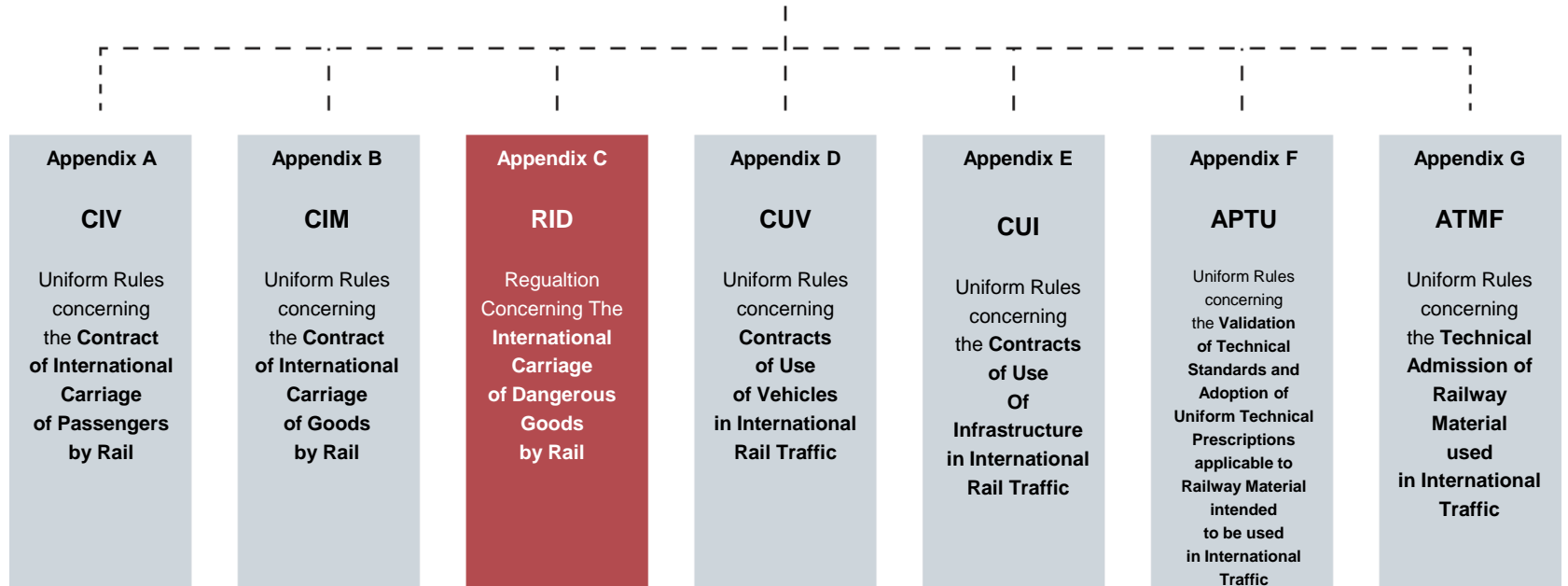




Rail carriage of dangerous goods: The global approach

COTIF 1999

COTIF Convention concerning International Carriage by Rail

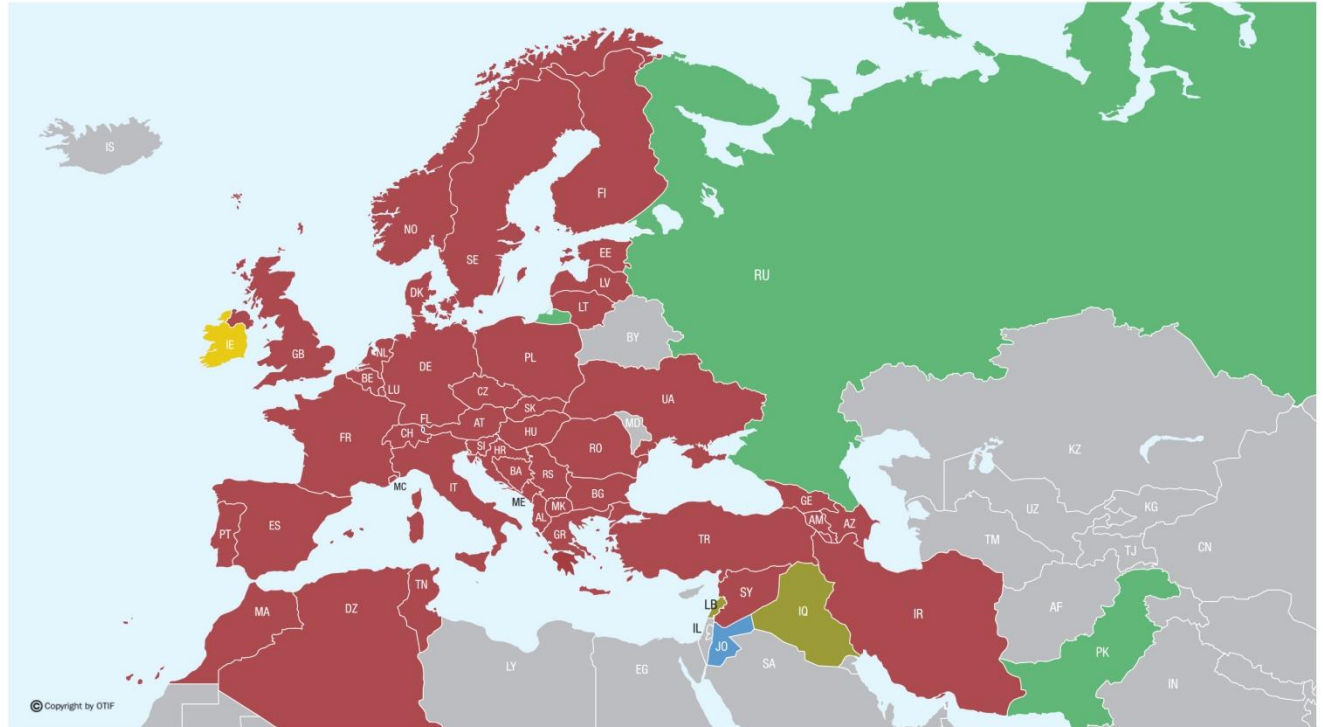


- Regulations Concerning the International Carriage of Dangerous Goods by Rail
- Appendix C to COTIF 1999
- since 1893
- first restructured edition 1 July 2001
- 47 RID Contracting States
- Responsible OTIF Committee: RID Committee of Experts
- revision every two years

