



# INTRODUCTION TO THE REGULATIONS FOR THE SAFE HANDLING AND TRANSPORT OF DANGEROUS GOODS (3<sup>rd</sup> Edition)



International Federation of  
Freight Forwarders Associations

*The global voice of freight logistics*

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## FIATA INTERNATIONAL FEDERATION OF FREIGHT FORWARDERS ASSOCIATIONS

FIATA is a nongovernmental, membership-based organisation representing freight forwarders in some 150 countries. FIATA is a reference source on international policies and regulations governing the freight forwarding and logistics industry. FIATA works at the international level to represent service providers who operate in trade logistics and supply chain management. Through its FIATA documents and forms, congress, training and publications, and engagement with relevant international organisations, it promotes trade facilitation and best practices among the freight forwarding community.

Founded in Vienna, Austria, in 1926, FIATA owes its name to its French acronym (*Fédération Internationale des Associations de Transitaires et Assimilés*) and is known as 'the global voice of freight logistics'. FIATA is headquartered in Geneva, Switzerland.

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For further information about the activities of the FIATA Advisory Body in Safety and Security or for any comments on this guide, please contact the FIATA Headquarters at [sustainability@fiata.org](mailto:sustainability@fiata.org)

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[DGM Dangerous Goods Management](#)

[TT Club](#)

[ICHCA International](#)

[DSLV Deutscher Speditions- und Logistikverband](#)

## GUIDE OF ABBREVIATIONS

49 CFR	Regulations governing the transport of dangerous goods in the USA
ADR	European Road Regulations
CAA	Civil Aviation Authority (UK)
CAO	Cargo Aircraft Only
Cat	Category for classifying infectious substances
Class	Dangerous Goods are divided into one of nine classes
DfT	Department for Transport (UK)
DGD	Shipper's Declaration for Dangerous Goods
DGR	Dangerous Goods Regulations
DGSA	Dangerous Goods Safety Adviser
Division	Sub-division of a class
DoT	Department of Transportation (USA)
EC	European Commission
ERG	Emergency Response Guide (USA)
EU	European Union
FAA	Federal Aviation Administration (USA)
G	Gross Mass or weight of package as prepared for transport
g	Gram
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICAO TI	ICAO Technical Instructions
ID	Identification Number
IMDG	International Maritime Dangerous Goods Code
IP	Inner packaging
ISO	International Organisation for Standards
Ka	Kilogram
L	Litre
LC	Lethal concentration
LD	Lethal dose
LTD QTY	Limited Quantity
N.O.S.	Not otherwise specified
Operator variations	Additional restrictions imposed by airlines
Overpack	Package used to contain several packages
PAX	Passenger Aircraft
PG	Packing Group
Pka Inst	Packing Instruction
Pkg	Packing
Pkge	Package
PI	Packing Instruction
PSN	Proper Shipping Name
Q value	Quantity of different dangerous goods
SDS	Safety data sheet
SP	Special provisions
Spec.	Specification
Specification packaging	Type of packaging approved by the UN
State variations	Additional restrictions imposed by governments
TI	Transport Index
ULD	Unit Load Device
UN	United Nations

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# 1. INTRODUCTION

What are Dangerous Goods in the context of the supply chain? Dangerous goods are articles and substances which, due to 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 could be classified as dangerous goods.

It is critical that freight forwarders, who might be faced with a myriad of cargo requiring transport by all modes and often multi-modal solutions, have a sound understanding of the requirements associated with transporting dangerous goods in order to mitigate risk and maintain safety levels.

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 constantly striving for improvement and development of both recommendations and regulations.

Although many countries have adopted international regulations based on the UN Recommendations, others have yet to do so, either due to complex regulatory systems or lack of awareness. It is also important for freight forwarders to establish their own effective system for the safe transport of dangerous goods within their organisation.

In order to appreciate the extent of their responsibilities, forwarders must be able to recognise dangerous goods. The freight forwarder's relationship with their 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. It should be noted that all international model regulations for the safe transport of dangerous goods incorporate such training as a provision.

These guidelines have been developed to assist forwarders to establish their own policy and to provide awareness and general information only. Indeed, this brochure supports the user, but does not replace legal regulations, which the user at their own responsibility, must keep themselves aware of. Freight forwarders should seek more technical assistance in order to ensure adequate training of their staff and compliance with the regulations.

## 2. TRAINING AND QUALIFICATIONS

The importance of training in the context of dangerous goods should not be underestimated. The following points emphasise its importance.

### 2.1 Dangerous Goods Policy

Every company that handles hazardous materials should formulate a clear policy outlining the rules and procedures for the receiving, handling, and transportation of dangerous goods. Communication of these policies to all staff should be a priority and form an integral part of any training initiative.

Given the complex nature of the supply chain and the involvement of many freight forwarding businesses, it is crucial that both booking clerks and warehouse operatives, who may physically handle the goods, have a strong understanding of the associated risks and the capability to identify dangerous goods shipments. It is advisable for the freight forwarding company to review its liability insurance policy in the context of dangerous goods shipments to ensure that its operations are not impacted by any restrictions.

#### The policy of Non-Acceptance

A blanket statement of not handling dangerous goods assumes that the shipper will declare them accurately, which may not always be the case. It is suspected that a large volume of dangerous goods enter the supply chain either misdeclared or undeclared, potentially due to shippers' ignorance of the regulations or a desire to reduce costs by disguising the goods and avoiding freight surcharges and proper packaging. Misdeclared and undeclared dangerous goods pose a heightened level of risk to all parties in the supply chain. Safe packaging, segregation, routing, and stowage as determined by the regulations become impossible when the nature of the goods being shipped is unknown.

To effectively implement a policy of non-acceptance, it is recommended that companies provide awareness training for their staff. Without this training, detecting misdeclared or undeclared dangerous goods in transit can be extremely challenging.

## Company Policy in Action

Before devising a company policy, it is essential to determine the company's role in the transport chain, including whether it involves only handling documentation or receiving, storing, and transporting the goods. A series of policy statements can be helpful, and the following are intended as guidelines for company policy. Individual companies may wish to add to this list, as it is only intended as a reference.

- The company will handle dangerous goods in compliance with the prevailing regulations governing the handling and transport of dangerous goods.
- The company aims to avoid personal injury and loss of human life.
- The company aims to avoid damage to the environment while handling and transporting dangerous goods.
- The company aims to avoid damage to property while handling and transporting dangerous goods.
- The company aims to limit financial loss and environmental consequences arising from accidents involving dangerous goods.
- The company aims to meet the demands of its customers and public authorities for handling dangerous goods in a safe, secure, and professional manner.
- The company will ensure that all applicable staff will receive appropriate training for the handling and transport of dangerous goods.
- The company resolves to maintain an up-to-date copy of the applicable modal regulations for the transport of dangerous goods and appoint a competent person who has been trained in their use.



## 2.2 Accreditations

### Transport quality system - road, rail, and inland navigation transport

The European standard, EN 12798<sup>1</sup>, has been developed in order to supplement the quality standards ISO 9001 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 1990s, the chemical industry recognised the importance of evaluating the safety, quality, and environmental impact of its logistic services. To address these concerns, the industry created the Safety and Quality Assessment for Sustainability Systems (SQAS<sup>2</sup>), which evaluates the quality and safety management systems of logistic service providers.

An independent body conducts the SQAS assessment, which is used by chemical companies to evaluate the performance of their service providers. However, the results of the assessment do not result in a certificate.

In 2005, a module was specifically developed for Freight Integrators. This resulted in the creation of the SQAS Transport Service 2006, which integrates the Road and Freight modules. This service is aimed at transport companies that use a combination of their own and subcontracted drivers and equipment, and offer complex intermodal and logistics services.

As of 2023, there are specific guidelines and questionnaires for various services, including transport, tank cleaning, warehouse, rail, and others.

The SQAS Transport Service module targets both asset-based transport companies, who primarily operate their own vehicles and drivers, and Logistics Service Providers who are direct partners of chemical companies but sub-contract their services to other companies.

These Logistics Service Providers may not have their own vehicles or drivers and typically include transport companies that primarily subcontract traction and drivers, freight

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1 CSN EN 12798 Transport Quality Management System – Road, Rail and Inland Navigation Transport (2007).

2 Safety and Quality Assessment for Sustainability (SQAs), available here: <https://www.sqas.org/>

forwarders, intermodal service providers, and logistics coordinators for fully integrated sub-contracted services. This module can also be used to assess inland Transfer Terminals.

## CDI-mpc Chemical Distribution Institute - Marine Packed Cargo scheme

CDI is an independent and non-profit making organisation financed by the chemical industry. The Institute has, through its technical committee, developed the Marine Packed Cargo (CDI-mpc) safety and quality inspection scheme governing the sea transport of dangerous goods. One of its modules addresses the freight forwarder as the logistics service provider to a chemical company. The purpose is to set common worldwide standards for safety and quality. Transport security has recently been added to the so-called module. FIATA, which became an associate member of CDI in 2003, has played a key role in developing the CDI-mpc audit questionnaire on freight forwarding.

CDI-mpc audits may be conducted by established quality assurance bodies or other independent inspectors, and are carried out in combination with the scheduled ISO 9000 quality audits in order to minimise the impact on normal business routines. Inspectors and auditors with the QA bodies wishing to participate in the scheme receive relevant training and are given formal CDI accreditation.

## 2.3 Training and Awareness

The regulations governing the handling and transportation of dangerous goods are highly intricate and require strict adherence. It is imperative to have a thorough understanding of these regulations and their practical applications to ensure that customers receive a professional and comprehensive service.

To achieve this, every company should have a clear policy in place that ensures all personnel involved in providing advice and information to customers regarding the shipping and transportation of goods receive adequate training. This includes sales representatives, office and warehouse staff, and even telephone operators, who must possess a basic level of understanding to handle customer inquiries effectively.

The policy statement should designate responsible parties within the company for implementing the dangerous goods policy and specify staff training requirements. The international carriage of dangerous goods in air (ICAO TI), road (ADR agreement), rail (RID agreement), and maritime

(IMO IMDG) modes of transport mandates training for all employees. The retention of training records is mandatory to prove that employees have received proper and relevant training.

## Training Plan

While training may be viewed as an additional expense, it is essential and can bring operational efficiencies to the company. It is recommended that a comprehensive training plan be developed, taking into account the varying training needs of different personnel. New employees should receive training appropriate to their roles during their onboarding process, and all office staff and cargo handlers must be included in the training program.

The UN recommendations identify the need for:

- general awareness training
- function specific training
- safety training
- security training

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

## Competency Based Training Assessment (CTBA) for air transport

The goal of CBTA is to produce a competent workforce by providing focused training. It does so by identifying key competencies and the level of proficiency to be achieved, determining the most effective way of achieving them and establishing valid and reliable assessment tools to evaluate their achievement. A competent workforce reduces costs resulting from poor performance or miscommunication of job expectations. An incompetent dangerous goods workforce could result in costs and delays in shipment. Even more critically, it could result in the introduction of safety risks. The employer or those acting on their behalf must find tailor-made solutions that are compliant with the applicable regulations to reach the level of competency required for each function identified.

Employers are required to ensure personnel are competent to perform any function for which they are responsible prior to performing them. Dangerous goods training is applicable to personnel who perform functions aimed at ensuring that dangerous goods

are transported in accordance with the Regulations. Personnel responsible for processing or accepting dangerous goods consignments must be competent to perform tasks aimed at verifying and validating that the dangerous goods being offered for transport comply with the applicable provisions of the Regulations and are in a suitable condition for air transport. They may work for freight forwarders, ground handling agents or operators. Personnel would need to have relevant knowledge to competently perform these tasks. The assignment and tasks allocated and performed by freight forwarders and for which training and assessment would be required are available in IATA<sup>3</sup> and ICAO<sup>4</sup> publications.

## Common national regulations in European countries

Member states of the EU cooperate to implement the various regulations and enforce their application; e.g. 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 (Directive 2008/68/EC on the inland transport of dangerous goods<sup>5</sup>). Member states shall bring into force laws, regulations, and administrative provisions necessary to comply with the Directive. The Directive relates to inland transport which includes road, rail, and inland waterway.

## Dangerous Goods Safety Adviser

With effect from 1<sup>st</sup> of January 2000 the EU introduced legislation to require companies that transport, load and unload dangerous goods being moved by road, rail or inland waterway to appoint a Dangerous Goods Safety Adviser (DGSA) (Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods).

Each enterprise that undertakes the activities that include the carriage, or the related packing, marking, documenting, loading, filling or unloading, of dangerous goods shall appoint one or more DGSA's for the carriage of dangerous goods. The nominated person(s) are responsible for helping to prevent the risks inherent in such activities with regard to persons, property and the environment. The main task of the DGSA is to facilitate the conduct of activities in accordance with the requirements applicable and in the safest possible way.

3 IATA (2023) Dangerous Goods Training Guidance, Edition 1, Competency-based Training and Assessment Approach.

4 ICAO (2021) Guidance on a Competency-based Approach to Dangerous Goods Training and Assessment, Doc 10147.

5 Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods (Text with EEA relevance), Document 02008L0068-20220701, available here: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0068-20220701>

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 their knowledge every fifth year.

