



INTERNATIONAL UNION
FOR ROAD-RAIL
COMBINED TRANSPORT



Version 2023

GUIDELINES ON DANGEROUS GOODS

EUROPEAN ROAD-RAIL COMBINED TRANSPORT

Legal provisions

The carriage of dangerous goods is regulated by:

- the RID - Regulation concerning the International Carriage of Dangerous Goods by Rail
- the ADR - Agreement concerning the International Carriage of Dangerous Goods by Road
- the IMDG - International Maritime Dangerous Goods Code
- the ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- the SMGS Annex 2 - Agreement on International Goods Transport by rail

Goods prohibited for carriage in Combined Transport

Usually all dangerous goods can be carried in Combined Transport except the goods listed in Table A of the ADR/RID as "PROHIBITED". Furthermore, the following types of dangerous goods are not permitted in Combined Transport:

- Class 1 Explosive materials in compatibility group A (UN numbers 0074, 0113, 0114, 0129, 0130, 0135, 0224 and 0473)
- Class 4.1 Self-reacting materials requiring a temperature-controlled environment (UN numbers 3231 to 3240)
- Class 4.1 Polymerizing substances of Class 4.1 requiring temperature control (UN numbers 3533 and 3534)
- Class 5.2 Organic peroxides requiring a temperature-controlled environment (UN numbers 3111 to 3120)
- Sulphur trioxide with a purity of 99.95% transported in tanks without inhibitor (Class 8, UN number 1829).

ADR/RID news

1. If a trailer, loaded with dangerous goods in limited quantities, is separated from its tractor, the mark affixed at the rear of the trailer in accordance with chapter 3.4 must also be affixed to its front (1.1.4.4.3 RID).
2. For UN Numbers 3077 and 3082, the technical name may be a name shown in capital letters in Table A of Chapter 3.2, provided that special provision 274 is not assigned for that number (3.1.2.8.1.4 ADR / RID).
3. Table 3.2A: 4 new UN Numbers; for the UN Numbers 1010, 1323, 1458, 2522, 2913 and 3363. The name has been modified; minor changes on about 40.
4. In 5.4.1.2.2 d) it has been added that also for portable tanks carrying refrigerated liquefied gases the date at which the actual holding time ends shall be entered in the transport document.
5. SMGS Annex 2: the 2021 version is currently of application.

Useful links



RID 2023 (rail)

[DE](#) [DK](#) [EN](#) [ES](#) [FR](#) [NL](#) [NO](#) [SE](#)



ADR 2023 (road)

[DE](#) [DK](#) [EN](#) [ES](#) [FR](#) [NL](#) [NO](#) [RU](#) [SE](#)



ADN 2023 (inland waterways)

[DE](#) [EN](#) [FR](#) [RU](#)



IMDG 2022 (maritime)

<http://www.imo.org/en/Publications/IMDGCode>

Placards and markings: basic principles

Placarding according to column (5) and, where appropriate, column (6) of Table A of Chapter 3.2 and the orange-coloured plate shall be affixed in conformity with chapter 3.4 and 5.3 of ADR/RID.

An orange-coloured plate bearing the hazard identification number and the UN number shall be affixed on both sides of the tank containers, MEGCs, tank semi-trailers and containers for carriage in bulk. During rail carriage, the semi-trailers must be fitted with placard or orange plate and, where applicable, markings. Placards (labels) corresponding to the hazardous substance being carried and, where applicable, markings, shall be affixed to the four sides of the swap bodies, large containers, portable tanks, tank-containers, MEGCs, tank semi-trailers (RID) and containers for bulk carriage (RID 5.3.1.2).

For tank-containers transporting substances listed in §4.3.4.1.3, the proper shipping name shall be indicated (ADR/RID 6.8.2.5.2).

The provisions for the marking of units / road vehicles shall also be applied to uncleaned empty units (ADR/RID 5.3.1.6).

All placards shall be undamaged and weather-resistant and shall ensure durable marking throughout the entire journey (ADR/RID 5.3.1.1.1, 5.3.2.2.1, 5.3.3).