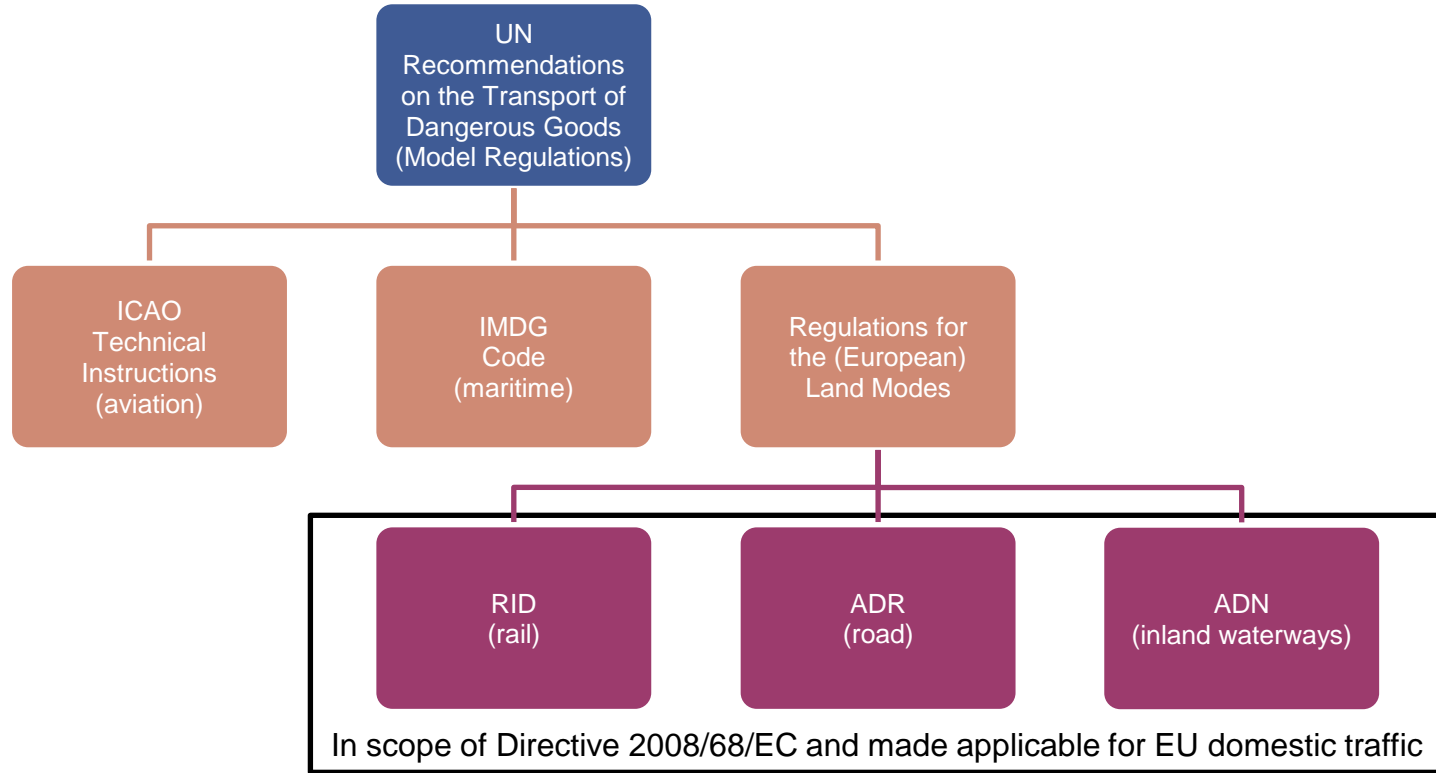


Scope of application of RID - Appendix C to the COTIF

-  RID (44)
-  Without RID (2)
-  COTIF 1999 not yet ratified (1)
-  Associate Members (1)
-  Membership suspended (2)



Regulations for the Transport of Dangerous Goods



État au 15 janvier 2016
Stand 15. Januar 2016
Situation on 15th January 2016



OTIF – EU Member States

- OTIF
- OTIF & EU
- EU



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UN Model Regulations

- ECOSOC Committee of experts on the TDG and on the GHS
 - 36 members with voting right
 - Other observer states without voting right
 - International governmental organisations (IMO, ICAO, WHO, ILO, OTIF, ...)
 - International non-governmental organisations (NGOs) (chemical industry, gas industry, packaging industry, carrier, ...)

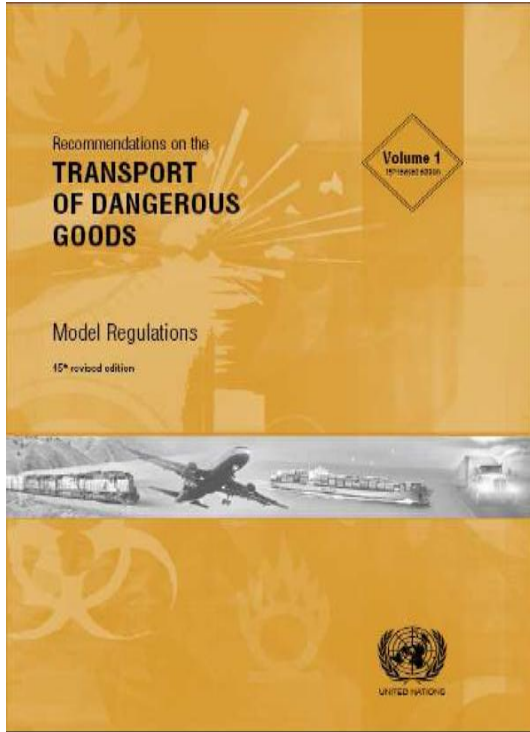
UN Recommendations on the Transport of Dangerous Goods