The DGSA has the following duties in particular:

- Monitoring compliance with the requirements governing the carriage of dangerous goods.
- Advising their undertaking on the carriage of dangerous goods
- Preparing an annual report to the management of their undertaking or a local public authority, as appropriate, on the undertaking's activities in the carriage of dangerous goods

Such annual reports shall be preserved for five years and made available to the national authorities at their request. The adviser's duties also include monitoring:

- The procedures for compliance with the requirements governing the identification of dangerous goods being transported
- The undertaking's practice in taking account, when purchasing means of transport, of any special requirements
- The procedures for checking the equipment used in connection with the carriage, loading or unloading of dangerous goods
- The proper training of the undertaking's employees, including on the changes to the regulations, and the maintenance of records of such training
- The implementation of proper emergency procedures in the event of any accident or incident that may affect safety
- Investigating and, where appropriate, preparing reports on serious accidents, incidents or serious infringements recorded during the carriage, loading or unloading of dangerous goods
- The implementation of appropriate measures to avoid the recurrence of accidents, incidents or serious infringements
- The account taken of the legal prescriptions and special requirements in the choice and use of sub-contractors or third parties
- Verification that employees involved in the carriage, loading or unloading of dangerous goods have detailed operational procedures and instructions

- The introduction of measures to increase awareness of the risks inherent in the carriage, loading and unloading of dangerous goods
- The implementation of verification procedures to ensure the presence on board the means of transport of the documents and safety equipment which must accompany transport and the compliance of such documents and equipment with the regulations
- The implementation of verification procedures to ensure compliance with the requirements governing loading and unloading
- The existence of the security plan (when required)

Regarding the security plan, high consequence dangerous goods<sup>6</sup> are those which have the potential for misuse in a terrorist event and which may, as a result produce serious consequences, such as mass casualties, mass destruction or mass socio-economic disruption. All parties engaged in the transport of high consequence dangerous goods should adopt, implement and comply with a security plan that addresses:

- Responsibilities for security
- Records of transport of dangerous goods
- Review of current operations and assessment of security risks
- Measures and procedures for evaluating, reporting, dealing with and reducing security threats
- Procedures for evaluating, testing and updating security plans
- Measures to ensure the physical security and distribution of the transport information contained in the security plan

As a general rule, any company failing to appoint a DGSA is not authorised to transport or handle dangerous goods. Those countries who 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 for the management of the company to ensure compliance with applicable regulations and the improvement of safety.

<sup>6</sup> An example of the complete list of high consequence dangerous goods as defined in the ADR, chapter 1.10 can be found in table 1.10.3.1.2. Please note that this is only one example of one of the regulations. Other modes of transport shall have their own list.

**Note:** a DGSA does not always need to be employed by the company, the role could be performed by a third party provider. It would be prudent to undertake sufficient due diligence checks to ensure that the provider is qualified and capable of fulfilling the company's expectations.

# 3. ROLES OF THE VARIOUS STAKEHOLDERS

## 3.1 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 whom 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, property and the environment.

The freight forwarder may also act as carrier, consignor, shipper, 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, their relationship to the other parties, such as shippers or carriers, involved in the transport of dangerous goods, should be understood and their 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 they receive full written instructions from their client for all consignments containing dangerous goods. The person who signs the dangerous goods declaration is legally responsible for the full transport process, including the information it contains. Therefore, freight forwarders are strongly advised not to sign these declarations and are recommended to maintain accurate communication with counterparties throughout the supply chain.

Next sub-chapters provide a non-exhaustive guide to the responsibilities of a selection of counterparties in the supply chain. The IMO, ILO and UNECE [CTU Code](#) also sets out key general responsibilities for these counterparties in chapter 3.



### 3.2 Shipper's responsibility

The shipper (for example manufacturer, supplier, trader or exporter) is typically the principal of the freight forwarder. The shipper has the prime responsibility of ensuring that the goods are correctly classified, 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
- ❑ packaged appropriately according to hazard and mode of transport
- ❑ packed and stowed safely where applicable
- ❑ labelled, placarded and marked according to regulations where applicable

They must also :

- ❑ provide a dangerous goods declaration
- ❑ provide a container/vehicle packing certificate where applicable
- ❑ issue shippers' instructions to transport
- ❑ make available transport documents and relevant information
- ❑ train personnel to correctly handle dangerous goods

### 3.3 Forwarder's responsibility

The forwarder can only accept dangerous goods for transport if accompanied by relevant documentation. The safe and secure transport, handling and, if required, warehousing of the goods must then be arranged in compliance with the applicable regulations. The forwarder's personnel must receive training commensurate with their duties in the company.

**Note:** When a forwarder acts as a shipper or a carrier, they must take into consideration their responsibilities and act accordingly.

### 3.4 Carrier's responsibility

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

- ❑ transported only if the goods comply with the regulations
- ❑ correctly loaded with relevant stowage, securing and segregation provisions applied
- ❑ accompanied by relevant transport documents
- ❑ correctly marked, labelled and placarded where applicable

They must also:

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

### 3.5 Responsibilities - ADR

The **Packer** is in particular responsible to comply with:

- ❑ The requirements concerning packing conditions, or mixed packing conditions
- ❑ When preparing packages for carriage, the requirements concerning marking and labelling those packages.

The **Consignor** is required to hand over for carriage only consignments which conform to the requirements and regulations of each mode of transport. In particular and with respect to those dangerous goods shipped the consignor must:

- ❑ Ascertain that the dangerous goods are classified and authorised for carriage in accordance with relevant regulations
- ❑ Use only packaging approved for and suited to the carriage of the substances concerned and bearing the markings prescribed by each regulation
- ❑ Furnish the carrier with information and data and, if necessary, the required transport documents and accompanying documents

If the Consignor uses the services of other participants (Packer, Loader, Consigner, etc.), they must take appropriate measures to ensure that the consignments meet the requirements of the appropriate regulations. In some instances, the Consignor may rely on the information and data made available by other participants. If the Consignor acts on behalf of a third party, the latter must inform the Consignor in writing what dangerous goods are involved and make available all information and documents needed to perform the Consignor's obligations.

The **Loader** is defined as any enterprise that loads dangerous goods into a vehicle. The responsibilities of this counterparty include:

- ❑ Only handing over the dangerous goods to the carrier if they are authorised for carriage in accordance with the relevant regulations
- ❑ Checking the packaging being handed over is undamaged and must NOT hand over any packages that are damaged, leaking or would possibly leak
- ❑ Complying with the special requirements concerning loading and handling for the product and means of transport when loading the vehicle or container
- ❑ Ensuring after loading dangerous goods into a container, compliance with the requirements concerning placarding, marking and where applicable orange-coloured plates
- ❑ Complying with the prohibitions on mixed loading, i.e. taking into account dangerous goods already in the vehicle or container and the requirements concerning separation of foodstuffs or other articles of consumption or animal foodstuffs

**Note:** The loader may rely on information and data made available by a third party.

The **Carrier** is defined as the undertaking/person that carries out the transport operation with or without a transport contract. The responsibilities of this counterparty are aimed at ensuring that all information and goods offered by the Consignor is correct and should confirm (by referring to supplied documentation and visual inspections of vehicle and load) the following before accepting the consignment:

- ❑ That all information prescribed in ADR related to the dangerous goods to be carried has been provided by the consignor before carriage and that the documentation is correct and on-board the transport unit

- ❑ Ascertain that the dangerous goods to be carried are authorised for carriage in accordance with ADR
- ❑ Visually check that the vehicles and loads have no obvious defects, leakages or cracks
- ❑ Ascertain that the equipment prescribed in ADR for the transport unit, vehicle crew and certain classes is on board the transport unit
- ❑ Check weights to ensure overloading of the vehicle is prevented
- ❑ Ensure that correct placards, labels and markings appropriate to the load are applied to the vehicle

The **Filler** is defined as any Enterprise that loads dangerous goods into tanks (any type & Multi element gas container, MEGC) or vehicle/large or small container for carriage in bulk. The Filler must:

- ❑ Ensure that tanks and equipment are in a technically satisfactory condition before filling them.
- ❑ Check that the tank's date of test has not expired before filling it
- ❑ Only fill tanks with the Dangerous Goods that are authorised for those tanks
- ❑ Only fill to the prescribed level/volume for the product authorised for that tank
- ❑ Ensure compatibility with adjoining tanks
- ❑ Check leak proofness of the closure(s) after filling any tank
- ❑ Ensure no residue is left externally on the tanks
- ❑ Ensure that the placards, labels, marks and orange-coloured plates required for the products carried are affixed

# 4. CLASSIFICATION / IDENTIFICATION

## 4.1 Classification

Dangerous goods are articles or substances which can pose a hazard to health, safety, property or the environment. In order to determine if a substance or article is considered dangerous goods we have to be able to classify it appropriately.

Classification refers to the determination of whether a substance/article is considered dangerous, and what the hazards associated with its transport are.

Classification must be made by the appropriate national authority when so required. Otherwise, it may be made by the shipper.

Classifying and identifying that a substance or article is dangerous is a fundamental part of the UN System. Until this has been achieved, no other actions by the consignor or the carrier can take place. Classification followed by identifying the substance by a name and number leads to all the other procedures.

Substances and articles are classified by type of hazard 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.

*\*Please note that in case of mixtures or solutions, the classification may involve additional complexities.*

## Classes<sup>7</sup>

The DGR distinguishes the following nine hazard classes. Some of them are subdivided in divisions.

### **Class 1: Explosives**

- o Division 1.1: Articles and substances having a mass explosion hazard
- o Division 1.2: Articles and substances having a projection hazard but not a mass explosion hazard
- o Division 1.3: Articles and substances having a fire hazard, a minor blast hazard and/or a minor projection hazard but not a mass explosion hazard
- o Division 1.4: Articles and substances presenting no significant hazard
- o Division 1.5: Very insensitive substances having a mass explosion hazard
- o Division 1.6: Extremely insensitive articles which do not have a mass explosion hazard

### **Class 2: Gases**

- o Division 2.1: Flammable gas
- o Division 2.2: Non-flammable, non-toxic gas
- o Division 2.3: Toxic gas

### **Class 3: Flammable liquids**

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

- o Division 4.1: Flammable solids, self-reactive substances, polymerising substances, and solid desensitised explosives
- o Division 4.2: Substances liable to spontaneous combustion
- o Division 4.3: Substances which, in contact with water, emit flammable gases

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7 The numerical order of the classes is not that of the degree of danger.

**Class 5: Oxidising substances and organic peroxides**

- o Division 5.1: Oxidiser
- o Division 5.2: Organic peroxides

**Class 6: Toxic and infectious substances**

- o Division 6.1: Toxic substances
- o Division 6.2: Infectious substances

**Class 7: Radioactive material****Class 8: Corrosives**

**Class 9: Miscellaneous dangerous goods and articles**, including environmentally hazardous substances and lithium batteries (amongst others).

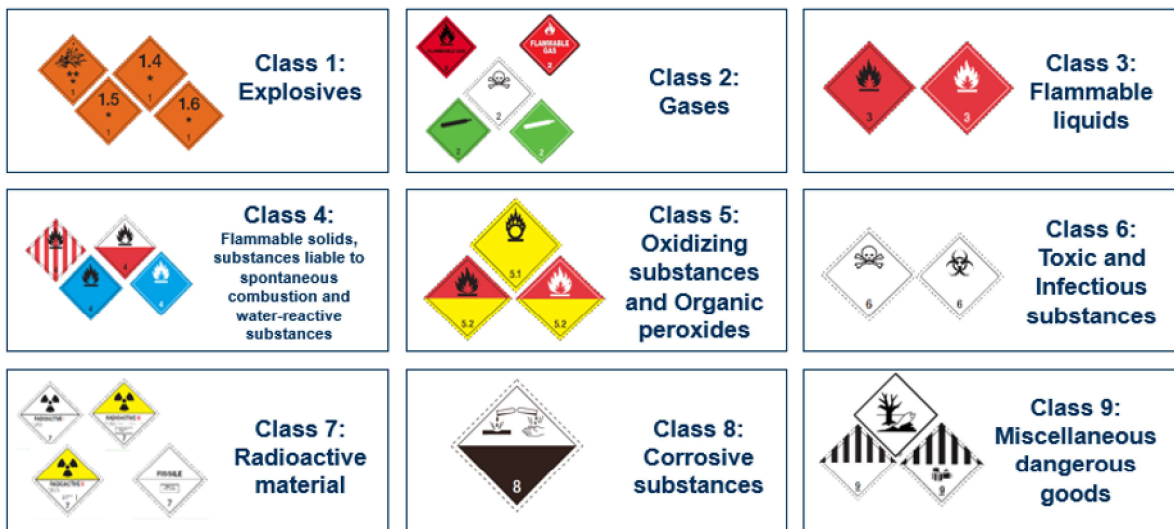
It is important to keep in mind that each regulation can have diverse nomenclature, although the classification criteria are the same. For example, in IMO IMDG Code and ADR, *Divisions 2.1, 2.2, 2.3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1 and 6.2* are considered Classes on their own rather than "Divisions".

**Note:** For the classification and identification result, the Safety Data Sheet (SDS) information should be checked. All SDS include 16 sections; in section 14, the key information for transport (including UN number and proper shipping name, if applicable) can be found, although the process itself is made using the United Nations manual of tests and criteria. However, this will not be applicable for equipment, vehicles and many other dangerous goods as they do not have SDS.

The SDS is the responsibility of the manufacturer and/or the importer of the goods and should be made available upon request to anyone involved in the handling/use/shipping of chemical substances.

SDS can be used as a source of information about hazards, composition/information on ingredients, and to obtain advice on safety precautions, chemical properties, first aid hazards, etc.

Each hazard class or division is associated with a hazard label that is used to identify the hazards posed by the dangerous goods inside a package. Labelling is further explained in [chapter 7](#).



A substance may contain technical impurities (for example those deriving from the production process) or additives for stability or other purposes that do not affect their classification. However, if these impurities or additives affect its classification, the substance shall be considered a solution or mixture, even if it is listed by name in the List of Dangerous Goods.

Packing Groups refer to the degree of danger within the class. They are written using Roman numerals and their meaning is:

PACKING GROUP	DEGREE OF DANGER
I	High danger
II	Medium danger
III	Low danger



Packing groups are used as a reference of the performance tests that packaging must pass in order to safely contain dangerous goods. Thus, the performance tests for packing group I are more demanding than the ones for the packing group II or III. Not all substances are assigned to packing groups (only those from certain classes).

In order to fully understand all classification provisions, the concepts of UN number and Proper Shipping Name (which properly belong to identification) must be known.

