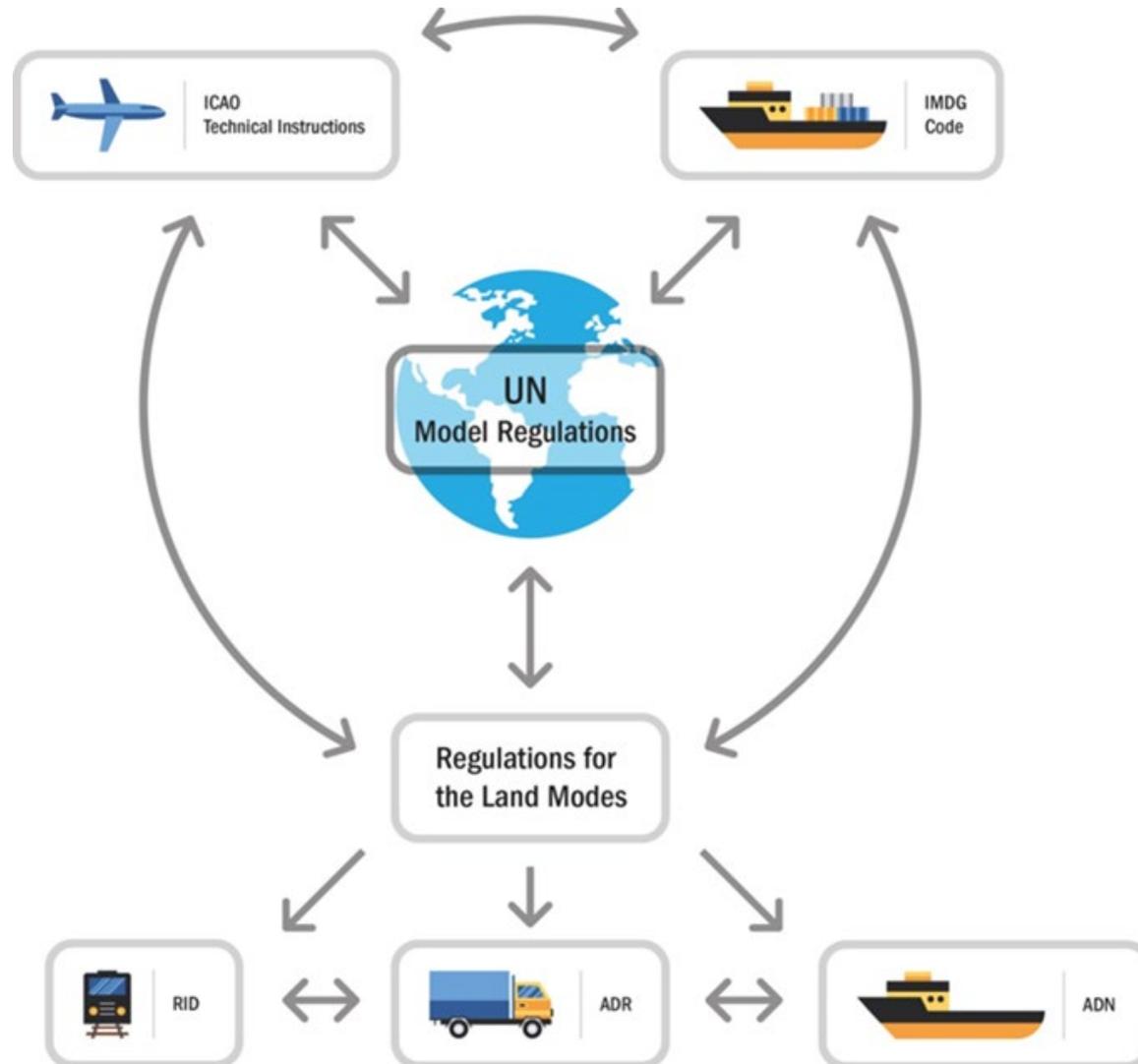




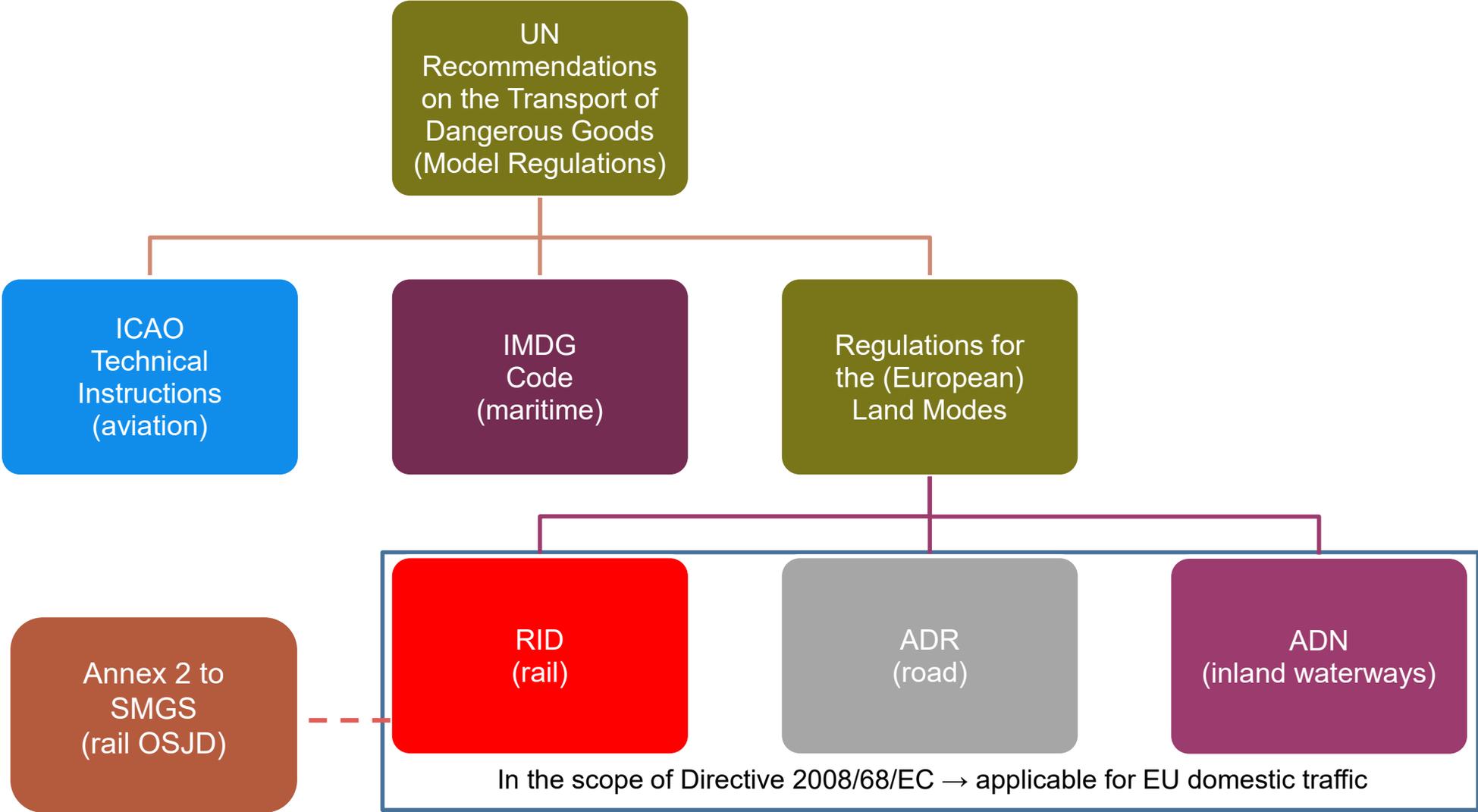
RID/ADR 2023

Jochen Conrad

Regulations for the Transport of Dangerous Goods



Regulations for the Transport of Dangerous Goods



Organisation of RID/ADR/ADN

- Twice a year (March and September) RID/ADR/ADN Joint Meeting
- Once a year (November) standing working group of the RID Committee of Experts
- Every two years just before the notification of the new amendments RID Committee of Experts meeting
- Every two years, notification of the new amendments to RID/ADR/ADN at least 5 months before entry into force

Tasks of the RID/ADR/ADN Joint Meeting

- Harmonisation with UN Model Regulations
- Common provisions for RID, ADR and ADN
 - RID/ADR tanks
 - Reference to European standards
 - Integration of EU Directives
 - Transport conditions for inland transport

Common Parts of RID and ADR

- Part 1 (General requirements): 70 % identical
- Part 2 (Classification): 90 % identical
- Part 3 (Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities): 80 % identical
- Part 4 (Use of packagings, intermediate bulk containers (IBCs), large packagings and tanks): 90 % identical
- Part 5 (Consignment procedures): 70 % identical
- Part 6 (Construction and testing of packagings, intermediate bulk containers (IBCs), large packagings and tanks): 90 % identical
- Part 7 (Conditions of carriage, loading, unloading and handling): 60 % identical
- Parts 8 and 9 of ADR do not exist in RID



OTIF

Intergovernmental Organisation
for International Carriage by Rail

RID

Regulations concerning
the International
Carriage of Dangerous
Goods by Rail

2023

- Actual version: RID 2023
- Applicable since 01.01.2023
- Transitional period until 30.06.2023
- Mandatory application of RID 2023 from 01.07.2023



RID/ADR/ADN Joint Meeting

- Advantages of the RID/ADR/ADN Joint Meeting
 - Common provisions for all three land modes are identical
 - To facilitate the translation of RID into the national language of the RID Contracting States OTIF will publish a synopsis of RID and ADR.

Notifications from the RID Contracting States

for example

- 1.5.1.1: Temporary derogations (multilateral special agreements)
- 1.8.4: List of competent authorities and bodies designated by them, for example list of recognized inspection bodies
- 1.8.5.2: Notification of occurrences involving dangerous goods in accordance with 1.8.5

Proposal

Nomination of a focal point in each RID Contracting State

- Staff member of the competent authority
- Contact person of OTIF in all RID matters
- Contact person for other national authorities
- Contact person for railway companies transporting dangerous goods