In addition, for some substances, special marks shall be added (see page 7): (1) for all types of loading units in case of transport of substances carried at an elevated temperature as in case of environmental hazardous substances, (2) for swap bodies, containers and semi-trailers in case of transport in limited quantities, (3) swap bodies, containers and semi-trailers in case of fumigation of the unit.

Swap bodies and Containers

Without maritime journey

Provision: placard(s) on the 4 sides



With maritime journey

Provision: placard(s) on the 4 sides



Only 1 substance of more than 4 tonnes

Provision: placard(s) and UN number on all 4 sides



Flat containers

Without and with maritime journey

Provision: When the markings are not visible, they have to be repeated on the external sides of the flat. This is also applicable for IMDG transport.



Bulk Containers

Without maritime journey

Provision: placard(s) on all 4 sides and orange-coloured plate marking on both lateral sides



With maritime journey

Provision: placard(s) and UN number on all 4 sides and the proper shipping name on minimum 2 sides (height of characters 65 mm - IMDG 5.3.2.0)



Tank-containers

Without maritime journey

1 substance

Provision: placard(s) on all 4 sides and orange-coloured plate on both lateral sides



Various substances

Provision: placard(s) on both sides of each compartment and a placard of each model on both ends and orange-coloured plate marking on both lateral sides of each compartment



With maritime journey

1 substance with maritime journey

Provision: placard(s) and UN number on all 4 sides and the proper shipping name on minimum 2 sides (height of characters 65 mm - IMDG 5.3.2.0)



Various substances

Provision: placard(s) and UN number on both lateral sides of each compartment, a placard of each model on both ends and the proper shipping name on minimum 2 sides (height of characters 65 mm - IMDG 5.3.2.0)



Semi-trailers

Without maritime journey

Provision (2 options):

- 1) Orange-coloured plate (neutral) at the front and at the rear
- 2) Placard(s) on each lateral side



With maritime journey

Provision: placard(s) on 4 sides

Particular: only dangerous good of more than 4 tonnes
- addition of the UN number on the 4 sides



Tank semi-trailers / Bulk semi-trailers

Without maritime journey

Provision: placard(s) and orange-coloured plate on the 2 lateral sides, placard(s) and orange-coloured plate (neutral) at the rear



With maritime journey

Provision: placard(s) and UN number on all 4 sides and the proper shipping name on two sides (height of characters 65 mm) (IMDG 5.3.2.0)



MEGC

Without maritime journey

Provision: placard(s) on all 4 sides and orange-coloured plate on both lateral sides



With maritime journey

Provision: placard and UN number on all 4 sides and the proper shipping name on minimum 2 sides (height of characters 65 mm - IMDG 5.3.2.0)



Classes and labels (RID 5.2)

Class 1

Explosive substances and articles



Class 2

Gas

- 2.1 Flammable gases ⁽¹⁾
- 2.2 Non flammable, non toxic gases ⁽¹⁾
- 2.3 Toxic gases



Class 3

Flammable liquids ⁽²⁾



Class 4

Flammable solids

- 4.1 Flammable solids, self-reactive and desensitized
- 4.2 Substances liable to spontaneous combustion
- 4.3 Substances which, in contact with water, emit flammable gases ⁽¹⁾



Class 5

Oxidizing substances and Organic Peroxides

- 5.1 Oxidizing substances
- 5.2 Organic peroxides ⁽²⁾



Class 6

Toxic and Infectious substances

- 6.1 Toxic substances
- 6.2 Infectious substances



Class 7

Radioactive material



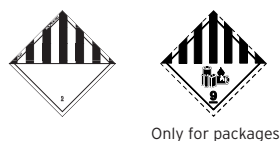
Class 8

Corrosive substances



Class 9

Miscellaneous dangerous substances and articles



(1) The symbol, text and number of the labels with an entirely green, red or blue background may be shown in white (ADR/RID 5.2.2.2.1.6b).
 (2) Class 5.2 label may be shown in white (ADR/RID 5.2.2.2.1.6c).