## 4.2 Identification

Identification refers to the assignment of a classified substance to a certain entry in the List of Dangerous Goods (and therefore, of a UN number, a proper shipping name, a packing group, etc.). The List of Dangerous Goods contains a relation of all possible dangerous goods (single and collective entries) that can be transported. Each column contains relevant information to every entry.

This list contains all the relevant information on the dangerous goods, such as UN number, proper shipping name, class, packing group, labels to be affixed, packing and carriage provisions, etc.

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 (PSN).

### The UN-number

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.

UN Number	Proper Shipping Name (PSN)
1207	Hexaldehyde
1993	Flammable liquid N.O.S. (technical name)

The UN Recommendations (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).

Where an article or substance is specifically listed by name, it shall be identified in transport by the proper shipping name in the List of Dangerous Goods.

### Proper shipping name

The proper shipping name contains the name of the substance or article, or of the generic n.o.s. entry. A qualifying descriptive text may follow, which is not part of the PSN but clarifies the scope of the entry. A substance not listed by name must be classified under a collective entry (“generic” or “not otherwise specified”).

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

#### **Single entries for well-defined substances or articles:**

UN 1090 ACETONE

UN 1104 AMYL ACETATES

#### **Generic entries for a well-defined group for substances or articles:**

UN 1133 ADHESIVE SUN

UN 1266 PERFUMERY PRODUCTS

#### **Specific n.o.s. (“not otherwise specified”) entries covering a group of substances or articles of a particular chemical or technical nature:**

UN 1477 NITRATES, INORGANIC, N.O.S.

UN 1987 ALCOHOLS, N.O.S.

**Generic n.o.s. entries covering a group of substances or articles having one or more dangerous properties:**

UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S.

UN 1993 FLAMMABLE LIQUID, N.O.S.

**Example of official designation of dangerous goods in the transport documentation:**

UN 1230, Methanol, 3 (6.1), II

UN Number: 1230, Proper shipping name: Methanol, Hazard class: 3 (6.1), Packing group: II. ((D/E) for road transportation under ADR)

**Note:** If the transport is made by road (ADR), the tunnel code (column 15) should be checked.

To perform identification (and acceptance) of the goods we will use the dangerous goods list (from the applicable regulation of that shipment).

In addition to these columns (UN number and Proper Shipping name), there are many more columns providing key information, depending the regulation we are using (road, sea, air rail, etc.). Such columns are described hereafter.

### Class or Division (Subsidiary hazard)

Contains the hazard class or division (and, in the case of class 1, the compatibility group) assigned in accordance with the classification system. Subsidiary hazards, if they have been identified, are shown in parenthesis, following the primary hazard, in numerical order. For example:

1463	Chromium trioxide, anhydrous	5.1 (6.1, 8)
------	------------------------------	-----------------

Chromium trioxide, anhydrous belongs to Division 5.1 (oxidiser). It has two subsidiary hazards: toxic and corrosive.

## Labels

Contains the name of the labels that must be applied on the outside of each package and overpack. The primary hazard label is listed first, followed by any subsidiary hazard labels. Handling labels (“Cryogenic liquids”, “Keep away from heat”, “Magnetised material” and others) are also shown here.

## Packing group

Contains the packing group number (I, II or III) assigned to the dangerous substance. If a certain entry can be assigned to more than one packing group, it will appear in more than one line in the table.

## Excepted Quantity (EQ) code

Provides an alphanumeric code that translates to the maximum net quantity per inner packaging and per outer packaging when dangerous goods are transported as excepted quantity. When transport as excepted quantity is not allowed, the code “EO” is shown.

## Limited Quantity – Packing Instructions (air transport)

Refers to the relevant Limited Quantity Packing Instruction. Packing instructions applied when dangerous goods are transported as limited quantity begin with the letter Y. If the word “Forbidden” is shown, the article or substance cannot be carried under Limited Quantity provisions.

## Limited Quantity – Maximum net quantity per package (air transport)

Shows the maximum net quantity (weight or volume) of the article or substance allowed in each package for transport under limited quantity provisions. The letter G after a weight indicates that the amount refers to gross weight instead of net weight.

**Note:** For road, rail and sea transport the concept of limited quantities is also applicable but the way to provide the information may differ.

## Packing Instructions

Refers to the relevant packing instruction for transport of the article or substance in the different modes of transport.

## Maximum net quantity per package (air transport)

Shows the maximum net quantity (weight or volume) of the article or substance allowed in each package for transport.

**Note:** In IMO IMDG and ADR this information is provided in the packing instruction itself

## Special Provisions

Contains the alphanumeric code to the applicable special provisions (additional requirements that must be met). The meaning of each special provision is listed in the appropriated subsection of the regulations. Most of them are shared between different modes of transportation.

Example: Special provision 47 from the IMO IMDG code "Ferricyanides and ferrocyanides are not subject to the provisions of this code"

Other codes such as emergency responses can differ in the different regulations.

## 5. PACKAGING

In general, dangerous goods can be transported using different containment systems such as:

**A package** refers to the complete product of the packing operation, consisting of the packaging, large packaging or IBC and its contents prepared for transport.

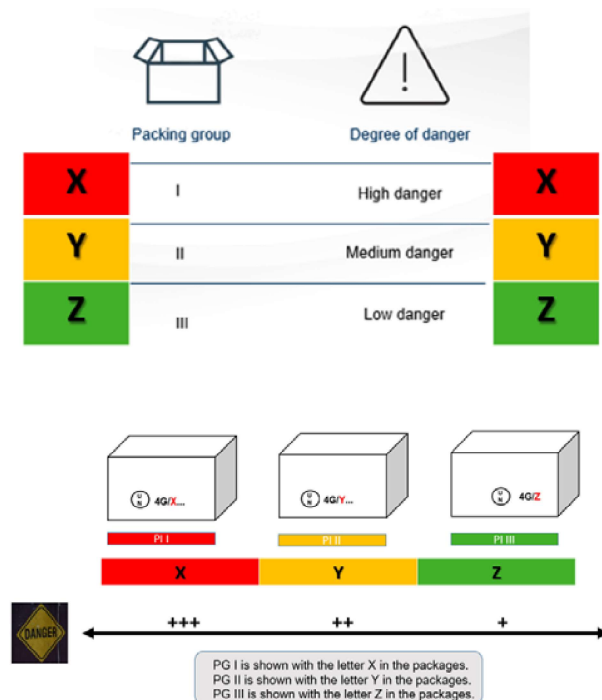
**A tank** is a shell, including its service and structural equipment. It refers to a portable tank (including a tank-container), a road tank-vehicle, a rail tank-wagon, or a receptacle to contain solids, liquids or liquefied gases, with a capacity of not less than 450 litres.

**A bulk container** is a containment system intended for the transport of solid substances, which are in direct contact with the containment system.

**Note:** For air transport, only packages are allowed.

Packing Groups refer to the degree of danger within the class. For packing purposes, substances other than those of classes 1, 2, 5.2, 6.2 and 7, and other than self-reactive substances of Class 4.1 are assigned to packing groups in accordance with the degree of danger they present. The packaging groups in the classification of dangerous goods correspond to the degree of demand in the processes of approval of packaging, IBC, and large packages, as well as the correspondence between the letters X, Y, Z with the packing groups.

\*Not all substances are assigned to packing groups (only those from certain classes).



## Codes for designating types of packaging

Every packaging is identified by an alphanumeric code, consisting of a number indicating the kind of packaging; and a letter indicating the nature of the material.

1	Drum	A	Steel (all types and surface treatments)
2	(Reserved)	B	Aluminium
3	Jerrican	C	Natural wood
4	Box	D	Plywood
5	Bag	F	Reconstituted wood
6	Composite packaging	G	Fibreboard
		H	Plastic material
		L	Textile
		M	Paper, multiwall
		N	Metal (other than steel or aluminium)
		P	Glass, porcelain or stoneware ( <i>not used in the IATA DGR</i> )

\*Some packaging could have additional marks like V, T or W, and they are related to special packages.

If necessary, a second number indicates the category within that kind of packaging (for example, non-removable/removable head). In the case of composite packaging, two letters are used: the first indicates the material of the inner receptacle and the second, the material of the outer packaging. In the case of combination packaging, the code number refers to the outer packaging only. The categorisation of packaging (for example, drums and jerricans) within a constructive type, depends on the diameter of the closures (less than or equal to 7 cm or greater than 7 cm to typify the fixed or removable lid).

## Packaging specifications and performance tests

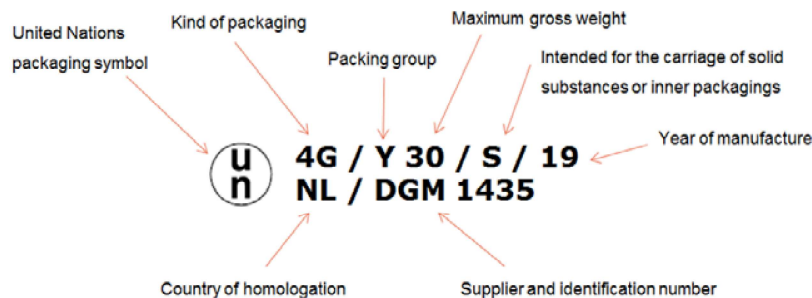
During transport, packaging can be subject to stresses resulting from handling, movement during conveyance, climate, and temperature changes. These factors underline the need for appropriate packaging to ensure safe transport. Except where otherwise specified in the relevant regulations, UN specification packaging must be used to contain packaged dangerous goods.

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

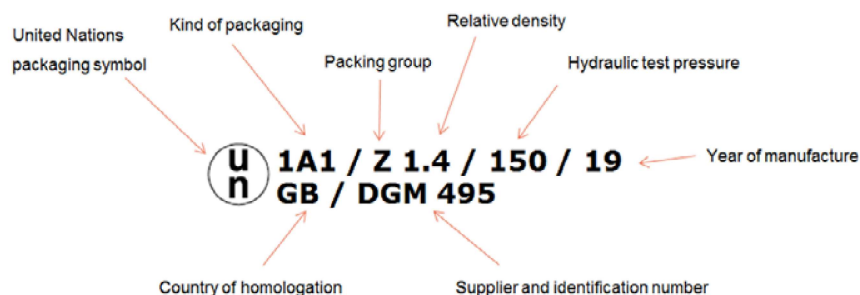
Most packaging intended for the use of dangerous goods' carriage needs to be tested and approved for quality, based on the United Nations performance tests. These tests prove that no loss of material will be produced under normal transport conditions. The conditions of each test depends on the packing group that the package is being tested for (the requirements for packing group I are the strictest).

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. Each packaging successfully passing the UN performance tests shall bear a specification mark.

## Packaging intended for the transport of solids or inner packaging



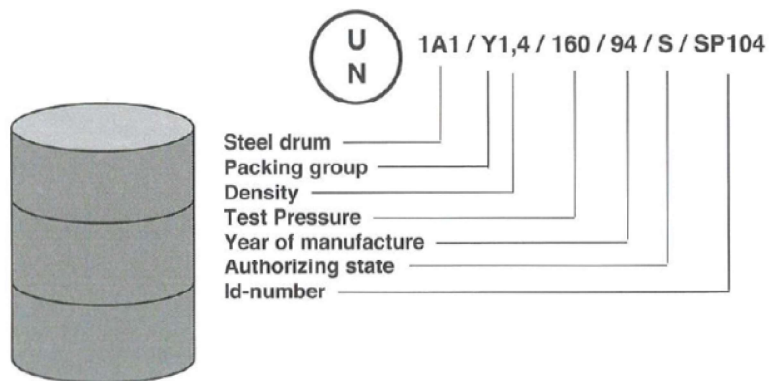
## Packaging intended for the transport of liquids





## Example of a UN-approved steel drum for liquids

\*The marking can be placed anywhere on the packaging including the underside.



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

## Different amounts of dangerous goods per package

Sometimes the amount of dangerous goods in the package is under a limit (mentioned in the regulation for the different UN numbers) so they do not need to comply with the full regulations. Some examples of these are:

- Limited Quantities, regulated in all modes of transport
- Excepted quantities, regulated in all modes of transport
- Consumer commodities, regulated in air transport

Packages containing “Limited Quantities” or “Excepted Quantities” of dangerous goods must be marked according to the relevant modal regulations. Hazard labels are not required for carriage by road or sea but are required for carriage by air.

# 6. PACKING / SEGREGATION

## 6.1 Packing

The process of wrapping, packaging, or using other types of security around objects or substances is known as packing.

Dangerous goods must be packed in good quality packaging, strong enough to withstand the shocks and loading normally encountered during transport. When prepared for transports, they must be constructed and closed in a way that prevents any loss of contents, including vibrations and changes in conditions of temperature, humidity, or pressure. No dangerous residue shall adhere to their outside.

The parts of packaging which are in direct contact with dangerous goods must not be affected or weakened by such dangerous goods, nor cause a dangerous effect (e.g., a violent chemical reaction) and must not allow permeation of the dangerous goods that are contained. If necessary, they shall be provided with a suitable inner coating or treatment. Likewise, cushioning, and absorbent material, if used, shall be inert and suited to the nature of the contents.

The use of supplementary packaging within an outer packaging (for example, an intermediate packaging) additional to what is required by the packing instruction, is authorised provided all relevant requirements are met.

Packaging used for solids which may become liquid at temperatures likely to be encountered during air transport must also be capable of containing that substance in the liquid state.

Empty packaging that has contained dangerous goods must be treated in the same manner as is required for a package filled with that substance, unless adequate measures have been taken to nullify any hazard.