- Contact person for all enterprises involved in the transport of dangerous goods

2023 Amendments

Part 1: General Provisions



Chapter 1.1: Scope and applicability

- **1.1.4.7 (new):** approval of refillable pressure receptacles authorized by the Department of Transportation of the United States of America
 - Import: carriage in accordance with 1.1.4.2, including from the location of the temporary storage at the end point of the transport chain to the end user.





Chapter 1.1: Scope and applicability

- **1.1.4.7 (Contd.):**
 - Export to countries that are not **RID Contracting States/Contracting Parties to ADR**
 - Filling in accordance with CFR49
 - Marking and labelling in accordance with Chapter 5.2 of RID/ADR
 - No filling after they become due for periodic inspection
 - May be carried for purposes of performing inspection
 - Corresponding rule in CFR49 for RID/ADR pressure receptacles



Chapter 1.1: Scope and applicability

- **1.1.5**, new Note: a standard may include requirements in addition to those set out in RID/ADR/ADN



Chapter 1.2: Definitions

- Differentiation between *pressure receptacle* and *pressure receptacle shell*
- Definition of *service equipment* extended to pressure receptacles: closure(s), manifold(s), piping, porous, absorbent or adsorbent material and any structural devices, e.g. for handling
- Definition of *closure*: closures are, for example, valves, pressure relief devices, pressure gauges or level indicators
- Definition of *recycled plastics material*: Inclusion of provisions previously contained in 6.1.4.8.8 and 6.1.4.13.7 (alignment with UN Model Regulations)



Chapter 1.2: Definitions

- **New definitions**
 - *Pressure receptacle shell*: part of the pressure receptacle containing the gas to be carried, without its closures or other service equipment
 - *Fibre-reinforced plastics*: fibrous and/or particulate reinforcement contained within a thermoset or thermoplastic polymer
 - *Inner vessel for a closed cryogenic receptacle*: pressure vessel intended to contain the refrigerated liquefied gas
 - *Extra-large tank-container*: tank-container with a capacity of more than 40,000 litres



Chapter 1.2: Definitions

- Removal of abbreviations from 1.2.1 and transfer to a new 1.2.3
 - Systematic explanation of which foreign-language term an abbreviation is derived from

***RID*²²⁾: Regulation concerning the International Carriage of Dangerous Goods by Rail (Appendix C to COTIF (Convention concerning International Carriage by Rail)).**

²²⁾ The letters “RID” are the abbreviation of the French title “Règlement concernant le transport international ferroviaire de marchandises dangereuses”.