- Two sub-committees
 - UN Sub-Committee on the transport of dangerous goods (27 members)
 - UN Sub-Committee on the globally harmonized system of classification and labelling of chemicals (32 members)
- Twice a year (June and December) UN Sub-Committee of Experts on the Transport of Dangerous Goods
- Tasks: Common provisions for all modes, in particular classification, packing provisions
- At the end of a biennium (pair years) one session of the Committee of Experts on the Transport of Dangerous Goods

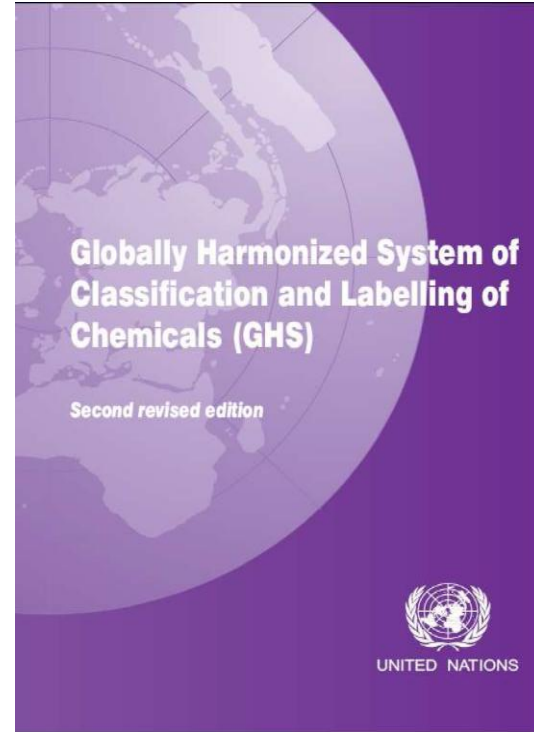
Regulations for the Transport of Dangerous Goods

UN Model Regulations

"Orange Book"



"Purple Book"



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/twice a year WP.15
- 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

Tasks of the RID Committee of Experts

- Interpretation of RID
- Integration into the general EU railway law
- Limited provisions on the construction of wagons
- Training provisions
- Operational provisions
- Provisions for hand luggage and registered luggage
- Accident analysis

Example



Time schedule for amendments to RID/ADR/ADN

- Adoption of amendments to the UN Model Regulations in December of year X (e.g. December 2014)
- Examined at the RID/ADR/ADN Joint Meeting in September of year X+1 (e.g. September 2015)