Packing is essential for the safe transport of dangerous goods by any mode of transport. The shipper is responsible for:

- Complying with the packing requirements
- Using only the packaging permitted by the packing instructions
- Restricting the quantity per package to the limits in the Packing Instruction
- Assembling and securing all components of the packaging

## 6.2 Segregation

Packages containing dangerous goods which might react dangerously with each other must be segregated during transport, acceptance, and handling. They must not be stored or stowed next to each other or in a position that would allow interaction between them in the event of leakage. Segregation tables or information is to be found in the appropriate regulations. For example, IMO IMDG regulation includes much more detailed requirements for segregations than other regulations.

### Loading of packages

When loading dangerous goods, the operator must protect them from being damaged. The dangerous goods must be secured in the transport unit in a way that will prevent any movement. If any labels have become lost, detached, or illegible after the acceptance, the operator must replace them in accordance with the information provided in the 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.

### Inspection

Packages or overpacks containing dangerous goods must be inspected for signs of damage or leakage upon unloading. If evidence of damage or leakage is found, the position where they were stowed must be inspected for damage or contamination. Any hazardous contamination must be removed.

If it is evident that a package is damaged or leaking, or if it is suspected that the package may have leaked or been damaged, access to the package should be restricted. Local safety and emergency procedures should then be followed. When necessary, additional steps for the protection of persons, property, and the environment should be taken in accordance with the competent authority to overcome and minimise the consequences of such leakage or damage.

# 7. LABELLING, MARKING AND PLACARDING

It is important to distinguish between marking, labelling, and placarding. Marking is the application of marks that identify the UN Number or the use of a particular package, tank or vehicle and its design or specifications. Labelling is the application of the diamond shaped hazard labels, which indicate the dangers of the package. Placarding is the application of the larger diamond-shaped hazard placard labels, usually for vehicles or Cargo Transport Units.

The shipper is responsible for all necessary marking and labelling of each package of dangerous goods, and each overpack containing dangerous goods, in compliance with the DGR. Any irrelevant marks or labels must be removed once they do not relate to the contents of the package.

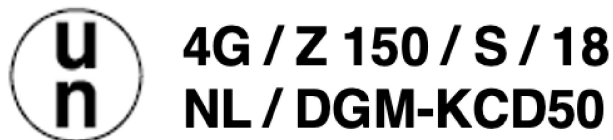
## 7.1 Marking

All packages' markings shall be readily visible and legible, and able to withstand open weather exposure without a substantial reduction in effectiveness. Examples of markings are:

- **Proper Shipping Name:** as provided in the List of Dangerous Goods, supplemented with the technical or chemical name as appropriate. In the case of explosives (class 1), a commercial or military name may be added.
- **UN or ID number:** preceded by the letters "UN" or "ID". Please make sure the size is compliant.
- **Full name and address of the shipper and consignee:** on the same surface of the package near the proper shipping name mark if the package dimensions are adequate.
- **Net quantity of dangerous goods contained in each package:** next to the UN number and PSN. Units of measure must be specified, and if it's a gross weight, the letter "G" must be added. This requirement does not apply to some consignments (please check regulations to see exceptions).

The following marks will be noticeable depending on the type of package, properties of the dangerous goods transported and mode of transportation:

- **Packaging specification mark:** if the packaging has passed the UN specification performance tests, it must bear the UN homologation code, preceded by the letters UN inside a circle.



- **Environmentally hazardous substances:** if the package contains environmentally hazardous substances or mixtures meeting the criteria (Example: UN 3077 and UN 3082), it must be durably marked with the dead fish and tree mark.



If the size of the package requires so, the dimensions may be reduced, as long as the mark remains clearly visible. Please read special provisions as well.

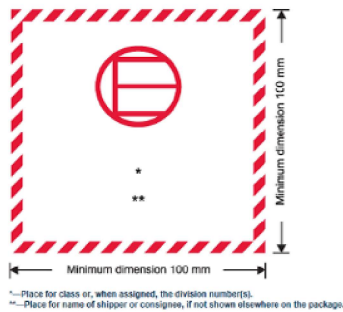
- **Limited Quantities mark:** a diamond with black sections at the top and the bottom, with the symbol "Y" in the centre if it involves air transport.



For packages prepared according to other regulations (road, sea, rail), the limited quantities mark does not have the “Y” symbol. This mark is acceptable in air transport provided the dangerous goods and their packaging are in full compliance with those other regulations.

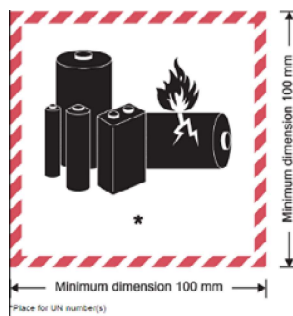


- **Excepted Quantities mark**



- **Lithium batteries mark:** packages containing lithium cells or batteries prepared in accordance with
  - o Section II of Packing Instructions 966, 967, 969 and 970.
  - o Section IB of Packing Instructions 965 and 968

must bear the following mark:



- **Overpack mark:** the lettering must be at least 12 mm high.



- **Package orientation:** when orientation arrows (see Labelling) are required, the words "THIS END UP" or "THIS SIDE UP" may be optionally marked on the top of the package or overpack.
- **Salvage mark:** salvage packaging must be marked with the word "SALVAGE".
- **Additional handling and storage marks:** indicating other precautions to be taken. For example, a symbol representing an umbrella indicates that a package should be kept dry. It is preferable to use the symbols recommended by the International Organization for Standardization (ISO).



Example of finished package with marks and label:



**Note:** marking such as the shipper, consignee and weight are applicable for air transport but not for other regulations.



## 7.2 Labelling

The use of labels has several advantages, which include independence from language barriers and providing better visibility. With this in mind, the UN Committee has developed a set of labels corresponding to the different hazard classes. The symbols are to be printed on diamond-shaped labels to be affixed to packaging.

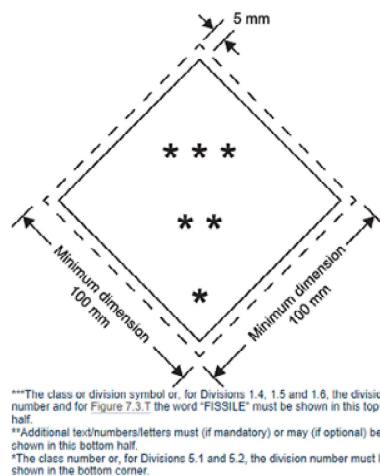
The labelling provisions in the regulations are primarily related to the hazard labels. However, additional labels which directly relate to the precautions to be taken in handling or storing a package may be displayed on a package if appropriate.

All labels must be:

- ❑ Sufficiently durable to withstand normal transport conditions, including open weather exposure
- ❑ Affixed or printed on the packaging so that they are readily visible and legible, and not covered or obscured
- ❑ Affixed or printed to the same surface of the package if its dimensions allow it
- ❑ Displayed next to each other when more than one label is required
- ❑ Adjacent to the shipper's or consignee's address, near the Proper Shipping Name mark

### Hazard labels

All hazard labels must conform to the following template:





Some labels need to be complemented with additional information:

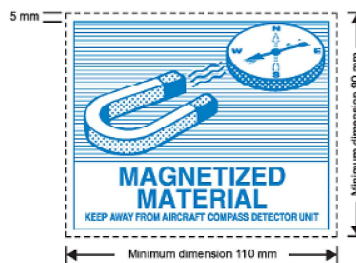
- **Class 1**
  - Division and/or compatibility group
- **Class 7**
  - Category I - White: contents (symbol of the radionuclides) and activity
  - Category II – Yellow: contents, activity, and transport index
  - Category III – Yellow: contents, activity, and transport index
  - Fissile material: criticality safety index

The transport index must be rounded up to one decimal place.

## Handling labels

In addition to hazard labels, handling labels must be used as appropriate:

- **Magnetised material (for air transport):** that is, with relatively high magnetic field strength. They may affect the aircraft instruments, particularly the compasses.



- **Cargo Aircraft Only (for air transport):** used on packages that are permitted only on cargo aircraft, as stated on Columns K and L of the List of Dangerous Goods.

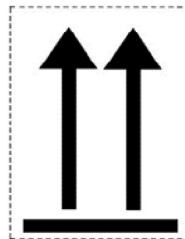
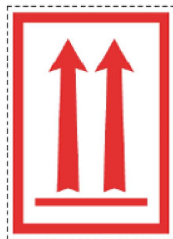


This label must not be used when the packing instruction number and the permitted quantity per package are identical for passenger and cargo aircraft. This label must not be used when the packing instruction number and the permitted quantity per package are identical for passenger and cargo aircraft.

- **Cryogenic liquids:** on packages and overpacks containing cryogenic liquids, that is, low temperature liquefied gases (such as air, argon, helium, neon or nitrogen).



- **Package orientation:** two black or red arrows on white or suitable contrasting background, on two opposite vertical sides pointing in the correct upright direction. Used for combination packaging or overpacks containing liquid dangerous goods.



However, orientation arrows are NOT required on outer packaging of combination packaging containing the following:

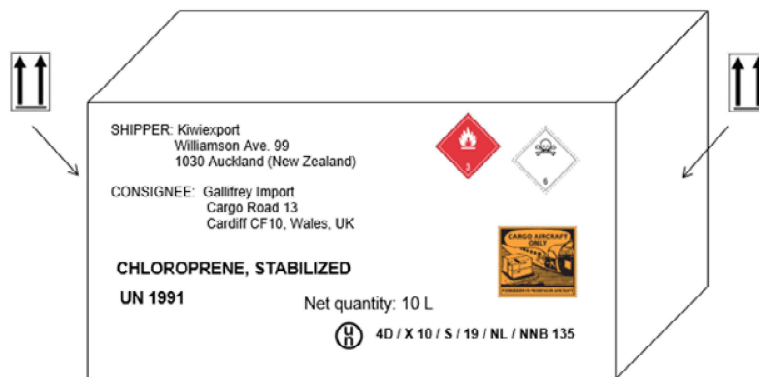
- o Dangerous goods in inner packaging, each containing no more than 120 mL, with sufficient absorbent material
- o Dangerous goods in gas-tight inner packaging such as tubes, bags or vials which are opened by breaking or puncturing, each containing no more than 500 mL
- o Infectious substances (Division 6.2) in primary receptacles, each containing no more than 50 mL
- o Radioactive material
- **Keep Away from Heat:** on packages and overpacks containing self-reactive substances (Division 4.1) and organic peroxides (Division 5.2).



- **Radioactive Material, Excepted Package:** for all excepted packages of radioactive material (other than UN 3507).



**Example of marking and labelling (for air transport):** Combination packaging with ten inner packaging (net quantity of each inner packaging: 1 L) containing UN 1991. It is part of a consignment with other dangerous goods



### Marks

- Proper Shipping Name
- UN number
- Net quantity
- Shipper's and consignee's name and address
- UN packaging specification

### Labels:

- Class 3 (flammable liquid)
- Division 6.1 (toxic), subsidiary hazard
- Cargo Aircraft Only
- Package orientation (arrows), on two opposing sides

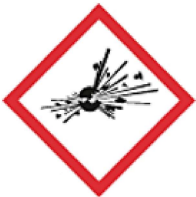



## Global Harmonised System (GHS) pictograms





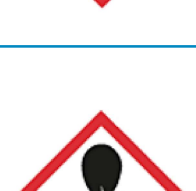
The following hazard symbols are the standard symbols which should be used in the GHS. With the exception of the new symbol which will be used for certain health hazards and the exclamation mark, they are part of the standard symbol set used in the UN Model Regulations.

These are not considered part of the marking and labelling explained in the DG transport regulations.

The target of the GHS is not only comprised of national authorities; the guidance it provides can be useful as well for those in the industry of chemical products, and the transportation of dangerous goods in general.

In order to achieve its objective of a harmonised communication of hazards in chemical products, the GHS has developed a series of standard pictograms and phrases. These pictograms will be easily understandable in every country, by people of different ages or educational backgrounds, thus overcoming the language barrier. The pictograms can be retrieved in the SDS and are further clarified in the following table:

PICTOGRAM	PICTOGRAM NAME	MAY APPEAR ON
	Explosive	Explosives Self-reactive substances and mixtures Organic peroxides
	Gases under pressure	Gases under pressure
	Flammable	Gases, aerosols, liquids, solids Self-reactive substances and mixtures Pyrophoric liquids and solids Self-heating substances and mixtures Substances and mixtures which, in contact with water, emit flammable gases
	Oxidiser Organic peroxides	Oxidising gases, liquids, and solids Organic peroxides

	Toxic	Acute Toxicity Skin Oral Inhalation
	Corrosive	Corrosive to metal Skin corrosion Serious eye damage
	Aquatic Toxicity	Acute Chronic
	Harmful	Harmful to skin, oral, inhalation Skin and eye irritation Respiratory tract irritation Narcotic effects Skin sensitisation
	Respiratory	Respiratory sensitisation Carcinogenicity Toxic to reproduction Specific target organ systemic toxicity, single or repeated exposure Aspiration hazard Germ cell mutagenicity

It should be noted that the presence of these pictograms (they are not considered marks or labels) in a packaging can be used as a clue that the product contained inside it may be regulated for transport, even if it is gone unnoticed by other agents in the shipping process (hidden dangerous goods).

## 7.3 Placarding

Placards (enlarged labels) corresponding to the hazard labels required in Column 5 of the dangerous goods list in the ADR (and sometimes by a special provision in column 6) must be affixed to the exterior surface of:

<b>Containers, bulk containers, MEGCs, tank-containers and portable tanks</b>	Both sides and each end
<b>Vehicles carrying containers, bulk containers, MEGCs, tank-containers or portable tanks (whose placards are not visible)</b>	Both sides and at the rear of the vehicle
<b>Vehicles for carriage in bulk, tank-vehicles, battery-vehicles, MEMUs and vehicles with demountable tanks</b>	Both sides and at the rear of the vehicle
<b>Vehicles carrying packages only (of Classes 1 or 7, other than excepted packages)</b>	Both sides and at the rear of the vehicle

Empty, uncleaned tanks and vehicles shall continue to display the placards required for the previous load. Placards which do not relate to the dangerous goods being carried, or residues thereof, shall be removed or covered.