Chapter 1.6: Transitional measures

- The following transitional measures are deleted because they have lapsed:
 - **1.6.1.41:** use of large packagings of packing group III for aerosols
 - **1.6.1.44:** no obligation for the consignor to appoint a dangerous goods safety adviser
 - **1.6.1.46:** exemption of machinery and equipment containing dangerous goods
 - **1.6.2.16:** replacement of the hydraulic pressure test of cylinders by ultrasonic examination



Chapter 1.6: Transitional measures

- The following transitional measures are deleted because they have lapsed:
 - **1.6.3.3.3**: tank-wagons for the carriage of gases built between 1967 and 1970
 - **1.6.3.17**: tank-wagons with tank code L1,5BN for substances of Class 3, packing group I with a vapour pressure at 50 °C of not more than 1.75 bar
 - **1.6.3.33** and **1.6.4.32**: indication of “S” after the capacity if the tank is divided by partitions or surge plates into sections of not more than 7500 litres



Chapter 1.6: Transitional measures

- New transitional measures (unless mentioned below in the underlying provision):
 - **1.6.1.50:** continued use of entries for “DETONATORS, ELECTRIC” instead of “DETONATORS, ELECTRONIC” of UN Nos. 0511, 0512 and 0513 until 30 June 2025 (subsequent transitional measure for an amendment in 2021)
 - **1.6.1.51:** approval of non type-tested packagings for adhesives, paints and printing inks assigned to UN No. 3082, PG I until 30 June 2025



Chapter 1.6: Transitional measures

- New transitional measures (unless mentioned below in the underlying provision):
 - **1.6.1.52:** continued use of inner receptacles of composite IBCs whose markings are not easily accessible until the end of their period of use (subsequent transitional measure for an amendment in 2021)



Chapter 1.8: Measures to ensure compliance with safety requirements

- **1.8.5.4:** inclusion of MEMUs and extra-large tank-containers in the accident report
- **1.8.6** (Administrative controls for the activities described in 1.8.7 and 1.8.8): complete revision of the provisions for the approval, monitoring and obligations of inspection bodies
- **1.8.7** (Procedures for conformity assessment, type approval certificate issue and inspections): complete revision and inclusion of the entry into service verification



Chapter 1.8: Measures to ensure compliance with safety requirements

- **1.8.6 and 1.8.7:**
 - Explanations in document OTIF/RID/RC/2021/34/Rev.1
 - Extended to substances other than gases of Class 2
 - Basis for conducting extraterritorial inspections
 - Principle of mutual recognition requires uniform accreditation and monitoring of inspection bodies (extension of the principle of RID 6.8.2.4.6)
 - Approval by one Contracting State applies to all Contracting States



Chapter 1.8: Measures to ensure compliance with safety requirements

- **1.8.6 and 1.8.7 (contd.):**
 - Establishment of an RID/ADR-wide list for recognised inspection bodies
 - Deletion of national requirements relating to the duplication of existing tank approvals when importing tank-vehicles



Chapter 1.9: Restrictions on carriage imposed by the competent authorities

- Reference to multimodal risk assessment guidelines (“Inland TDG Risk Management Framework”) in connection with the application of supplementary provisions of the RID/ADR/ADN Contracting States in the carriage of dangerous goods



Chapter 1.10: Security provisions

- **1.10.4 and 1.1.3.6.2 ADR:** provisions of Chapter 1.10 apply to all high consequence substances of Class 1, even if they are carried in accordance with 1.1.3.6
- Transitional measure **1.6.1.53** allows non-application of the provisions of Chapter 1.10 until 31 December 2024 for explosive substances previously exempted from the provisions of Chapter 1.10

2023 Amendments

Part 2: Classification





Chapter 2.2: Class specific provisions

- **2.2.2.2.1, 2.2.3.2.2, 2.2.41.2.3, 2.2.61.2.1, 2.2.8.2.1: prohibition of carriage of polymerizing substances stabilised by temperature control**
- **2.2.2.2.2:** inclusion of UN 1043 (Fertilizer, ammoniating solution with free ammonia) in the list of gases not accepted for carriage, exception carriage in a transport chain which includes carriage by sea or air
- **2.2.41.4 and 2.2.52.4:** packing method OP 8 of packing instruction P 520 also applies to self-reactive substances and organic peroxides not listed in 2.2.41.1 and 2.2.52.4
- **2.2.7.2.3.1.4 (Testing of LSA-III material):** deletion and transfer to 2.2.7.2.3.4.3 (applicability to low dispersible radioactive material)

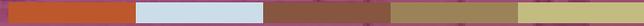


Chapter 2.2: Class specific provisions

- **2.2.8.1.5.2:** additional reference to OECD Guideline for the testing of chemicals No. 439 “in vitro Skin Irritation: Reconstructed Human Epidermis Test Method” 2015
- **2.2.9.1.7 (g):** test summary according to Manual of Tests and Criteria not required for button cell batteries installed in equipment (e.g. circuit boards)

2023 Amendments

Part 3: Dangerous Goods Lists, Special Provisions





Chapter 3.2: Table A

- Inclusion of one new UN number:
 - **UN 3550** COBALT DIHYDROXIDE POWDER, containing not less than 10% respirable particles



Chapter 3.2: Table A

- Name of **UN 1012** aligned with the UN Model Regulations:
 - UN 1012 BUTENE
 - New special provision 398 clarifies that butenes, mixture, but-1-ene, cis-but-2-ene and trans-but-2-ene fall under UN No. 1012
- **UN 1197 EXTRACTS, LIQUID, for flavour or aroma**
 - Entries **UN 1169 EXTRACTS, AROMATIC, LIQUID** and **UN 1197 EXTRACTS, FLAVOURING, LIQUID** combined into one entry



Chapter 3.2: Table A

- **UN 1345 RUBBER SCRAP** aligned with the UN Model Regulations by the following addition:
“not exceeding 840 microns and rubber content exceeding 45 %” (to align with UN Model Regulations)
- **UN 1872 LEAD DIOXIDE**: elimination of the subsidiary risk of toxicity (to align with UN Model Regulations)
- **UN 1891 ETHYL BROMIDE**: assignment from Class 6.1 to Class 3 with provisional retention of the subsidiary risk of toxicity



Chapter 3.2: Table A

- **UN 2015** HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED

In the first entry (more than 70% hydrogen peroxide), inclusion of the pure substance in the proper shipping name (to align with the UN Model Regulations)

- **UN 2426** AMMONIUM NITRATE, LIQUID: deletion of the concentration limits (80 to 93%) from the name (to align with the UN Model Regulations).

