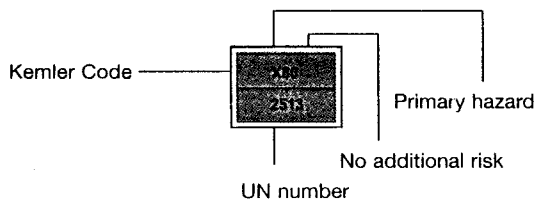
Package orientation label



Vehicle Plates

Tank transport units and vehicles carrying substances in bulk carry special placarding to provide additional information for the Emergency Services in the event of an accident. The following examples are currently in use depending upon the practice adopted by individual countries.

The Kemler Code

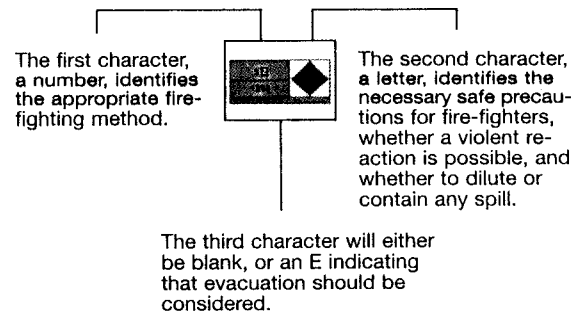


Doubling of a figure indicates an intensification of that particular risk. Where the hazard associated with a substance can be adequately indicated by a single figure, this is followed by zero. *If the letter "X" prefixes a hazard identification number, this indicates that the substance will react dangerously with water.*

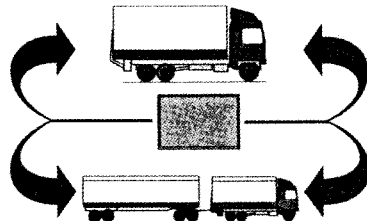
The Hazchem Code

The Hazchem Emergency Action Code, just like the Kemler Code, provides advisory information to the emergency services.

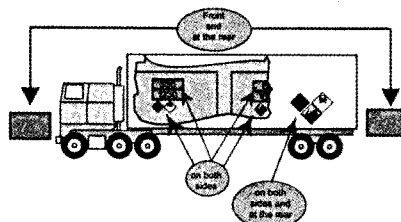
Example on a plate with Hazchem Code and UN number



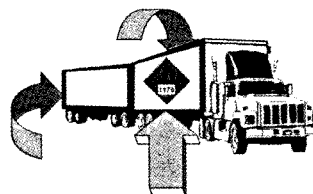
Examples of Marking / Placarding of Vehicles



Transport unit carrying packed dangerous goods bearing orange plates, ADR



Transport unit carrying tank containers, ADR



Transport unit carrying packed dangerous goods, IMDG Code

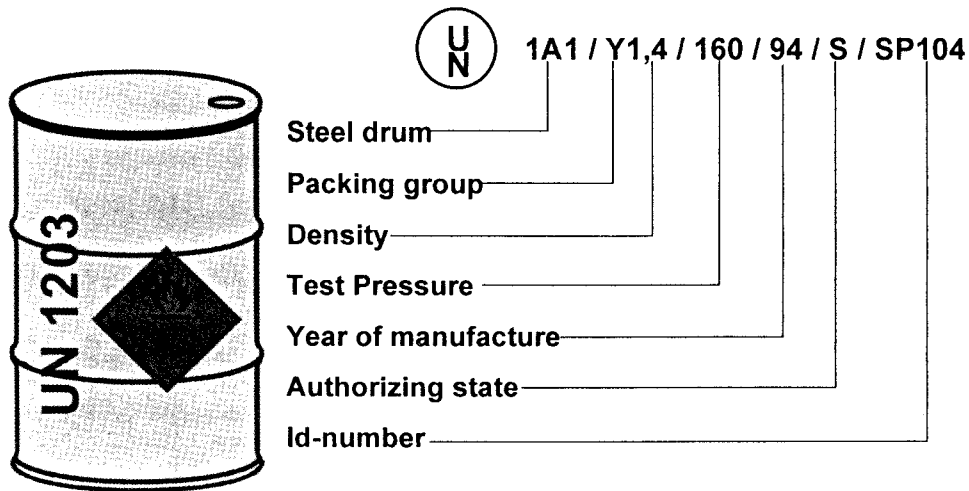
Packaging

During transport, packaging can be subject to stresses resulting from handling, climate and temperature changes. These factors underline the need for appropriate packaging for safe transport.

The UN Committee has developed a comprehensive system of testing, specifying packaging suitable for the transport of dangerous goods under normal transport conditions. The test methods are largely based on performance requirements.

Packaging conforming to a tested and approved design type is marked with "UN specification marking" allowing the consignor to choose the appropriate packaging for the product.

The marking below is an example of the UN-marking code for a steel drum approved for liquids from packing group II or III.



Substances are assigned to packing group I, II or III depending on their degree of hazard.

Segregation of Packages

Certain dangerous goods may react dangerously with each other and must be segregated during transport. Segregation tables or information is to be found in the appropriate regulations.

Securing of Packages

It is of utmost importance that the dangerous goods in the transport unit are properly stowed on a vehicle/container and secured by appropriate means to prevent them from being significantly displaced in relation to each other and to the walls of the vehicle/container.



CHAPTER 6

Documentation

The various regulations have specific requirements with regard to declarations and documentation. Freight forwarders need to be aware that it is the shipper's responsibility to provide details of dangerous goods in writing.

For goods travelling by sea, the requirement is met by the Dangerous Goods Shipping Note. For airfreight a Shipper's Declaration and under ADR/RID whilst there is no specific document requirement, the regulations impose particular text requirements.

Regulations further specify additional supporting information. One example for goods being delivered by road is the requirement for the driver's emergency instructions in writing.

All of the regulations require a declaration that the dangerous goods have been correctly classified, packed, marked and labelled and in the case of transport units a separate declaration known as a packing

certificate must be completed. These declarations have to be signed¹. The declaration on the Dangerous Goods Shipping Note is as follows: "I hereby declare that the contents of this consignment are fully and accurately described above using the correct Proper shipping name(s) and are classified, packed, marked and labelled/placarded, and are in all respects in proper condition for transport according to the applicable international and governmental regulations". Additional information may be required about mixed packing and Emergency Instructions. Note that the declaration starts with the word 'I'. Any person signing a false declaration is liable to prosecution. For this reason forwarders should not sign this document. For goods moving by airfreight the freight forwarder is forbidden by law to sign the declaration.

The packing certificate declaration on the Dangerous Goods Shipping Note states "Must be signed by the person responsible" which in the case of groupage transport unit for example may be the freight forwarder.

¹The signature by the consignor relating to "I hereby declare that the dangerous goods..." do not have to be applied for ADR transport from July 1, 2001. The decision was taken by WP.15 in May, 2000.