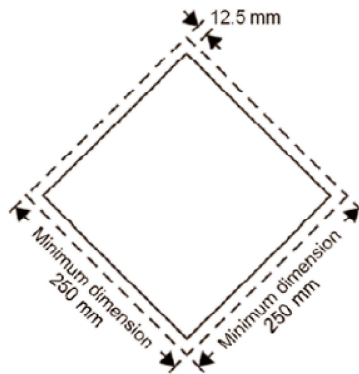
Containers, tanks, and vehicles containing different goods which require the same label/placard, as a primary or subsidiary hazard, shall only bear one placard for each distinct hazard.



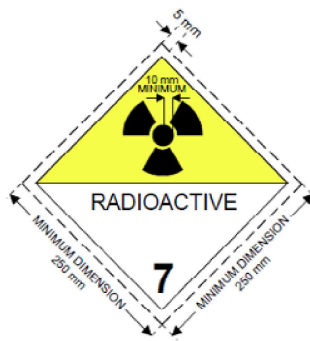
In the case of vehicles carrying packages only, the placards only need to be affixed if they contain substances or articles of Class 1 (other than of Division 1.4, compatibility group S) or radioactive material of class 7 in packaging or IBCs (other than excepted packages).

## Specifications for placards

- All placards (except Class 7) shall conform to the following template:



- The placard shall be in the form of a square set at an angle of 45° (diamond-shaped).
- The line inside the edge shall be parallel and 12.5 mm from the outside of that line to the edge of the placard.
- The minimum dimensions shall be 250 mm x 250 mm (to the edge of the placard).
- The placard specifications for Class 7 are:



(No. 7D)

Symbol (trefoil): black; Background: upper half yellow with white border, lower half white;  
The lower half shall show the word "RADIOACTIVE" or alternatively, the appropriate UN Number, and the figure "7" in the bottom corner.

- For tanks with a capacity of not more than 3 m<sup>3</sup> and for small containers, placards may be replaced by labels conforming to 5.2.2.2 (hazard labels for packages).
- For Classes 1 and 7, if the size and construction of the vehicle are such that the available surface is insufficient to affix the prescribed placards, the dimensions may be reduced to 100 mm x 100 mm.

## Class-specific provisions

- **Class 1 (explosives)**

- Compatibility groups shall not be indicated on placards if substances or articles belonging to two or more compatibility groups are being carried.
- If substances or articles of different divisions are being carried, only the placard corresponding to the most dangerous division will be shown, according to this order:

1.1	1.5	1.2	1.3	1.6	1.4
<b>(Most dangerous)</b>			<b>(Least dangerous)</b>		

- When 1.5 D substances are carried with substances or articles of Division 1.2, the vehicle or container shall be placarded as Division 1.1.
  - Placards are not required for the carriage of explosives of Division 1.4, compatibility group S.
- **Class 7 (radioactive material)**
  - The template for placards for radioactive material may be substituted by an enlarged version of the hazard labels for Category I – White, Category II – Yellow or Category III – Yellow, as appropriate.

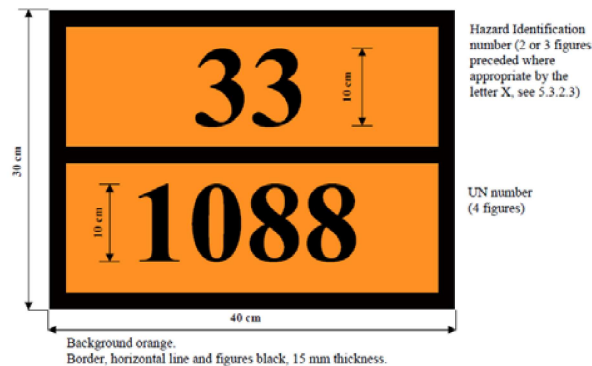
- **Class 9 (miscellaneous dangerous goods)**

- o Placards for Class 9 shall correspond to the general Class 9 model even when carrying lithium batteries (the specific Class 9 label for lithium batteries shall not be used for placarding purposes).

## Marking of containers, tanks, and vehicles

- **Orange-coloured plate marking**

The orange-coloured plates must conform to the following specifications:



- o The orange-coloured plates shall be reflectorised and shall be of 40 cm base and of 30 cm high; they shall have a black border of 15 mm wide.
- o If the size and construction of the vehicle are such that the available surface area is insufficient to affix these orange-coloured plates, their dimensions may be reduced to a minimum of 300 mm for the base, 120 mm for the height and 10 mm for the black border.
- o The hazard identification number and the UN number shall consist of black digits 100 mm high and of 15 mm stroke thickness. The hazard-identification number shall be inscribed in the upper part of the plate and the UN number in the lower part; they shall be separated by a horizontal black line, 15 mm in stroke width. They shall be indelible and shall remain legible after 15 minutes' engulfment in fire.
- o The material used shall be weather-resistant and ensure durable marking.
- o It shall remain affixed irrespective of the orientation of the vehicle.

- o When the orange-coloured plate is affixed to folding panels, they shall be designed and secured so that they cannot unfold or come loose from the holder during carriage (especially as a result of impacts or unintentional actions).

The hazard identification numbers consist of two or three figures. In general, the figures indicate the following hazards:

2	Emission of gas due to pressure or to chemical reaction
3	Flammability of liquids (vapours) and gases or self-heating liquid
4	Flammability of solids or self-heating solid
5	Oxidising (fire-intensifying) effect
6	Toxicity or risk of infection
7	Radioactivity
8	Corrosivity
9	Risk of spontaneous violent reaction

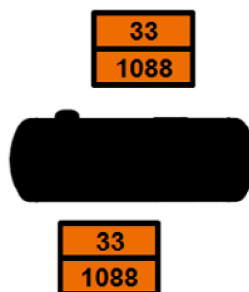
When the hazard associated with a substance can be adequately indicated by a single figure, this is followed by a zero. Doubling of a figure indicates an intensification of that particular hazard. If a hazard identification number is prefixed by the letter X, this indicates that the substance will react dangerously with water. The complete list of all the hazard identification numbers and their meaning is available on the ADR, 5.3.2.3.2.

## How must the range-coloured plates be displayed?

1. Transport units carrying dangerous goods: at the front and at the rear.
  - o If a trailer containing dangerous goods is detached from its motor vehicle, an orange plate shall remain at the rear of the trailer.



2. Tank-vehicles, battery vehicles or transport units having one or more tanks carrying dangerous goods for which a hazard identification number is indicated in Column 20 of the dangerous goods list: On the sides of each tank, compartment, or element. These orange plates shall bear the hazard identification number and the UN number of the dangerous goods.
  - o For MEMUs, only if they carry tanks with a capacity of 1000 litres or more, or bulk containers.

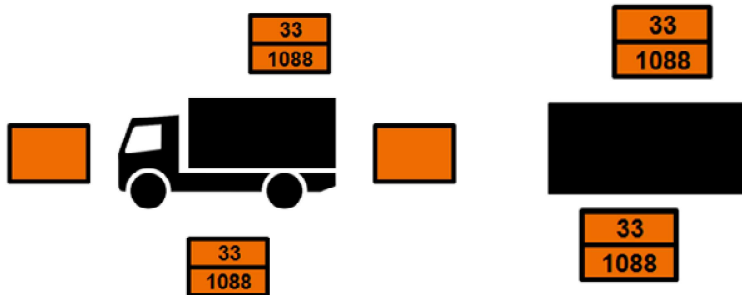


3. For tank-vehicles or transport units having one or more tanks carrying only:
  - o Substances with UN Nos. 1202, 1203 or 1223 (diesel, gasoline or kerosene)
  - o Aviation fuel classified under UN Nos. 1268 or 1863

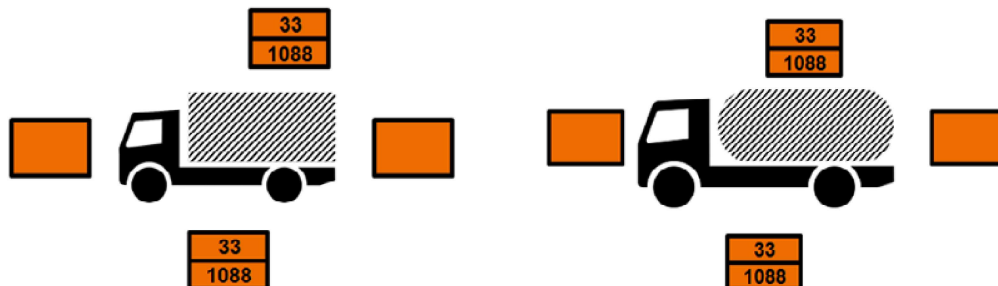
The orange plates on the sides (2) are not necessary if the ones at the front and the rear bear the hazard identification number and the UN number prescribed to the most hazardous substance carried (the one with the lowest flash-point).



4. Transport units and containers carrying only unpackaged dangerous goods or packaged radioactive material with a single UN number under exclusive use, and a hazard identification code: In addition, on each side of the transport unit or container. These orange plates shall bear the hazard identification number and the UN number of the dangerous goods.



5. If the orange plates with the hazard identification code and UN number affixed to containers, tank-containers, MEGCs or portable tanks (2, 4) are not visible from the outside of the carrying vehicle, the same plates shall also be affixed to both sides of the vehicle.



6. For transport units carrying exclusively *one dangerous substance* and no non-dangerous substances, the orange plates on the sides of tanks, containers or transport units (**2, 4, 5**) are not necessary if the ones at the front and the rear of the transport unit bear the hazard identification number and the UN number of the dangerous substance.



The requirements of 1 to 5 are also applicable to empty, uncleaned, or not decontaminated tanks or MEMUs. The orange plates which do not relate to dangerous goods carried, or residues thereof, shall be removed or covered.

- **Elevated temperature substances mark:** Tank-vehicles, tank-containers, portable tanks, special vehicles or containers or specially equipped vehicles or containers containing a substance that is carried or handed over for carriage in a liquid state at or above 100 °C or in a solid state at or above 240°C shall bear on:
  - o Both sides and at the rear for vehicles
  - o Both sides and at each end for containers, tank-containers and portable tanks the following mark:

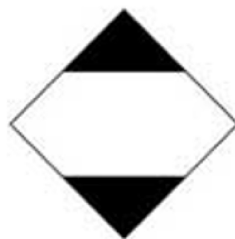


- **Environmentally hazardous substance mark:** when a placard is required to be displayed, containers, MEGCs, tank-containers, portable tanks and vehicles containing environmentally hazardous substances (according to the criteria of 2.2.9.1.10) shall be marked with the environmentally hazardous substance mark. This will have the same design as the mark for packages (dead fish and tree), but with minimum dimensions of 250 mm x 250 mm.



- **Limited quantities mark:** under certain circumstances, a limited quantities mark is required to be displayed on containers and transport units, as it was explained on Unit 4.
  - o Transport units carrying goods in LQ, >8 tonnes per transport unit, maximum mass >12 tonnes: LQ mark at the front and at the rear.
    - *Optional if the transport unit contains other dangerous goods that require orange-coloured plate marking.*
  - o Containers carrying dangerous goods in LQ, >8 tonnes per transport unit, on transport unit with maximum mass >12 tonnes: LQ mark on four sides.
    - *Optional if the container contains other dangerous goods which require placarding.*
  - o Carrying transport units when the marks on the container are not visible from the outside: at the front and the rear.

The minimum dimensions are 250 mm x 250 mm.





## 8. 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.

Dangerous goods being carried by air on IATA member airlines, associate member airlines or other airline parties in the IATA Multilateral Interline Traffic Agreement – Cargo, must be accompanied by a 'Shipper's Declaration for Dangerous Goods'<sup>8</sup> (unless it is stated otherwise in the IATA DGR). The format, colour, size and content of this document are specified, and no variations are allowed. Air regulations require a declaration that the dangerous goods have been correctly classified, identified, packed, marked, labelled, and documented.

For goods travelling by sea and/or under ADR/RID/IMO IMDG, there is no specific transport document template, but the regulations specify the information to be included and the sequence for the dangerous goods description. Road, rail or sea transportation does not require any declaration, but there are legal responsibilities for freight forwarders in the transportation process.

Regulations for handling and transporting hazardous materials are further supported by detailed supplementary information. For instance, if the goods are delivered by road, the regulations require the driver to have "written instructions" that provide guidance on how to handle emergencies.

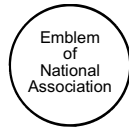
In the case of goods being transported by sea or road in cargo units, such as roll-on roll-off vehicles or containers, a separate declaration referred to as a packing certificate must be submitted. When the goods are transported to the port of departure by road, this certificate must be provided to the road transport operator by the organisation that loaded the goods into the cargo unit. The packing certificate declaration in the Dangerous Goods Shipping Note states, "Must be signed by the person responsible," which in the case of groupage transport, for example, may be the freight forwarder.

*Example of dangerous goods transport document on next page*

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<sup>8</sup> 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".

Shipper (Name & Address) / Chargeur (Nom & Adresse)



# FIATA SDT

No.

Country code

## SHIPPERS DECLARATION FOR THE TRANSPORT OF DANGEROUS GOODS

(approved by FIATA)

Consignee (Name & Address) / Destinataire (Nom & Adresse)

Forwarder / Transitaire

Ref. nr.

In accordance with the European Agreement concerning the international carriage of Dangerous Goods by Road (ADR), or the provisions of the IMO International Maritime Dangerous Goods (IMDG) Code, or national regulations when applicable giving the precise listing of relevant items to be entered in the transport document.

En conformité avec la directive européenne concernant le transport international des marchandises dangereuses par route (ADR), ou les recommandations de l'IMO du code maritime international des marchandises dangereuses (IMDG) ou des informations particulières nationales devant apparaître sur le document de transport.