- **UN 3269 and UN 3527** POLYESTER RESIN KITS: carriage in exempted quantities possible according to SP 340



Chapter 3.2: Table A

- **UN 2908 to UN 2911 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE:** instead of tunnel restriction code “E”, no tunnel restriction in future (removal of a discrepancy with transport category 4)
- **UN 3208 METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S., PG II:** “E2” instead of “E0” (to align with ICAO TI)
- **UN 3209 METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S., PG II:** “E0” instead of “E2” (to align with ICAO TI)
- **UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNITS:** assignment to transport category 2, like lithium batteries



Chapter 3.3: Special provisions

- **SP 119 (UN 2857) and SP 291 (UN 3358):** inclusion of a Note equating heat pumps with refrigerating machines
- **SP 225 (UN 1044):** inclusion of a Note stating that the entry also applies to portable fire extinguishers with temporarily detached components; this eliminates need to comply with Chapter 6.2
- **SP 363 (UN 3528 to UN 3530):** inclusion of a Note allowing danger labels or placards, even if these are not prescribed



Chapter 3.3: Special provisions

- **SP 389** (for UN 3536): orange-coloured marking and placards are not required for carriage in accordance with 1.1.3.6
- **SP 397 new** (for UN 1002): UN 1002 may also be used for “synthetic air” (mixtures of nitrogen and oxygen containing not less than 19.5 % and not more than 23.5 % oxygen by volume)
- **SP 398 new** (for UN 1012): UN 1012 may be used for mixtures of butenes, but-1-ene, cis-but-2-ene and trans-but-2-ene; however, isobutene is classified under UN 1055.

Chapter 3.3: Special provisions



- **SP 396 new** (for UN 3538): carriage in gas cylinders with the valves open
 - UN 1066 Nitrogen, UN 1956 Compressed gas and UN 1002 Air, compressed only
 - Pressure in the article ≤ 35 kPa
 - Gas cylinders properly secured
 - Gas cylinders and piping are protected from damage



Chapter 3.3: Special provisions

- **SP 591** (for UN 1794): lead sulphate with not more than 3% free acid is not subject to the provisions of Class 8; assignment to Class 9 remains possible
- **SP 394** (for UN 1913, UN 1951, UN 1963, UN 1970, UN 1977, UN 2591, UN 3136 and UN 3158): limitation of the scope of application to the refrigeration of non-dangerous goods



Chapter 3.3: Special provisions

- **SP 642** (for UN 1043): reference to UN numbers 2073, 2672 and 3318, which may be used in land transport instead of UN 1043
- **SP 644** (for UN 2426): inclusion of an additional condition following alignment of the name with the UN Model Regulations
 - Not more than 93% ammonium nitrate



Chapter 3.3: Special provisions

- **SP 676 new** (for polymerizing substances): exemption from the provisions of special provision 386 when carried for recycling or disposal
 - Protection against the effects of heat, ambient temperature during transport $< 45\text{ }^{\circ}\text{C}$
 - Sufficient ventilation of the wagons/vehicles
 - Packing in packages of not more than 1000 litres capacity

2023 Amendments

Part 4: Provisions for the use of packagings and tanks





Chapter 4.1: Packagings, IBCs and large packagings

- **Composite IBCs with plastics inner receptacle:** The period of use refers to the date of manufacture of the inner receptacle
- **Salvage pressure receptacles:** increase the total capacity of the placed pressure receptacles from 1000 litres to 3000 litres
- **Non-design type tested packagings** (e.g. crates, pallets): if permitted in a packaging instruction, no restriction to 400 kg





Chapter 4.1: Packagings, IBCs and large packagings

- **P 200:**
 - Limitation of the working pressure for mixtures of fluorine and gases inert to fluorine with less than 35% fluorine (for higher concentrations, the provisions for fluorine apply)
 - Adaptation of the LC_{50} values for UN 1008, UN 2196, UN 2198 and UN 1052 and possibility of carrying UN 2196 and UN 2198 in large cylinders and pressure drums

Chapter 4.1: Packagings, IBCs and large packagings

- **P 621 (for UN 3291):**



- Approval of packagings with non-removable head as already approved for packages containing larger quantities of liquids (reminder: packagings with openings with a diameter < 7 cm are considered to be packagings with a non-removable head).



Chapter 4.1: Packagings, IBCs and large packagings

- **P 903** (for lithium batteries):
 - Paragraph (2) (non type-tested packagings) applies only to one cell or battery with a gross mass of 12 kg

Chapter 4.1: Packagings, IBCs and large packagings

- **P 911 and LP 906** (for damaged and defective lithium batteries):
 - Several batteries possible in one large packaging
 - New criteria for assessing the suitability of the packaging
 - Highest number of batteries and equipment
 - Highest total energy content of the batteries
 - Arrangement within the package with partitions and protective devices





Chapter 4.1: Packagings, IBCs and large packagings

- **IBC 07** (for new UN 3550):
 - New special packing provision **B 20**:
approval of flexible IBCs with sift-proof inner liners
- Restructuring of **4.1.6.15** with new table for standards for valve protection caps and valve guards, including application data



Chapter 4.2: Use of portable tanks

- Taking into account of the new Chapter 6.9 for portable tanks with FRP shells, in particular minimum wall thickness



Chapter 4.3: Use of tanks

- **4.3.2.3.7:**
 - Clarification of the wording (instead of “after the deadline has expired”, now “after the date specified”)
 - Inclusion of procedures after the date specified for **intermediate inspections:**
 - No filling, no handing over for carriage
 - But transport possible within three months after the date specified if filling has taken place before that date

Chapter 4.3: Use of tanks

- Deletion of **4.3.3.3.2** (only information for gases actually carried may be visible):
 - Removal of contradiction with 6.8.3.5.6 (indication of all gases permitted on tanks for carriage for alternating transport)
 - Information in the transport document and on the orange-coloured marking is sufficient
 - **In rail traffic, folding panels may be waived**