Special marks: basic principles

Substances carried at an elevated temperature (ADR/RID 5.3.3 and IMDG 5.3.2.2)

- Additional mark for solid substances over 240° and liquids over 100°
- Dimensions: at least 25 cm
- Large containers, tank-containers and portable tanks: on 4 sides
- Road vehicles: on both sides and at the rear



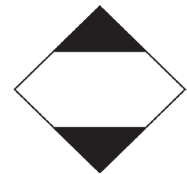
Environmentally hazardous substances (ADR/RID 5.3.6 and IMDG 5.3.2.3.1)

- Mark for large containers, MEGCs, tank-containers, portable tanks and road vehicles
- Dimensions: at least 25 cm x 25 cm
- The mark shall be affixed on the 4 sides if the placing is stipulated by the ADR/RID 5.3.1.; with a maritime leg the mark for marine pollutant must be affixed according to IMDG 5.3.2.3.1.



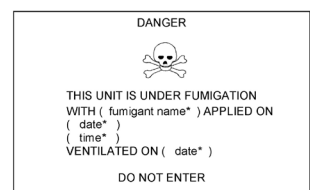
Limited quantities (ADR/RID 3.4.7 and ADR/RID 3.4.15)

- During the transport of packages over 8 tonnes in limited quantities, the 'diamond' mark should be affixed: (a) on the four sides of the containers, (b) at the front and rear of the trailers (RID 1.1.4.4.3).



Fumigated Cargo Transport Units (ADR/RID 5.5.2)

- A fumigated cargo transport unit shall be marked with a specific warning mark at each access point, where it can be seen by persons opening or entering (dimensions: 40 cm x 30 cm - UN number 3559).



Orange-Coloured Plate: meaning



33 = Hazard identification number

1088 = UN number

Dimensions: at least 30 cm x 40 cm

The hazard identification number consists of two or three digits. In general, they indicate the following hazards (according to ADR/RID 5.3.2.3.1):

- 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 = Oxidizing (fire-intensifying) effect

6 = Toxicity or risk of infection

7 = Radioactivity

8 = Corrosivity

9 = Risk of spontaneous violent reaction (except for 90 and 99)

X = The substance will react dangerously with water

0 = When the hazard associated with a substance can be adequately indicated by a single figure, it is followed by zero (0). Doubling of a figure indicates an intensification of that particular hazard (for ex. code 33 = highly flammable liquid).

Data required for the carriage of dangerous goods

In accordance with ADR/RID 5.4, the following information shall be given to the CT operators either at the (online) booking or at the latest when delivering the unit to the terminal.

Provisions for all classes

- The identification number of the hazard must precede the UN number when goods are transported in tank-containers, portable tanks, MEGCs and containers for carriage in bulk (only RID).
- The goods' UN number should be preceded by the letters "UN".
- The proper shipping name of the goods should be specified and, where appropriate, completed by its technical name in brackets (special provisions (SP) 61, 274 and 318).
- Where appropriate completed with information provided for in complementary special provisions (for example 640, 645, ...).
- Except for class 7, the number of the hazard label template mentioned in column 5 of Table 3.2.A or where appropriate according to the SP of the column 6. If several numbers of labels are given, the numbers which follow the first one must be indicated in brackets. If there is no corresponding label template, the class must be inserted.
- If relevant, the packing group attributed to the substance may be preceded by the letters "PG".
- If a substance meets the classification criteria of 2.2.9.1.10, the transport document must additionally contain the words "ENVIRONMENTALLY HAZARDOUS SUBSTANCE". This provision does not apply to UN 3077 and 3082 neither to exemptions provided for in 5.2.1.8.1.
- A declaration in conformity with the provisions of a particular agreement.
- For the transport of packages: the number and description of the packages, the total quantity of each hazardous substance should be characterized by its own UN number, its own proper shipping name and packing group (expressed in volume, gross or net weight).
- Limited quantity: indication of the gross weight.

Additional provisions for class 1

- The classification code specified in column 3b of Table A. If, in the column (5) of Table A, numbers of danger labels other than 1, 1.4, 1.5, 1.6, 13 or 15 are mentioned, these numbers must be followed in brackets by the classification code.
- The total net mass of the explosive goods in kg for each UN number and the total net mass in kg for all substances specified in the transport document.
- For fireworks with UN numbers 0333 to 0337, the transport document shall bear the inscription: "CLASSIFICATION OF FIREWORKS BY THE COMPETENT AUTHORITY OF XX WITH THE FIRE WORK REFERENCE XX/YYZZZZ". (XX=contracting state, YY=competent authority identification, ZZZZ=unique serial reference).