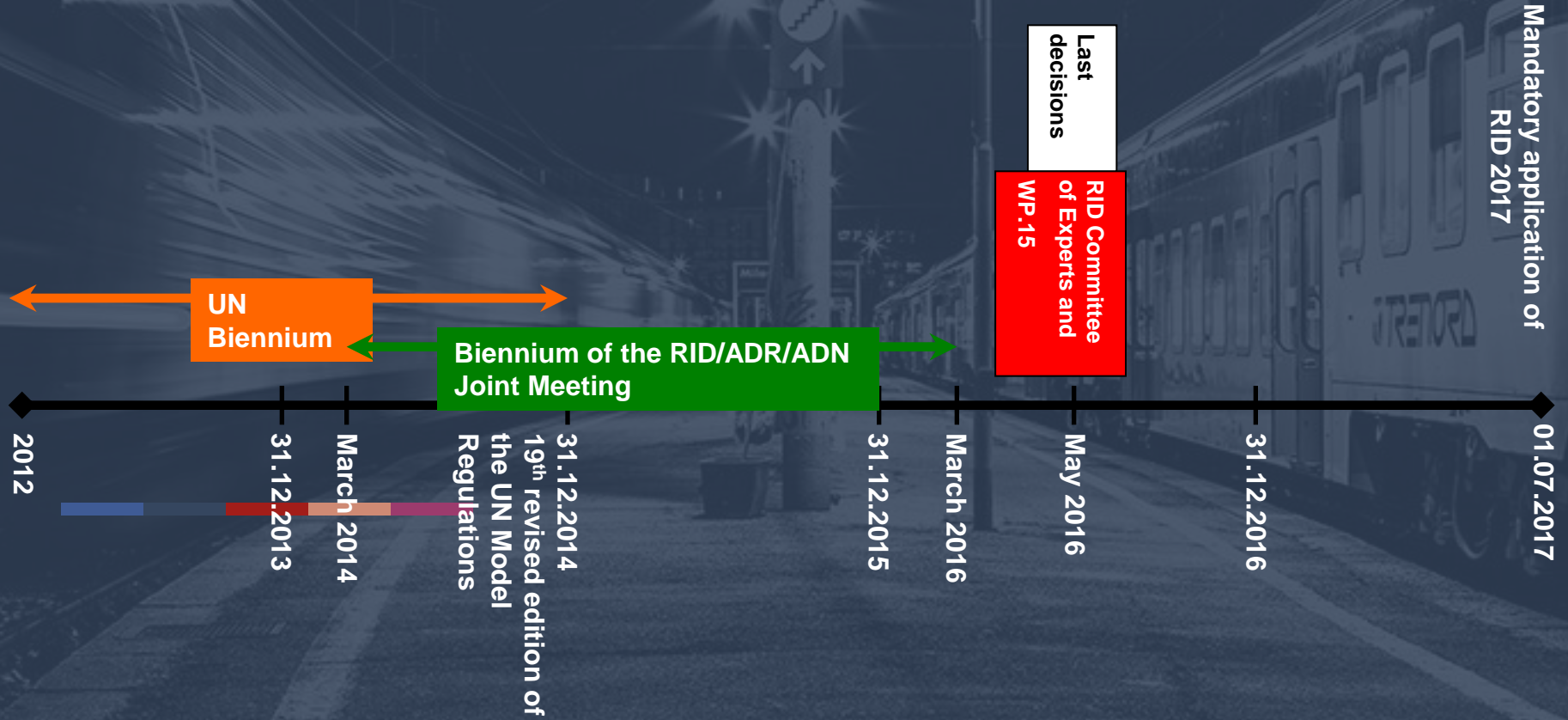
Time schedule for amendments to RID/ADR/ADN

- Adopted for
 - Rail transport at the RID Committee of Experts in May of year X+2 (e.g. May 2016)
 - Road transport at WP.15 in May of year X+2 (e.g. May 2016)
- Amendments notified at latest by 30 June of year X+2 (e.g. 30 June 2016)

Time schedule for amendments to RID/ADR/ADN

- The amendments to RID/ADR/ADN enter into force on 1 January of year X+3 (e.g. 1 January 2017)
- Usually with a 6 month transitional period (e.g. 30 June of year X+3)
- From 1 July of year X+3 (e.g. 1 July 2017), the new RID/ADR/ADN must be applied

Time schedule for amendments to RID/ADR/ADN



Languages

- UN Model Regulations:
 - English, French, Russian, Spanish, Arabic, Chinese
- ADR, ADN:
 - English, French, Russian
- RID:
 - English, French, German
- Annex 2 to SMGS:
 - Russian, Chinese

RID – Annex 2 to SMGS

- Annex 2 to SMGS contains Regulations concerning the international carriage of dangerous goods by rail in OSJD Member States
- Alignment of Annex 2 to SMGS with the structure of RID 2001
- Quicker incorporation of amended RID provisions into SMGS
- Simplification of traffic between COTIF and SMGS Member States
- Start of wider harmonisation procedure in November 2012

RID

- Divided in 7 parts
 - **Part 1:** General requirements
 - **Part 2:** Classification
 - **Part 3:** Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities
 - **Part 4:** Packing and tank provisions

RID

- **Part 5:** Consignment procedures
- **Part 6:** Requirements for the construction and testing of packagings, intermediate bulk containers (IBCs), large packagings and tanks
- **Part 7:** Provisions concerning the conditions of carriage, loading, unloading and handling

Part 1 - General requirements

- **Chapter 1.1: Scope and applicability**
 - Structure
 - Scope
 - Exemptions
 - Applicability of other regulations
- **Chapter 1.2: Definitions**
 - Units of measurement
- **Chapter 1.3: Training of persons involved in the carriage of dangerous goods**