2023 Amendments

Part 5: Consignment procedures



Chapter 5.2: Marking and labelling

- **5.2.1.9.2:** waiver of the requirement to display a telephone number on the mark for lithium batteries due to difficulties in application
 - Telephone number of the manufacturer or consignor?
 - Available 24/7?
 - Languages?
 - Transitional measure in **1.6.1.49** allows continued use of old mark until **31.12.2026**





Chapter 5.3: Placards

- **5.3.2.1.5 Note** (exemption from repeating the orange-coloured marking on the **wagon/vehicle**)
 - Applies not only to tanks with a capacity ≤ 3000 litres but also to bulk containers and MEGCs ≤ 3000 litres
 - Applies to all types of **wagon/vehicle**



Chapter 5.4: Documentation

- **5.4.1.1.1 (k)** (Indication of the tunnel restriction code in the transport document):

also applies to tunnel restriction codes specified for UN Nos. 2919 and 3331 (radioactive material transported under special arrangement) in the special agreement



Chapter 5.4: Documentation

- **5.4.1.1.3.2 new:**
 - Estimate of waste quantity if measurement at the place of loading is not possible
 - Basis: nominal volume of the packaging or container
 - Not permitted for
 - substances carried under exemption of 1.1.3.6
 - substances according to 2.1.3.5.3 or substances of Class 4.3
 - tanks other than vacuum-operated waste tanks
 - Information in the transport document:
“QUANTITY ESTIMATED IN ACCORDANCE WITH 5.4.1.1.3.2”



Chapter 5.4: Documentation

- **5.4.1.1.5:**

inclusion of packagings or large packagings of larger dimensions which are suitable for use as salvage packagings by virtue of their type and test requirements

- **5.4.1.1.15:**

adapted to the cases of 3.1.2.6 (substances which must be stabilized to avoid dangerous reaction) and addition of “STABILIZED” or “TEMPERATURE CONTROLLED” to the proper shipping name.



Chapter 5.4: Documentation

- **5.4.1.1.21:**
now covers all the information in the transport document specified in the special provisions of Chapter 3.3; 5.4.1.1.16 deleted
- **5.4.1.1.23 new:**
carriage of solids in the molten state: include the word “MOLTEN” in the transport document
- **5.4.1.1.24 new** (pressure receptacles approved by DOT):
“CARRIAGE IN ACCORDANCE WITH 1.1.4.7.1” or
“CARRIAGE IN ACCORDANCE WITH 1.1.4.7.2”.



Chapter 5.4: Documentation

- **5.4.1.2.2 (e) new:**

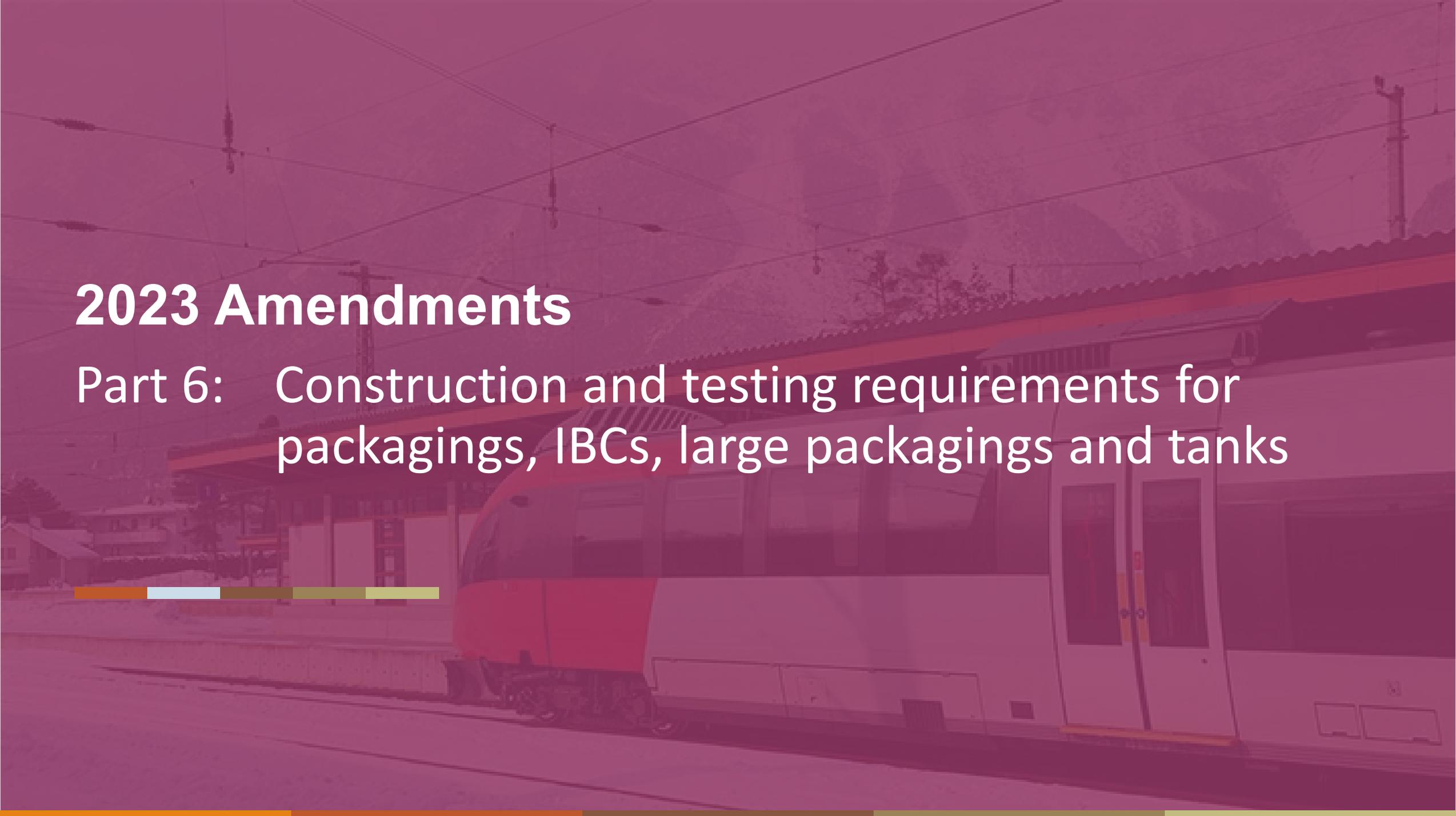
for UN 1012 BUTENE, indication in brackets of the specific gas carried (mixtures of butenes, but-1-ene, cis-but-2-ene and trans-but-2-ene)