The undersigned, as principal of the forwarder remits to him together with the order of shipment of Dangerous Goods the following information:

Le soussigné, commettant du transitaire, lui remet en même temps que l'ordre d'expédition de marchandises dangereuses les renseignements suivants:

Marks and Numbers, Number & Type of Packages, UN No, Proper Shipping Name, ADR or IMO Class, Subsidiary risk, Packing Group, Flashpoint if relevant (in °C) (sea transport only) in accordance with applicable regulations.

Gross Weight (kg) Poids brut (kg)  
Net quantity Quantité nette  
(when required) (s'il y a lieu)

Marquage et numéros, nombre et type d'emballage, N° UN, appellation technique, classe ADR ou IMO, risques subsidiaires, groupe d'emballage, point éclair si nécessaire (en °C) (transport maritime seulement) en accord avec les réglementations applicables.

specimen

### IMO SHIPPER'S CERTIFICATE

I hereby declare that the contents of this consignment are fully and accurately described above by the Proper Shipping Name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

### DECLARATION DE CHARGEMENT IMO

Je déclare que le contenu de ce chargement est décrit ci-dessus de façon complète et exacte par la désignation officielle de transport et qu'il est convenablement classé, emballé, marqué, étiqueté, muni de plaques-étiquettes et à tous égards bien conditionné pour être transporté conformément aux réglementations internationales et nationales applicables.

### ADR/IMO CONTAINER/VEHICLE PACKING CERTIFICATE

I hereby declare that the goods described above have been packed/loaded into the container/vehicle identified above in accordance with the provisions of the IMDG Code or the ADR as applicable.

### CERTIFICAT D'EMPOTAGE ADR/IMO DU CONTENEUR/VEHICULE

Je soussigné déclare que les marchandises décrites ci-dessus ont été empotées/chargées dans le conteneur/véhicule identifié ci-dessus conformément aux dispositions applicables du code IMDG ou de l'ADR applicable.

Special remarks  
Remarques particulières

Place and date of issue  
Lieu et date d'émission

Shippers signature and stamp  
Sceau et signature du chargeur

# 9. REGULATIONS

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
- The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)

Failure to handle the transport and storage of dangerous goods in accordance with the regulations is an offence punishable by law. It is advised that forwarders who are not familiar with the regulations and the risks at stake do not to handle such goods.

## 9.1 United Nations Recommendations on the Transport of Dangerous Goods (Model Regulations)

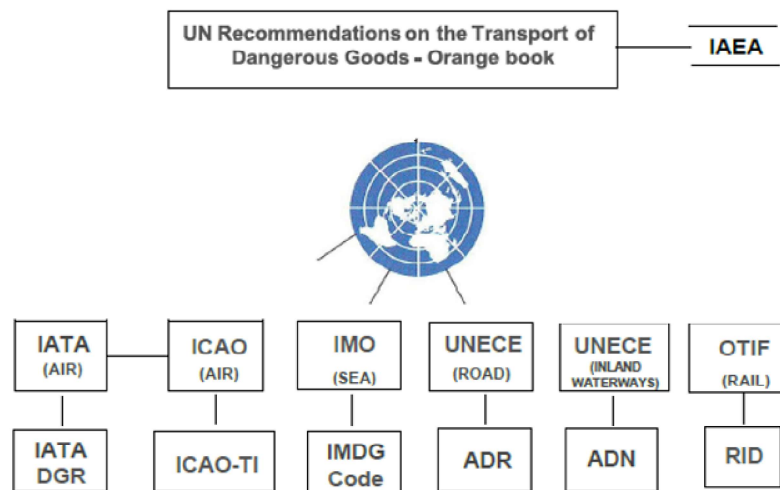
The effort to establish a worldwide standard for the safe transport of dangerous goods began in the 1950s, following the end of the Second World War. In response, the United Nations Economic and Social Council established the Committee of Experts (ECOSOC) on the Transport of Dangerous Goods in 1956.

Since its formation, the Committee has worked closely with the International Atomic Energy Agency (IAEA) to develop recommended procedures for the transport of radioactive materials, which are included in the UN Recommendations and published as the Regulations for the Safe Transport of Radioactive Material.

These Recommendations, commonly referred to as the “Orange Book,” provide the foundation for all national and international regulations governing the transport of dangerous goods across various modes of transport. The Model Regulations contained within the Orange Book offer a comprehensive scheme of provisions, including principles of classification and definition, packing requirements, testing procedures, labelling, and transport documentation.

It is important to note that the UN Recommendations do not address broader transport policies such as emergency procedures and response, enforcement, etc. These responsibilities are left to individual governments and authorities.

The UN Committee of Experts, composed of 25 voting member states, meets every six months and continually revises the Recommendations to ensure they remain up-to-date. These Recommendations serve as the foundation for all dangerous goods regulations, regardless of mode of transport.



## 9.2 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 originally known as Annex 18. Today, 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.

### 9.3 Rules governing the Transport of Dangerous Goods by sea, IMDG-Code

The rules governing the transport of dangerous goods by sea are formulated by the International Maritime Organization (IMO) in the International Maritime Dangerous Goods Code (IMDG Code). 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 countries who are signatories to SOLAS.

The IMDG Code represents the basic standard for the safe shipment of packaged dangerous goods by sea. It covers classification, packaging, marking, labelling/placarding, securement, compatibility, stowage, segregation, limited quantities, excepted quantities, documentation (which includes container/vehicle packing certificates) and training requirements. The rules are to be found in two volumes and one supplement. Amendments to the IMDG-Code are issued every second year.

### 9.4 The Agreement Concerning the International Carriage of Dangerous Goods by Road, ADR

The ADR deals with international transport by road. The ADR is an agreement drawn up by the United Nations Economic Commission for Europe (UNECE), whereby most countries in Europe and several beyond 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 relatif au transport international des marchandises dangereuses par route). As of 2023, there were 54 signatory states to the ADR-agreement<sup>9</sup>.

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

Rules governing the international transport by rail in over 40 countries in Europe, Northern Africa and Asia are presented in the Convention of International Rail Transport (COTIF). The Uniform Rules concerning the Contract of International Carriage of Goods by Rail -

<sup>9</sup> United Nations Treaty Collection, Chapter XI, Transport and Communication, available at: [https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg\\_no=XI-B-14&chapter=11&clang=en](https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XI-B-14&chapter=11&clang=en) (last consulted on 8 February 2023)

Appendix B to COTIF (CIM) covers international cargo transports. The RID (Réglement 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 the RID are 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 latter is an excellent example of harmonisation between two transport modes (rail and road). Amendments to the RID are issued every second year.

## 9.6 The European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways, ADN

The ADN agreement was adopted on 26 May 2000 in Geneva and entered into force on 29 February 2008. This applies to European territories that contain inland waterways that are part of the network of internationally important waterways, as defined by the European Agreement on Main Inland Waterways of International Importance signed in Geneva on January 19, 1996, excluding waterways that form a coastal route.

## 9.7 The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

The Basel Convention is the response of the international community to the problems caused by the worldwide production of wastes which are hazardous to people or the environment because of their toxic, poisonous, explosive, corrosive, flammable, eco-toxic, or infectious forms. This global environmental treaty strictly regulates the transboundary movements of hazardous wastes and provides obligations to its parties to ensure that such wastes are managed and disposed of in an environmentally sound manner. The main principles of the Basel Convention are:

- Transboundary movements of hazardous wastes should be reduced to a minimum consistent with their environmentally sound management.
- Hazardous wastes should be treated and disposed of as close as possible to their 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 cooperation between Parties in this field, and develop Technical Guidelines for the management of hazardous wastes.

Wastes 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) wastes.

## 9.8 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 both the 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 Recommendations is under consideration.

# ANNEXES

## Annex I - Test your knowledge

These questions are intended to demonstrate a general understanding of the subjects covered in the Introduction. More detailed questions for freight forwarders follow in the next section.

1. Which publication details minimum requirements for the safe transport of dangerous goods and forms the basis of international regulations for transport of dangerous goods by all modes?
2. Which training should be included as part of a freight forwarder's safety policy?
3. Should freight forwarders who organise and handle the transport of dangerous goods have insurance to cover their risks and liabilities arising from this activity?
4. Where should any company who handles dangerous goods set out the rules and procedures to be followed by their staff?
5. Are there different training needs for personnel involved in the transport of dangerous goods?
6. Which party in the transport chain has the prime responsibility for ensuring dangerous goods are correctly packed, marked and labelled according to their classification and the mode of transport?
7. Are matters such as general transport policy, emergency procedures and enforcement contained in the UN Recommendations?
8. How many classes of dangerous goods are there?
9. Which two basic methods are used to identify a dangerous substance or article?
10. Which additional visual method of identification is used?
11. Which marking confirms that packaging conforms to an approved design type and has been successfully tested according to required performance standards?
12. Who is responsible for providing a declaration stating that the dangerous goods have been correctly classified and have been packed, marked and labelled in accordance with appropriate regulations?

*Answers to these questions are available on the next page.*



1. Which publication details minimum requirements for the safe transport of dangerous goods and forms the basis of international regulations for transport of dangerous goods by all modes?

*The United Nations Recommendations on the Transport of Dangerous Goods (also known as the Orange Book) - see Chapter 1.*

2. Which training should be included as part of a freight forwarder's safety policy?

*Dangerous Goods Awareness Training should be included so that forwarders can at least recognise dangerous goods - see Chapter 1.*

3. Should freight forwarders who organise and handle the transport of dangerous goods have insurance to cover their risks and liabilities arising from this activity?

*Yes - it is particularly important for freight forwarders who organise and handle the transport of dangerous goods to have sufficient insurance to cover all risks and liabilities which might arise from their activity - see Chapter 1.*

4. Where should any company who handles dangerous goods set out the rules and procedures to be followed by their staff?

*These rules and procedures should be set out in the company dangerous goods policy (see Chapter 2).*

5. Are there different training needs for personnel involved in the transport of dangerous goods?

*Yes - the UN Recommendations recognise the need for three types of training; general awareness, function specific and safety training - see Chapter 2.*

6. Which party in the transport chain has the prime responsibility for ensuring dangerous goods are correctly packed, marked and labelled according to their classification and the mode of transport?

*It is the shipper's responsibility to ensure the dangerous goods are correctly packed, marked and labelled according to their classification and their mode of transport - see Chapter 3.*

7. Are matters such as general transport policy, emergency procedures and enforcement contained in the UN Recommendations?

*No - these matters remain the responsibility of governments and authorities in individual states - see Chapter 4.*

8. How many classes of dangerous goods are there?

*There are nine main classes of dangerous goods and some are further divided into divisions - see Chapter 5.*

9. Which two basic methods are used to identify a dangerous substance or article?

*The UN Recommendations use the United Nations Substance Identification Number (the UN Number) and the Proper Shipping Name to identify a dangerous substance or article – see Chapter 5.*

10. Which additional visual method of identification is used?

*Labels corresponding to the different hazard classes are used - see Chapter 5.*

11. Which marking confirms that packaging conforms to an approved design type and has been successfully tested according to required performance standards?

*“UN marking” (consisting of the UN packaging symbol and other designated codes/marks) confirms that the packaging conforms to an approved design type and has been successfully tested to prescribed performance standards. This packaging is known as UN specification packaging - see 12.*

12. Who is responsible for providing a declaration stating that the dangerous goods have been correctly classified and have been packed, marked and labelled in accordance with appropriate regulations?

*It is the shipper’s responsibility to provide this declaration. The person who signs the declaration is legally responsible for the accuracy of the information it contains and freight forwarders are advised not to sign such a declaration - see Chapter 6.*

## Annex II – Self-control questions for freight forwarders

Following questions are to be answered by a responsible manager of a freight forwarding company intending to send a specific consignment of packaged dangerous goods by any mode of transport.

Answers to these questions are available on page 69.

1. Does the company dispose of the necessary liability insurance covering also the risks of the handling and transport of dangerous goods?
2. Who is the in-house specialist on dangerous goods?
3. Does the company have a written policy for the receipt, handling, transport and documentation of dangerous goods that is made available to all employees?
4. Do all relevant staff receive training appropriate to their responsibilities in respect of dangerous goods consignments?
5. For countries that adhere to the ADR or RID: Has the company evaluated the need for a Dangerous Goods Safety Adviser (DGSA) and, if applicable, appointed a qualified DGSA?
6. Are consignments containing dangerous goods only accepted if accompanied by a written declaration from the shipper?
7. Is anyone within the company authorised to sign a dangerous goods declaration?
8. Does the company maintain a current copy of the relevant regulations applicable to the various transport modes?
9. Does the company recognise their responsibility to their staff and to others who may be exposed to danger in the workplace, to ensure the safe handling of dangerous goods?
10. What packaged goods are considered to be dangerous for transportation?
11. Are the received packages permissible for the transport of dangerous goods?
12. Are the individual packages correctly marked and labelled?
13. Is the use of the freight container permitted?
14. Are a number of different dangerous goods to be transported in the same cargo transport unit?
15. Are the dangerous goods only part of the load of the cargo transport unit?
16. Are the dangerous goods to be transported only in limited quantities?

17. Are lift trucks suitable for loading the cargo transport unit containing dangerous goods?
18. Is the weight of the load uniformly distributed in the freight container?
19. Are the goods properly secured in the inside of the cargo transport unit?
20. Are the correct placards, marks and signs on the cargo transport unit?
21. Have all irrelevant placards, marks and signs been removed or obliterated from the packages and/or the cargo transport unit?
22. Has a container or vehicle packing certificate been signed by the person responsible for loading or completion offloading of the cargo transport unit?
23. Who will complete the dangerous goods declaration?
24. Will the dangerous goods be picked up by a competent vehicle operator with appropriately trained drivers?
25. Is the road vehicle suitable?
26. Has all necessary information been given to the vehicle operator?
27. Who is responsible for ensuring that the Dangerous Goods Declaration, the Container Packing or Vehicle Certificate, and, if applicable, the written Instructions are given to the carrier?
28. Does the consignment satisfy the relevant legal requirements in the country of origin, transit and destination?
29. Are appropriate precautions taken before opening consignments received from elsewhere?
30. Are freight containers and road vehicles which have carried dangerous goods properly cleaned after unloading?