Part 1 - General requirements

- **Chapter 1.4: Safety obligations of the participants**
 - Main participants: consignor, carrier, consignee
 - Other participants: loader, packer, filler, tank container operator, tank-wagon operator, railway infrastructure manager, unloader

Part 1 - General requirements

- **Chapter 1.5: Derogations**
 - Temporary derogations (multilateral special agreement)
- **Chapter 1.6: Transitional measures**
- **Chapter 1.7: General provisions concerning radioactive material**
 - developed by IAEA for all modes of transport

Part 1 - General requirements

- **Chapter 1.8: Checks and other support measures to ensure compliance with safety requirements**
 - Safety adviser
 - Report on occurrences during transport of dangerous goods

Part 1 - General requirements

- **Chapter 1.9: Restrictions on carriage imposed by the competent authorities**
 - additional safety requirements or restrictions on
 - using certain structures (bridges, tunnels)
 - using combined transport installations
 - prohibitions on sections with special and local risks
 - residential areas, environmentally sensitive areas, ...
 - exceptional provisions specifying the routing

Part 1 - General requirements

- **Chapter 1.10: Security provisions**
 - Security training
 - High consequence dangerous goods
 - Security plans
- **Chapter 1.11: Internal emergency plans for marshalling yards**

Part 2 - Classification

- **Chapter 2.2 Class specific provisions**
 - Criteria
 - Substances not accepted for carriage
 - List of collective entries

Part 2 - Classification

Class 1:

Explosive substances
and articles (e.g. fireworks)



Part 2 - Classification

Class 2: Gases
(e.g. butane, propane)



Part 2 - Classification

Class 3: Flammable liquids
(e.g. diesel fuel, gasoline)



Part 2 - Classification

Class 4.1: Flammable solids, self-reactive substances and solid desensitized explosives (e.g. sulphur)



Part 2 - Classification

Class 4.2: Substances liable to spontaneous combustion (e.g. phosphorus)



Part 2 - Classification

Class 4.3: Substances which, in contact with water, emit flammable gases (e.g. lithium)



Part 2 - Classification

Class 5.1: Oxidizing substances
(e.g. perchloric acid)



Part 2 - Classification

Class 5.2: Organic peroxides



Part 2 - Classification

Class 6.1: Toxic substances
(e.g. strychnine, nicotine)



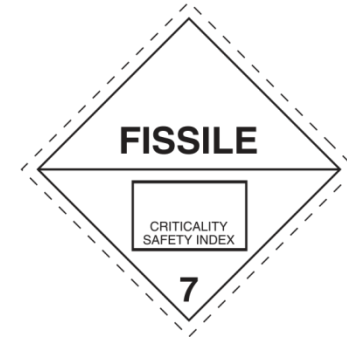
Part 2 - Classification

Class 6.2: Infectious substances
(e.g. clinical waste)



Part 2 - Classification

Class 7: Radioactive material
(e.g. uranium)



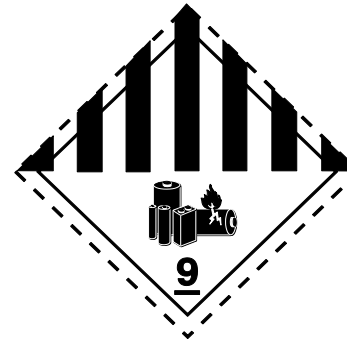
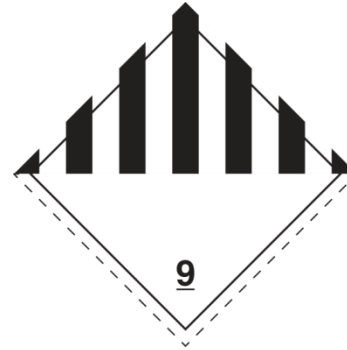
Part 2 - Classification

Class 8: Corrosive substances
(e.g. sulphuric acid)



Part 2 - Classification

Class 9: Miscellaneous dangerous substances and articles (e.g. Lithium batteries, asbestos)