- **5.4.2:**

container/vehicle packing certificate can be transmitted directly to the maritime carrier, as not relevant to safety for land transport

2023 Amendments

Part 6: Construction and testing requirements for packagings, IBCs, large packagings and tanks





Chapter 6.2: Pressure receptacles

- Distinction between pressure receptacle shell and service equipment (closure(s), manifold(s), piping, porous, absorbent or adsorbent material and any structural devices, e.g. for handling)
- **6.2.1.4.4 new:** separate conformity assessment of the pressure receptacle shell and the closures is possible

Chapter 6.2: Pressure receptacles

- **6.2.1.5.2:**
 - revision of the tests and inspections to be carried out on closed cryogenic receptacles
 - division into inner vessels, closures and assembled cryogenic receptacles
 - transitional measure **1.6.2.18** allows continued use of closed cryogenic receptacles built before 1 July 2023



Foto: CryoShop



Chapter 6.2: Pressure receptacles

- **6.2.2.7.3 (k) and (l):** operational marks on cylinders for UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free
 - Indication of the tare
 - Indication of the porous material
 - Indication of the total mass of the filled acetylene cylinder
 - Transitional measure **1.6.2.19** allows continued use of acetylene cylinders manufactured before 1 July 2023 until the next inspection and test to be carried out after 1 July 2023



Chapter 6.2: Pressure receptacles

- Updating of numerous referenced standards for both UN pressure receptacles and non-UN pressure receptacles
- **6.2.2.7.8:** the marks for refillable UN pressure receptacles may be engraved on a metallic ring affixed when the valve is installed (previously only possible for non-UN pressure receptacles and UN acetylene cylinders)



Chapter 6.2: Pressure receptacles

- **6.2.2.11 and 6.2.3.9.8 new:** marking of closures for refillable (UN) pressure receptacles
 - Manufacturer
 - Design standard
 - Date of manufacture
 - Transitional measure **1.6.2.20** allows continued use of closures of refillable pressure receptacles constructed before 1 July 2023



Chapter 6.5: Intermediate bulk containers (IBCs)

- **6.5.1.1.2:** alignment with the corresponding provisions for packagings and large packagings
 - Derogation from construction requirements in order to take into account progress in science and technology
 - Effectiveness
 - Recognition by the competent authority
 - Successfully fulfil the inspection and testing requirements described in 6.5.4 and 6.5.6
 - Equivalent methods of inspection and testing possible



Chapter 6.5: Intermediate bulk containers (IBCs)

- Deletion of **6.5.5.3.5** and **6.5.5.4.9**: expand the use of recycled plastic materials to rigid plastics IBCs (6.5.5.3) and composite IBCs with plastics inner receptacles (6.5.5.4)
- **6.5.2.1.2 new**: marking with “REC” when recycled plastics material is used





Chapter 6.7: Construction and testing requirements for portable tanks

- **Applicability of various provisions also to portable tanks with shells made of fibre-reinforced plastics**



Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

- **6.8.1.5 new:** conformity assessment, type approval and inspections procedures

Application to tanks of the procedures of the new 1.8.7

- Type examination by a single inspection body approved by the competent authority of either the country of manufacture or the first country of registration

Until 31 December 2028 only by inspection body approved by the country of registration.

- Type approval certificate issued only by the competent authority that approved the inspection body that performed the type examination



Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

- **6.8.1.5 new (contd.):**

- Supervision of manufacture by a single inspection body approved by the competent authority of either the country of manufacture or the country of registration
- Initial inspection and tests by a single inspection body approved by the competent authority of either the country of manufacture or the country of registration

Until 31 December 2032 only by inspection body approved by the country of registration.



Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

- **6.8.1.5 new (contd.):**

- Entry into service verification if required by the competent authority of the country of first registration or if the country of registration is changed. The inspection body may not be the same as the inspection body for the type examination, supervision of manufacture or initial inspection and tests
- Intermediate, periodic or exceptional inspection by an inspection body approved by the competent authority of the country where the inspection takes place or approved by the country of registration

For tank-vehicles, only in the country of registration by an inspection body approved there. Also possible in the country of manufacture in the event of an exceptional inspection



Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

- **Transitional measures for 6.8.1.5 new:**
 - **1.6.3.54** and **1.6.4.57**: previous procedures used by the competent authorities for the approval of experts may continue to be applied until 31 December 2032 (does not apply to gas tanks).
 - **1.6.3.55** and **1.6.4.58**: type approval certificates issued before 1 July 2023 may continue to be used until the end of their validity.
 - **1.6.3.58**: previous procedures used by the competent authorities for the approval of experts, the performance of inspections concerning tank-wagons and the mutual recognition of such inspections in accordance with the requirements of 6.8.2.4.6 may continue to be used until 31 December 2032.

Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

Extra-large tank-containers

- **6.8.2.1.18:**
Minimum wall thickness for extra-large tank-containers 4.5 mm instead of 3 mm for conventional tank-containers (alignment with tank-wagons)

Transitional measure in **1.6.4.62**: Continued use of extra-large tank-containers built up to now
- **6.8.2.2.1:**
Welded elements shall be attached to the shell in such a way that tearing of the shell is prevented (alignment with tank-wagons)





Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

Extra-large tank-containers (contd.):

- **6.8.2.2.4:**

Strength of closures of openings for the internal inspection of extra-large tank-containers 4 bar (alignment with tank-wagons)

Transitional measure in **1.6.4.61**: Continued use of extra-large tank-containers built up to now