## Answers and explanations to the self-control questions for freight forwarders

1. Does the company dispose of the necessary liability insurance covering also the risks of the handling and transport of dangerous goods?

*It is the duty of the management of each freight forwarding company also to ensure to have included in the regular business liability insurance the risks of the handling and the transport of dangerous goods in co-operation with the insurance company. Failure could lead to liability claims which a freight forwarding company may not be able to afford.*

2. Who is the in-house specialist on dangerous goods?

*There should normally be at least one person in each company responsible for the handling of dangerous goods with appropriate knowledge, not only of the properties of the relevant dangerous goods, but also of the legislation that applies to them, both in-house and during transport to customers. This may include legislation that will apply to imports arriving in the customer's country. The necessary depth of knowledge of the in-house specialist will vary with the number and nature of different dangerous goods shipped, and their destinations. In some cases it may be sufficient for an external consultant to act as the in-house specialist, providing any necessary advice is readily available at all times. It may not be practicable to hold copies of all relevant legislation and guidance, but the specialist should at least know where current copies can be consulted. Many regulations, codes, etc are amended from time to time and it is essential that when problems arise only fully updated copies are consulted. Specific rules are applicable in order for a person to become an IATA approved agent for the handling and transport by airfreight of dangerous goods. Among other requirements, two persons from your staff must have followed and successfully completed the IATA/FIATA dangerous goods courses (module 2).*

3. Does the company have a written policy for the receipt, handling, transport and documentation of dangerous goods that is made available to all employees?

*Every company that handles dangerous goods should have a policy which sets out the rules applied to their staff and the procedures for the receiving, handling and transport of dangerous goods.*

4. Do all relevant staff receive training appropriate to their responsibilities in respect of dangerous goods consignments?

*A training plan is essential for all employees to guarantee competent employees. New employees should receive appropriate training as part of their introduction to the company. The following categories of training should be provided: General awareness training Function specific training Safety training.*

5. For countries that adhere to the ADR or RID: Has the company evaluated the need for a Dangerous Goods Safety Adviser (DGSA) and, if applicable, appointed a qualified DGSA?

*It is a legal requirement for companies in European Union countries who transport, load and unload dangerous goods being moved by road, rail or inland waterway to appoint a Dangerous Goods Safety Adviser.*

6. Are consignments containing dangerous goods only accepted if accompanied by a written declaration from the shipper?

*It is the shipper's responsibility to provide a written declaration confirming that the dangerous goods are correctly packed, marked and labelled according to their classification and the mode of transport being used. No consignments containing dangerous goods should be accepted without this declaration.*

7. Is anyone within the company authorised to sign a dangerous goods declaration?

*The person who signs the dangerous goods declaration is legally responsible for the accuracy of the information it contains and freight forwarders are strongly recommended not to sign these declarations under any circumstances. In the air mode it is illegal for a freight forwarder to sign the shipper's declaration.*

8. Does the company maintain a current copy of the relevant regulations applicable to the various transport modes?

*As the regulations are updated at regular intervals, it is essential to use only the current version of the applicable regulations.*

9. Does the company recognise their responsibility to their staff and to others who may be exposed to danger in the workplace, to ensure the safe handling of dangerous goods?

*All employers have a responsibility towards their staff and to others who may be exposed to danger in the workplace to reduce risks as far as possible and to provide a safe place to work in. It is particularly important that employers recognise the need to handle dangerous goods safely.*

10. What packaged goods are considered to be dangerous for transportation?

*Any goods covered in the UN Recommendations on the Transport of Dangerous Goods, known also as "the Orange Book", which cover principles of classification and definition of classes, the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), the International Provisions Concerning Carriage of Dangerous Goods by Rail (RID), the Schedules of the International Maritime Organisation's International Dangerous Goods Code (the IMDG Code) and the IATA Dangerous Goods Regulations based on the International Civil Aviation Organisation (ICAO) Technical Instructions.*

11. Are the received packages permissible for the transport of dangerous goods?

*In general, the design of all packages for dangerous goods should be performance tested and each package should carry the appropriate UN-approval markings in accordance with*

*the IMDG Code, the ADR, RID or the ICAO-TI/IATA-DGR requirements. However, there are a few partial exceptions from some of the requirements; e.g. for limited quantities of dangerous goods. Before packing, all packages should be checked to ensure they are in good condition and are suitable for transport of their intended contents.*

12. Are the individual packages correctly marked and labelled?

*The packages should be marked and labelled in accordance with the IMDG Code, the ADR RID or the ICAO-TI/IATA-DGR requirements. Any special markings on packages should conform to ISO 780, Packaging - Pictorial marking for handling of goods.*

13. Is the use of the freight container permitted?

*The container must carry a valid Safety Approval Plate with an Approved Continuous Examination Programme (ACEP) or Periodic Examination Scheme (PES) decal (adhesive label) or marking indicating the next examination date. The maximum gross weight of the packed container is also marked on the Safety Approval Plate.*

14. Are a number of different dangerous goods to be transported in the same cargo transport unit?

*This may not be permitted. To be transported in the same cargo transport unit, the dangerous goods must be compatible. If they are not, the goods will have to be transported in separate units. Full information on segregation requirements are found in the applicable transport rules.*

15. Are the dangerous goods only part of the load of the cargo transport unit?

*If dangerous goods are only part of the load of a CTU, it is recommended that the dangerous goods should be stowed next to the doors. Certain local requirements could vary from this recommendation.*

16. Are the dangerous goods to be transported only in limited quantities?

*Some relaxations apply to the transport of dangerous goods in limited quantities. Full details of these are listed in the applicable codes and regulations (depending on mode of transport).*

17. Are lift trucks suitable for loading the cargo transport unit containing dangerous goods?

*If lift trucks are to operate inside freight containers they should have short masts and low guards above the driver. To avoid damage to the floor of the container; lift trucks should not have an axle load of more than 2,730 kg.*

18. Is the weight of the load uniformly distributed in the freight container?

*So far as practicable, the goods should be uniformly distributed over the floor of a freight container. In no case should more than 60% of the load be concentrated in less than half the length of a container.*

19. Are the goods properly secured in the inside of the cargo transport unit?

*The forces to which the contents of cargo transport units may be subjected en route are far higher than is generally appreciated. It is essential that all goods are firmly secured to prevent movement in any direction within the unit during transport.*

20. Are the correct placards, marks and signs on the cargo transport unit?

*Cargo transport units containing dangerous goods for carriage should be placarded, marked and signed in accordance to the IMDG Code, ADR RID or ICAO-TI/IATA-DGR. Vehicles carrying such goods may, additionally, be required to display orange plates in accordance with the applicable road regulations.*

21. Have all irrelevant placards, marks and signs been removed or obliterated from the packages and/or the cargo transport unit?

*All irrelevant placards, marks and signs should have been removed when the cargo transport unit was previously unloaded and, if necessary; cleaned, but this may have been overlooked.*

22. Has a container or vehicle packing certificate been signed by the person responsible for loading or completion offloading of the cargo transport unit?

*The safety of those throughout the transport chain is dependent on the integrity of the person signing the certificate. The next person to see inside the unit will usually be the consignee on arrival of the goods at their destination. Where several separate consignments have been consolidated into one cargo transport unit, all persons who are responsible for their part of the loading should sign the certificate.*

23. Who will complete the dangerous goods declaration?

*FIATA strongly recommends that any declaration or similar document (all modes of transport) for the handling and transport of dangerous goods is signed by the consignor who hands over the goods for transport in the first place. The freight forwarder does not have the knowledge and, according to certain laws, not even the authority to complete and sign such declarations on behalf of their customer (even the best one!). You will be liable in case you do so and your liability insurance will reject all claims!*

24. Will the dangerous goods be picked up by a competent vehicle operator with appropriately trained drivers?

*Operators and drivers must meet the relevant requirements as per the various regulations and local laws. In general, they require drivers to be appropriately trained, and most drivers must hold an appropriate vocational training certificate.*



25. Is the road vehicle suitable?

*In addition to being in a roadworthy condition, a freight vehicle for transport by sea should be provided with points for securing it aboard ships. ISO 9367, lashing and securing arrangement son road vehicles for sea transportation on roll-on roll-off ships is relevant. Further information on the carriage of dangerous goods on roll-on roll-off ships is included in Section 17 of the general introduction of the IMDG Code.*

26. Has all necessary information been given to the vehicle operator?

*Shippers must give vehicle operators full information about the dangerous goods to be carried. Shippers must complete the Dangerous Goods transport documents. Vehicle operators must be provided with relevant emergency information about the goods. Transport Emergency Cards (Tremcards) can be used to provide this information.*

27. Who is responsible for ensuring that the Dangerous Goods Declaration, the Container Packing or Vehicle Certificate, and, if applicable, the written Instructions are given to the carrier?

*The shipper (consignor) is responsible for the completion of the Dangerous Goods Declaration and it is the duty of the freight forwarder to hand it over to the carrier involved in the transport. The person responsible for the packing of a container or vehicle is responsible for the Container Packing Certificate or Vehicle Declaration.*

28. Does the consignment satisfy the relevant legal requirements in the country of origin, transit and destination?

*This should be checked with the freight forwarder's agent in the country of origin, transit and destination directly or with the consignee of the goods disposing of a person with the appropriate knowledge.*

29. Are appropriate precautions taken before opening consignments received from elsewhere?

*If a cargo transport unit has travelled by sea or any other mode of transport, it may well have been subjected to conditions which have caused some of the cargo to move, particularly if it was inadequately secured at the point of origin. Precautions should be taken when opening doors, not only against hazards from dangerous substances which may be leaking from damaged packages but also against any part of the cargo having moved against a door and therefore likely to fall on a person opening the door.*

30. Are freight containers and road vehicles which have carried dangerous goods properly cleaned after unloading?

*The cleaning should include the removal of any residual dangerous substances, discarded packaging and securing materials and, once clean, the removal of hazard warning placards, marks and signs.*

## Annex III - Table including relevant information per mode of transport

Note that regulations and codes below are based on the [United Nations Recommendations on the Transport of Dangerous Goods \(Model Regulations\)](#).

This table is indicative only and is not meant to be exhaustive. It was correct at the time of publishing. The reader should satisfy themselves that they have identified the current/in force editions and understood and enacted the relevant regulations, codes, guidance, and industry good practice applicable to their own activities.

	AIR	RAIL	ROAD	SEA
<b>TRAINING &amp; QUALIFICATIONS</b>	<p>Reference(s):</p> <ul style="list-style-type: none"> <li>ICAO technical instructions, or</li> <li>IATA dangerous goods regulations for air transport</li> </ul> <p>The below operators should receive initial and recurrent dangerous goods training:</p> <ul style="list-style-type: none"> <li>Staff accepting dangerous goods</li> <li>Staff accepting cargo, mail or stores (other than dangerous goods)</li> <li>Staff responsible for handling, storage and loading of cargo, mail or stores and baggage</li> <li>Passenger handling staff</li> </ul>	<p>Reference(s):</p> <ul style="list-style-type: none"> <li>Rules for the International Transport of Dangerous Goods by Rail, (RID). Section 1.3 Training of persons involved in the carriage of dangerous goods. Safety and/or security training is required for certain personnel.</li> </ul> <p>Persons employed by the participants referred to in Chapter 1.4, whose duties concern the carriage of dangerous goods, shall be trained in the requirements governing the carriage of such goods appropriate to their responsibilities and duties.</p>	<p>European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)</p> <p>ADR Awareness training (as defined in ADR Section 1.3) is a legal requirement for all non-driving staff (and drivers below the "ADR Load Limits") who have any involvement in allowing Dangerous Goods to be transported by road.</p> <p>A Dangerous goods ADR vehicle driver will need to train and pass relevant HGV standards and then get an ADR driver card by completing any specific training depending on the type of dangerous</p>	<p>International Maritime Dangerous Goods (IMDG) Code training is mandatory for all personnel involved in the handling and transport of dangerous goods by sea.</p> <p>See: Part 1. General Provisions, Definitions and Training</p> <p>Includes those who:</p> <ul style="list-style-type: none"> <li>classify dangerous goods</li> <li>pack dangerous goods in packages</li> <li>mark, label or placard dangerous goods</li> <li>pack/unpack containers</li> <li>prepare transport documents</li> <li>offer dangerous goods for transport</li> </ul>

	AIR	RAIL	ROAD	SEA
<p><b>TRAINING &amp; QUALIFICATIONS</b></p>	<ul style="list-style-type: none"> <li>Flight crew members, other crew members and load planners</li> </ul> <p>The below actors may require dangerous goods training depending upon their involvement with cargo or passengers:</p> <ul style="list-style-type: none"> <li>Cargo reservations staff</li> <li>Passenger reservations staff</li> <li>Operations staff</li> <li>Commercial staff</li> </ul> <p>Periodic refresher training is required.</p>	<p>General Awareness – yes</p> <p>Function Specific for Operations personnel involved directly in the transport of dangerous goods (e.g. Drivers and marshalling staff or personnel with an equivalent function)</p> <p>Personnel responsible for the technical control of wagons used for the transport of dangerous goods (e.g. Rolling stock technician or personnel with an equivalent function)</p> <p>Specialist additional training is required for certain roles such as Dangerous Goods Safety Advisor (DGSA)</p> <p>Periodic refresher training is required</p>	<p>goods carried: explosives, gases flammable liquids, flammable solids, oxidising substances, toxic substances, radioactive substances, corrosive substances, miscellaneous substances</p> <p>Specialist additional training is required for certain roles such as Dangerous Goods Safety Advisor (DGSA)</p> <p>Periodic refresher training is required</p>	<ul style="list-style-type: none"> <li>accept dangerous goods for transport</li> <li>handle dangerous goods in transport</li> <li>prepare dangerous goods loading/stowage plans</li> <li>load/unload dangerous goods in transport</li> <li>carry dangerous goods in transport</li> <li>enforce, survey or inspect for compliance with applicable rules and regulations</li> <li>are otherwise involved in the transport of dangerous goods, as determined by the competent authority.</li> </ul> <p>Periodic refresher training is required</p>