Additional provisions for class 2

(ADR/RID 5.4.1.2.2d)

In the case of tank-containers containing deeply refrigerated liquefied gases, the consignor shall indicate in the consignment note: "END OF HOLDING TIME..... (DD/MM/YYYY)".

Additional provisions for transport including a maritime leg

If the transport of a loading unit is preceding or following a maritime journey, where appropriate, the "specific provisions": "TRANSPORT ACCORDING TO 1.1.4.2.1" shall be added in the transport document.

Additional provisions for waste transport

The proper shipping name shall be preceded by the word "WASTE", unless this term is part of the proper shipping name (5.4.1.1.3).



Additional provisions for uncleaned empty ITUs and packages

For empty means of containment other than class 7 and for gas recipients with a capacity of more than 1000 l, the words "EMPTY, UNCLEANED" shall be indicated (5.4.1.1.6.1).

For empty packagings other than class 7, including receptacles for gases with a capacity of not more than 1000 litres, the goods' declaration must include the type of packaging followed by "EMPTY" (5.4.1.1.6.2.1).

Additional provisions for cooling and conditioning substances

(ADR/RID 5.5.3.7.1)

During the carriage of containers that have been cooled or conditioned, the UN number must be preceded by the "UN" letters and followed by the name indicated in Column (2) of Table A of Chapter 3.2 followed by the words "AS COOLANT" or "AS CONDITIONER" shall be indicated in the transport document.

For example: "UN 1845, CARBON DIOXIDE, SOLID, AS COOLANT".

Additional provisions for environmentally hazardous substances

When a substance of classes 1 to 9 meets the classification criteria of ADR/RID 2.2.9.1.10, the transport document shall bear the additional inscription "ENVIRONMENTALLY HAZARDOUS" or "MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS". This additional requirement does not apply to UN Numbers 3077 and 3082 nor to the exceptions listed in ADR/RID 5.2.1.8.1. The inscription "MARINE POLLUTANT" instead of "ENVIRONMENTALLY HAZARDOUS" is acceptable for carriage in a transport chain including maritime carriage.



Cargo Load Securing and Controls

When delivering the loading unit, the customer guarantees that it is suitable for Combined Transport and that the unit and the goods it contains meet the safety requirements for Combined Transport.

By "safety" it is meant that the state of the loading unit and the goods it contains allow a safe transport. Liquids and goods requiring specific temperature shall be loaded in suitable loading units. The packaging and securing of the goods shall be performed in accordance with the requirements specified in ADR/RID.

In Road-Rail Combined Transport, the requirements in paragraph 7.5.7.1 of ADR are fulfilled if the cargo is secured in accordance with standard EN 12195-1:2010 (dimensioning criteria and securing methods). For Combined Transport journeys including a maritime leg, it should be referred to the IMO/ILO/UN ECE Guidelines for Packing of Cargo Transport Units.

At the delivery or pick-up of loading units, the terminal manager will carry out a systematic control of all units to verify if these are compliant with the requirements of ADR/RID and with possible existing national and regional prescriptions. The manager will refuse to let in or out any unit not meeting those rules. The following controls are performed:

- At the check-in: general state of the unit, closure of the domes and ventiles, visible leakage, identity of the driver, markings (placards, orange-coloured plate), verification of the validity of the CSC and/or ACEP plates.
- At the check-out: delivery of units to road hauliers and drivers whose identity has been properly established (application of chapter 1.10 ADR/RID on security), validity of the approval certificate of the unit and of the vehicle and ADR certificate of the driver.

Railway Undertakings will also perform a series of controls when the train is departing based on their obligations as set in RID 1.4.2.2 and in the GCU (General Contract of Use).

This document is intended for information only and sets out guidelines for the safety and security of the combined transport of dangerous goods by rail and road. The information contained in these Guidelines is provided in good faith and, while it is accurate as far as the authors are aware, no representations or warranties are made about its completeness. It is not intended to be a comprehensive guide to all detailed aspects of the safety and security of the combined transport of dangerous goods by rail and road. No responsibility will be assumed by the authors in relation to the information contained in these Guidelines



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