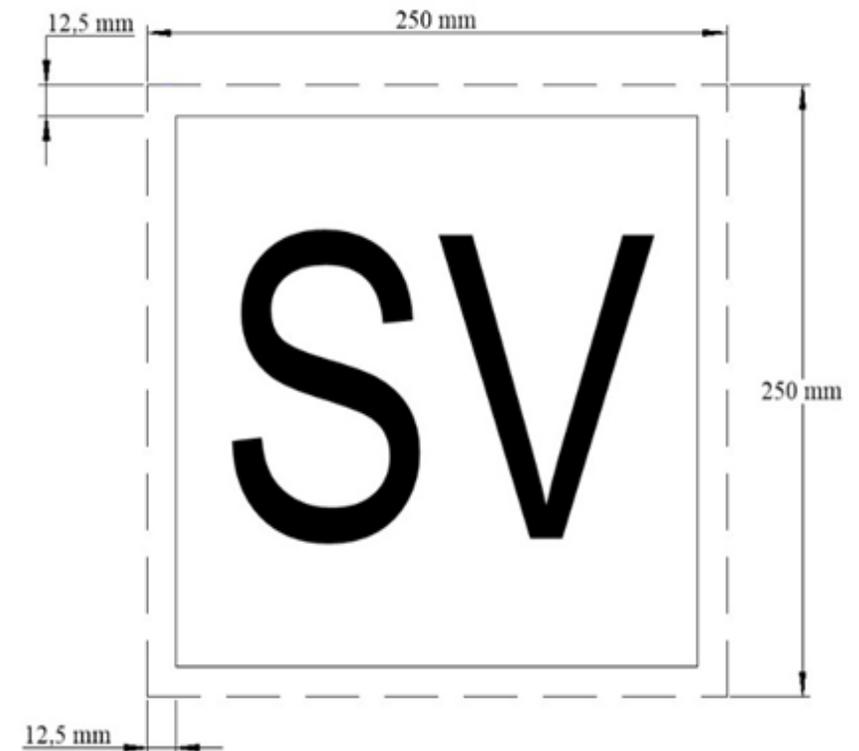
Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

- **6.8.3.2.9 new: safety valves**
 - On **tank-vehicles and** tank-containers for the carriage of flammable liquefied gases
 - Exempted for other gases **and for tank-wagons**
 - Technical requirements
 - Transitional measures **1.6.3.57** and **1.6.4.60**: continued use of tanks built up to now

Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

- **6.8.3.2.9 new: safety valves (contd.)**

- Marking of all tanks equipped with safety valves
- Design like placards, but smaller size possible for capacity ≤ 3000 litres
- Characteristics of the mark like orange-coloured marking
- Transitional measures **1.6.3.60** and **1.6.4.64**: marking as part of the next intermediate inspection or periodic inspection





Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

- **6.8.3.4.6:** clarification of the intervals for the intermediate inspection and periodic inspection of tanks for refrigerated liquefied gases
 - Periodic inspections **eight/six**/eight years after the initial inspection and thereafter every twelve years
 - Intermediate inspections every six years after each periodic inspection (involvement of the competent authority is not required for tank-containers).
 - Transitional measure **1.6.4.56:** after 1 July 2023, an intermediate inspection must be carried out at least every six years after each periodic inspection



Chapter 6.8: Requirements for the construction, testing and inspection of tank-wagons/tank-vehicles and tank-containers

- **TE 26 new:** all filling and discharge connections of tanks intended for the carriage of flammable refrigerated liquefied gases shall be equipped with an instant closing automatic stop-valve (UN 1038, UN 1961, UN 1966, UN 1972, UN 3138 and UN 3312)

Transitional measures **1.6.3.59** and **1.6.4.63** allow the continued use of tanks built before 1 July 2023



Chapter 6.9: Requirements for the design, construction, inspection and testing of portable tanks with shells made of fibre-reinforced plastics (FRP) materials

- Current Chapter 6.9 of RID/ADR adapted to the state of the art
- Worldwide application for the construction of portable tanks
- Also applies to RID/ADR tank-containers
- Former RID/ADR Chapter 6.9 becomes new ADR Chapter 6.13 and only applies to tank-vehicles



Chapter 6.9: Requirements for the design, construction, inspection and testing of portable tanks with shells made of fibre-reinforced plastics (FRP) materials

- Used for substances of classes 1, 3, 5.1, 6.1, 6.2, 8 and 9, provided that these are also permitted for carriage in portable metal tanks
- In principle, the provisions of Chapter 4.2 and 6.7.1 and 6.7.2 apply
- More comprehensive material testing than in the former Chapter 6.9
- Retention of shell samples
- Mark must indicate “fibre-reinforced plastic” and the reinforcing fibres used

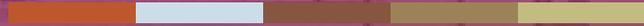


Chapter 6.13: Requirements for the design, construction, equipment, type approval, testing and marking of fibre-reinforced plastics (FRP) fixed tanks (tank-vehicles) and demountable tanks

- Former Chapter 6.9 with exclusion of tank-containers
- Updated on the basis of the new Chapter 6.9
- Reference to certain provisions of the new Chapter 6.9
- Transitional measures:
 - **1.6.3.56 and 1.6.4.59:**
 - Construction and approval of tank-vehicles and tank-containers possible until 1 July **2033** in accordance with former Chapter 6.9
 - Continued use of tank-vehicles and tank-containers constructed before 1 July **2033** in accordance with the former Chapter 6.9

2023 Amendments

Part 7: Provisions concerning the conditions of carriage,
loading, unloading and handling





Chapter 7.1: General Provisions

- **7.1.7.4.5:** methods to avoid exceeding the control temperature

Clarification of which measures can be applied to which means of containment

(a) and (b): vehicles, containers, packagings and overpacks

(c) and (d): vehicles and containers only

- **7.1.7.4.7:** reference to Chapter 9.6 now only applies to vehicles; for containers, the requirements from Chapter 9.6 are repeated for thermal insulation, cooling units and refrigeration machines



Chapter 7.2: Provisions concerning carriage in packages

- **7.2.4: new special provision W 15/V 15**

Carriage of intermediate bulk containers (IBCs) only in closed **wagons/vehicles** or in closed containers (currently only UN 3550 Cobalt dihydroxide powder)



Chapter 7.3: Provisions concerning carriage in bulk

- **7.3.1.13**: structural suitability of bulk containers, containers and **wagons/vehicles**
“Major defects” aligned with new 7.5.1.2