	AIR	RAIL	ROAD	SEA
<p><b>INTERNATIONAL REGULATION/ CODE</b> (Other codes, regulations and guidance will also apply)</p>	<p>International Civil Aviation Organization Technical Instructions (ICAO TI)</p> <p>Also, for International Air Transport Association (IATA) member airlines, the IATA Dangerous Goods Regulations</p> <p>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</p>	<p>Rules for the International Transport of Dangerous Goods by Rail, (RID)</p> <p>Applies in over 40 countries in Europe, Northern Africa and Asia. See the Convention of International Rail Transport (COTIF).</p>	<p>International Carriage of Dangerous Goods by Road (ADR)</p> <p>Applies in the case of signatory states (52 in 2020)</p>	<p>International Maritime Dangerous Goods (IMDG) Code</p> <p>Published in two volumes addressing training, classification, packing, consignment, packagings and transport, dangerous goods list etc.</p> <p>A separate 'Supplement' completes the publication set.</p>
	<p>as applicable, see also other national and multi-national frameworks such as:</p>	<p>MERCOSUR countries (Argentina, Brazil, Paraguay and Uruguay) have developed regulations for the transport of dangerous goods by road and rail based on the 7th Edition of the UN Recommendations and on RID and ADR<sup>1</sup>.</p> <p>USA Code of Federal Regulations 49 (CFR 49)</p> <p>Australian Maritime Safety Authority (AMSA) regulations</p> <p><sup>1</sup> At the time that this table was produced, these regulations were in process of being ratified by the respective national regulatory frameworks.</p>	<p>European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways, ADN</p> <p>CTU Code (IMO/ILO/UNECE voluntary code)</p>	<p>Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal</p>

	AIR	RAIL	ROAD	SEA
<b>IMPORTANT CHAPTERS:</b>	ICAO TI Annex 18	Rules for the International Transport of Dangerous Goods by Rail, RID	International Carriage of Dangerous Goods by Road (ADR)	IMDG Code
<b>CLASSIFICATION / IDENTIFICATION</b>	<ul style="list-style-type: none"> <li>Chapter 2. Applicability</li> <li>Chapter 3. Classification</li> </ul>	<ul style="list-style-type: none"> <li>Part 2. Classification</li> </ul>	<ul style="list-style-type: none"> <li>Part 2. Classification</li> </ul>	<ul style="list-style-type: none"> <li>Part 2. Classification</li> </ul>
<b>PACKAGING:</b>	<ul style="list-style-type: none"> <li>Chapter 5. Packing</li> </ul>	<ul style="list-style-type: none"> <li>Part 4. Packing and tank provisions</li> <li>Part 6. Requirements for the construction and testing of packagings, intermediate bulk container (IBCs), large packagings, tanks and bulk containers</li> </ul>	<ul style="list-style-type: none"> <li>Part 4. Packing and tank provisions</li> <li>Part 6. Requirements for the construction and testing of packagings, intermediate bulk container (IBCs), large packagings, tanks and bulk containers</li> </ul>	<ul style="list-style-type: none"> <li>Part 4. Packaging and Tank provisions</li> <li>Part 6. Construction and Testing of Packagings</li> </ul>
<b>MARKING, LABELLING AND PLACARDING</b>	<ul style="list-style-type: none"> <li>Chapter 6. Labelling and Marking</li> </ul>	<ul style="list-style-type: none"> <li>Part 5. Consignment procedures</li> </ul>	<ul style="list-style-type: none"> <li>Part 5. Consignment procedures</li> </ul>	<ul style="list-style-type: none"> <li>Part 5. Consignment procedures</li> </ul>
<b>DOCUMENTATION</b>	<ul style="list-style-type: none"> <li>Chapter 7. Shipper's Responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>Part 1. General provisions</li> <li>Part 5. Consignment procedures</li> </ul>	<ul style="list-style-type: none"> <li>Part 1. General provisions</li> <li>Part 5. Consignment procedures</li> </ul>	<ul style="list-style-type: none"> <li>Part 1. General Provisions, Definitions and Training</li> <li>Part 5. Consignment Procedures</li> </ul>

	AIR	RAIL	ROAD	SEA
<b>IMPORTANT CHAPTERS:</b>	ICAO TI Annex 18	<b>Rules for the International Transport of Dangerous Goods by Rail, RID</b>	<b>International Carriage of Dangerous Goods by Road (ADR)</b>	<b>IMDG Code</b>
<b>TRANSPORT PROVISIONS</b>	<ul style="list-style-type: none"> <li>Chapter 4. Limitations</li> <li>Chapter 8. Operator's responsibilities</li> <li>Chapter 9. Provision of information</li> </ul>	<ul style="list-style-type: none"> <li>Part 5. Consignment procedures</li> <li>Part 6. Requirements for the construction and testing of packagings, intermediate bulk container (IBCs), large packaging, tanks and bulk containers</li> <li>Part 7. Provisions concerning the conditions of carriage, loading, unloading and handling</li> </ul>	<ul style="list-style-type: none"> <li>Part 5. Consignment procedures</li> <li>Part 6. Requirements for the construction and testing of packagings, intermediate bulk container (IBCs), large packaging, tanks and bulk containers</li> <li>Part 7. Provisions concerning the conditions of carriage, loading, unloading and handling</li> </ul>	<ul style="list-style-type: none"> <li>Part 5. Consignment Procedures</li> <li>Part 6. Construction and Testing of Packagings</li> <li>Part 7. Provisions concerning the conditions of carriage, loading, unloading and handling</li> </ul>
<b>ADDITIONAL INFORMATION RELATING TO SPECIFIC DANGEROUS GOODS</b>	<ul style="list-style-type: none"> <li>International Civil Aviation Organization Technical Instructions (ICAO TI)</li> </ul>	<ul style="list-style-type: none"> <li>Part 3. Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities</li> </ul>	<ul style="list-style-type: none"> <li>Part 3. Dangerous goods list, special provisions and exemptions related to limited and excepted quantities</li> </ul>	<ul style="list-style-type: none"> <li>Volume 2 part 3 Dangerous goods list, special provisions and exemptions related to limited and excepted quantities and appendices</li> </ul>

## Annex IV - Checklist

Below is a non-exhaustive example of a checklist that shall be used when handling and transporting dangerous goods. This does not replace the use of relevant and complete checklists corresponding to the mode of transport used by operators.

EXAMPLE DANGEROUS GOODS CHECKLIST	
Date of check:	Time of check:
Checked by:	Department/Location:
Vehicle type:	Transport Operator:
Vehicle Registration No:	Trailer Registration No:
Driver's Name:	Driver's Assistant's Name:
Shipment Number(s):	
Dangerous Goods Details: (Class, UN Number(s), Proper Shipping name(s), Packing Group(s) and Quantities)	
Journey Type:	<input type="checkbox"/> Road (ADR) <input type="checkbox"/> Sea (IMDG Code) <input type="checkbox"/> Combined Road/Sea
	<input type="checkbox"/> Air (see IATA-DGR checklists)
Load details:	
<input type="checkbox"/> Excepted Quantities <input type="checkbox"/> Limited Quantities <input type="checkbox"/> Exemption Limits, 1.1.3.6 (ADR) <input type="checkbox"/> No Exemption Limits	

### Vehicle

- Clean and in Good Internal Condition
- Webbing Straps/Security Bars in good condition
- Orange Plates (if applicable)
- Placards (if applicable)

### Packages

- Shipper/Consignee
- UN Number (if applicable)
- Proper Shipping Name (if applicable)
- Class Hazard Label(s) (if applicable)
- Marine Pollutant Mark (if applicable)

- ❑ Lithium Batteries Mark (if applicable)
- ❑ LQ Mark (if applicable)
- ❑ UN Specification Mark (if applicable)
- ❑ Orientation Marks (Arrows) - (if applicable)
- ❑ Net or Gross Qty of Dangerous Goods on Packages (if applicable)
- ❑ All Closures tight (if applicable)
- ❑ If different dangerous goods have been packed together, check their compatibility

## Vehicle Equipment

- ❑ Equipment/Personal Protection as specified in applicable regulations (ADR 8.1.5.2 and 8.1.5.3)
- ❑ Fire Extinguisher shall be a minimum of 2 kg
- ❑ Fire Extinguisher - a total of 12 kg of extinguishers for vehicles of 7500 kg (ADR 8.1.4.1), preferably powder (ADR 8.1.4.3) with the next service date visible and seal intact
- ❑ Fire Extinguisher - for transport unit of 3500 kg up to and including 7500 kg, one or more Fire Extinguishers with a minimum total capacity of 8 kg (of which one shall have a minimum capacity of 6 kg)
- ❑ Fire Extinguisher - for transport unit of up to and including 3500 kg, one or more Fire Extinguishers with a minimum total capacity of 4 kg
- ❑ Chock (at least 1 per vehicle)
- ❑ 2 self-standing Warning Signs (reflective cones or triangles or flashing amber lights independent from electrical equipment of the vehicle)
- ❑ Warning Vest or Warning Clothing for each member of the vehicle crew
- ❑ Pocket Lamp for each member of the vehicle crew

## Documentation

- ❑ Transport Document (Dangerous Goods Note or Shipper's Declaration)
- ❑ Container Vehicle Packing Certificate signed (Box 15 on Dangerous Goods Note / Box 20 on Multimodal document /or any box number if a company's own document is being used)



- ❑ Standard Instructions in writing (liW) in suitable languages
- ❑ Valid ADR Driver Certificate (for appropriate Vehicle and Classes)
- ❑ Photographic ID of the driver and crew member(s)

## Security of Loads

- ❑ Load Secure and Restrained
- ❑ Mixed Loading/Segregation checked (if applicable)
- ❑ Rear Doors Secured, Sealed and Locked (if applicable)
- ❑ Placards attached (if applicable)

## Marking and Placarding

- ❑ Orange plates (if applicable)
- ❑ UN Number ( > 4000 kg of a single UN Number (IMDG)) (if applicable)
- ❑ Marine Pollutant Mark (if applicable)
- ❑ Limited Quantity Mark (if applicable)
- ❑ Excepted Quantity Mark (if applicable)

## Annex V – Useful links

ADR - Multi Lateral Agreements: <https://unece.org/adr-multilateral-agreements>

ADR: <https://unece.org/transportdangerous-goods/adr-2021-files>

Australian Dangerous Goods Regulations: <https://www.ntc.gov.au/codes-and-guidelines/australian-dangerous-goods-code>

Canadian Dangerous Goods regulations: <https://tc.canada.ca/en/dangerous-goods/transportation-dangerous-goods-canada>

CEFIC Emergency Response Intervention Cards: <http://www.ericards.net/>

CFR 49 site: <https://www.ecfr.gov/current/title-49>

COMAH Regulations: [www.opsi.gov.uk/si/si2005/20051088.htm](http://www.opsi.gov.uk/si/si2005/20051088.htm)

Container Packing: [www.containerhandbuch.de/chbe/index.html](http://www.containerhandbuch.de/chbe/index.html)

DfT Loads on vehicles: <https://www.gov.uk/government/organisations/department-for-transport>

ECHA: <https://echa.europa.eu/es/home>

EU Best practice for loading Vehicles and containers: <https://op.europa.eu/en/publication-detail/-/publication/30c7c1dc-f26e-44af-bd4c-2434b43edd7e>

EU online: <http://europa.eu>

Federal Motor Carrier Safety Administration. (USA Road): <https://www.fmcsa.dot.gov/regulations/hazardous-materials>

Freight Merchandising - Book - Labels purchase: <http://www.fmslondon.co.uk/>

Global Harmonisation of Chemicals: <https://unece.org/about-ghs>

HMSO Page: [www.hmso.gov.uk/](http://www.hmso.gov.uk/)

HSE Consignment Procedures: [www.hse.gov.uk/cdg/manual/consignment.htm#documentat1on](http://www.hse.gov.uk/cdg/manual/consignment.htm#documentat1on)

HSE page: [www.hse.gov.uk](http://www.hse.gov.uk)

HSE Segregation of Hazardous Materials: <https://www.hse.gov.uk/comah/sragtech/techmeassegregat.htm>

IATA DGR Web Site: <https://www.iata.org/en/publications/dgr/>

INCOTERMS: [www.iccwbo.org/incoterms/](http://www.iccwbo.org/incoterms/)

Information about Hazardous Waste: <https://www.envirogreen.co.uk/about-us/>

Inland Waterways (ADN): <https://unece.org/about-adn>

International Maritime Organisation: [www.imo.org](http://www.imo.org)

Orange Book: <https://unece.org/rev-21-2019>

Republic of Ireland: [www.hsa.ie](http://www.hsa.ie)

SDS ECHA: <https://echa.europa.eu/es/regulations/reach/safety-data-sheets/checklist>

UK Dangerous Goods Manual: [www.hse.gov.uk/cdg/manual/index.htm](http://www.hse.gov.uk/cdg/manual/index.htm)

UK Public Sector Information: [www.opsi.gov.uk/](http://www.opsi.gov.uk/)

UN ECE Dangerous Goods Site: [www.unece.org/trans/Welcome.html](http://www.unece.org/trans/Welcome.html)

USA Emergency Response Guide: <https://www.phmsa.dot.gov/hazmat/erg/emergency-response-guidebook-erg>

USA EPA Site: [www.epa.gov/](http://www.epa.gov/)



**International Federation of  
Freight Forwarders Associations**

*The global voice of freight logistics*

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