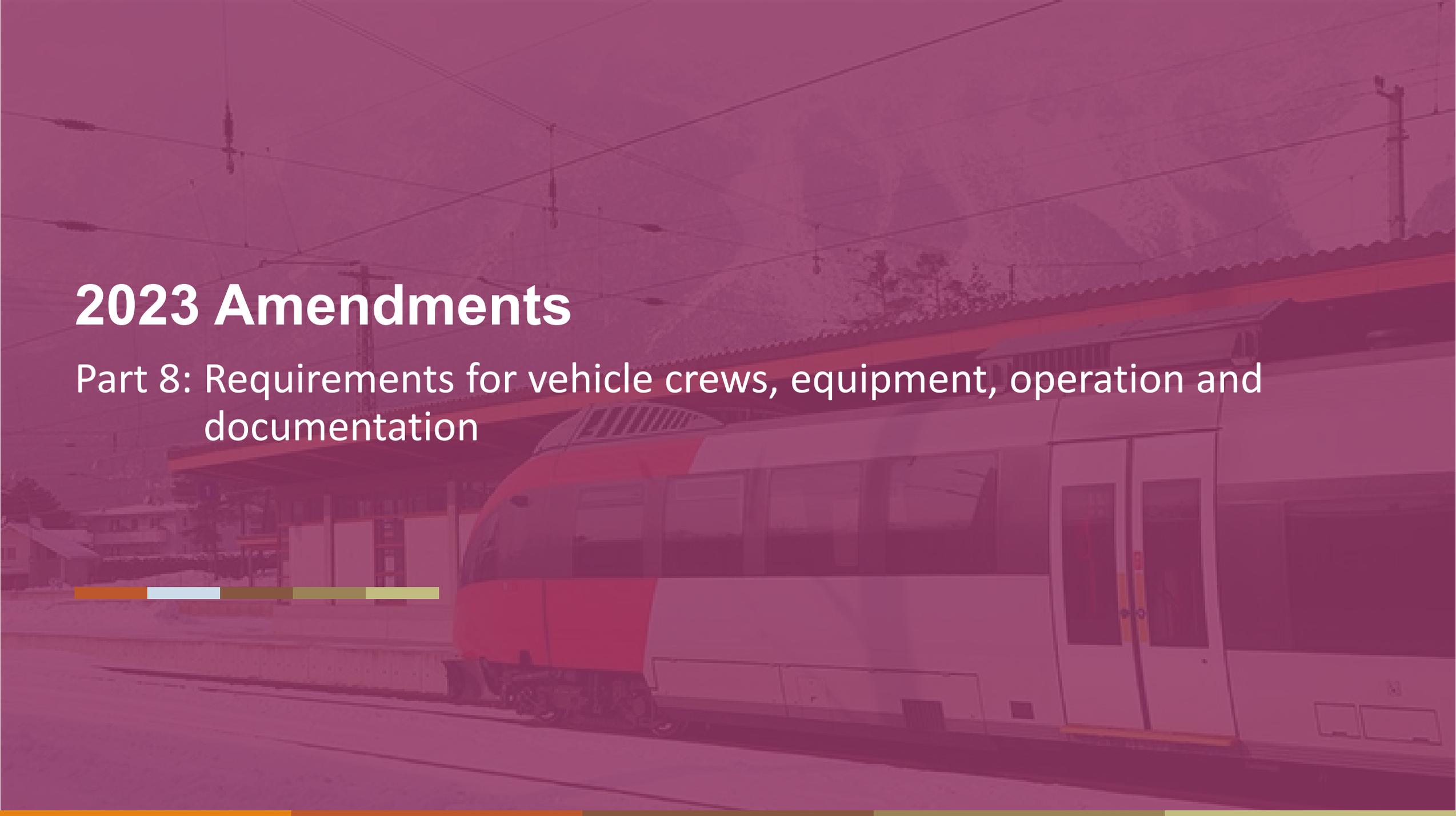


Chapter 7.5: Provisions concerning loading, unloading and handling

- **7.5.1.2:** addition of provisions for structural suitability (previously 7.1.4)
 - Applies to all cargo transport units and not just to containers
 - Removal of the 19 mm criterion for dents and bends
 - Removal of the limitation of the permissible splices
 - New: damage to lifting attachments or to the handling equipment interface features

2023 Amendments

Part 8: Requirements for vehicle crews, equipment, operation and documentation





Chapter 8.5: Additional requirements relating to particular classes or substances

- **S1 (6):** inclusion of UN Nos. 0512 and 0513 (detonators, electronic, programmable) in the list of substances and articles of Division 1.4 to which the 50 kg limit does not apply
 - Supervision of vehicles from 0 kg required

2023 Amendments

Part 9: Requirements concerning the construction and approval of vehicles





Chapter 9.2: Requirements concerning the construction of vehicles

- **9.2.3.1.1: inclusion of electric regenerative braking systems, which are now regulated in UN Regulation No. 13 (Uniform provisions concerning the approval of vehicles of categories M, N and O with regard to braking)**

Chapter 9.2: Requirements concerning the construction of vehicles

- **9.2.4.6 new: electric power train**
 - Only approved for AT vehicles
 - Hybrid vehicles are also approved
 - Reference to UN Regulation No. 100 (Uniform provisions concerning the approval of vehicles with regard to specific requirements for the electric power train)



Foto: Daimler Truck AG

Chapter 9.2: Requirements concerning the construction of vehicles

- **9.7.9:**
 - Applies not only to EX/III vehicles but also to FL vehicles for the carriage of liquefied or compressed flammable gases and for the carriage of liquid flammable substances of PG I and II
 - Automatic fire suppression system in the engine compartment
 - Thermal shield on all wheels to avoid direct or indirect propagation of a tyre fire from to the load



Foto: protecfire GmbH



Chapter 9.2: Requirements concerning the construction of vehicles

- **9.7.9 (contd.):**

- Measures of the BLEVE working group
- Transitional measures

BLEVE = boiling liquid expanding vapour explosion

- **1.6.5.23:** requirements for thermal shields on EX/III and FL vehicles do not have to be met until 1 January **2029**; continued use of EX/III and FL vehicles first entering into service before 1 January 2029
- **1.6.5.24:** requirements for automatic fire suppression system on FL vehicles do not have to be met until 1 January **2029**; continued use of FL vehicles first entering into service before 1 January 2029



Organisation intergouvernementale pour les transports internationaux ferroviaires
Zwischenstaatliche Organisation für den internationalen Eisenbahnverkehr
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