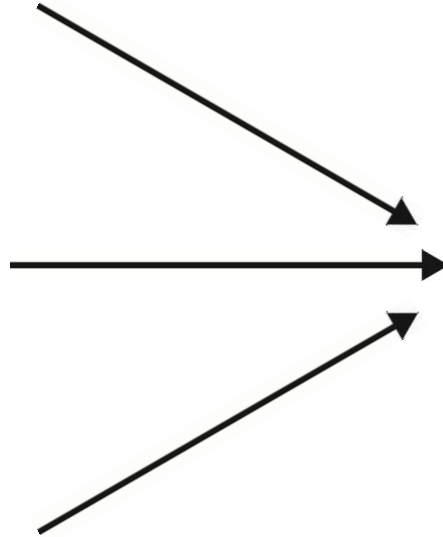
Dangerous goods in our daily life



Dangerous goods in our daily life



Dangerous goods in our daily life



Part 2 - Classification

- **Chapter 2.3 Test methods**

Part 3 - Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities

- **Chapter 3.1 General**
 - Proper shipping name
 - Use of technical names for generic or n.o.s. entries
- **Chapter 3.2 Dangerous goods lists**
 - **Table A:** List of dangerous goods in UN number order

Part 3 - Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities

- **Table A**
 - (1): UN number
 - (2): Name and description
 - (3a): Class
 - (3b): Classification code
 - (4): Packing group
 - (5): Labels
 - (6): Special provisions (Chapter 3.3)
 - (7a): Limited quantities (Chapter 3.4)
 - (7b): Excepted quantities (Chapter 3.5)

Part 3 - Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities

- **Table A (cont'd)**
 - (8): Packing instructions (Chapter 4.1)
 - (9a): Special packing provisions (Chapter 4.1)
 - (9b): Mixed packing provisions (Chapter 4.1)
 - (10): Portable tank and bulk container instructions (Chapters 4.2 and 7.3)
 - (11): Portable tank and bulk container special provisions (Chapter 4.2)
 - (12): Tank codes for RID tanks (Chapter 4.3)
 - (13): Special provisions for RID tanks (Chapter 4.3)

Part 3 - Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities

- **Table A (cont'd)**
 - (15): Transport category (1.1.3.1 c))
 - (16): Special provisions for carriage – Packages (Chapter 7.2)
 - (17): Special provisions for carriage – Bulk (Chapter 7.3)
 - (18): Special provisions for carriage – Loading and unloading (Chapter 7.5)
 - (19): Colis express (express parcels) (Chapter 7.6)
 - (20): Hazard identification number (Chapter 5.3)

Table A: List of dangerous goods in UN number order

UN No.	Name and description	Class	Classification code	Packing group	Labels	Special provisions	Limited and excepted quantities			Packaging			Portable tanks and bulk containers		RID Tanks		Transport category	Special provisions for carriage			Colis express (express parcels)	Hazard identification No.
							3.4	3.5	3.12	Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions	Tank code	Special provisions		Packages	Bulk	Loading, unloading and handling		
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4	3.5	3.12	4.1.4	4.1.4	4.1.10	4.2.5.2, 7.3.2	4.2.5.3	4.3	4.3.5, 6.8.4	1.1.3.1c)	7.2.4	7.3.3	7.5.11	7.6	5.3.2.3
(1)	(2)	(3)	(3)	(4)	(5)	(6)	(7)	(7)	(8)	(9a)	(9b)	(10)	(11)	(12)	(13)	(15)	(16)	(17)	(18)	(19)	(20)	
1202	GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT (flash-point not more than 60 °C)	3	F1	III	3	363 640K	5 L	E1	P001 IBC03 LP01 R001		MP19	T2	TP1	LGBF		3	W12			CE4	30	
1202	DIESEL FUEL complying with standard EN 590:2009 + A1:2010 or GAS OIL or HEATING OIL, LIGHT with a flash-point as specified in EN 590:2009 + A1:2010	3	F1	III	3	363 640L	5 L	E1	P001 IBC03 LP01 R001		MP19	T2	TP1	LGBF		3	W12			CE4	30	
1202	GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT (flash-point more than 60 °C and not more than 100 °C)	3	F1	III	3	363 640M	5 L	E1	P001 IBC03 LP01 R001		MP19	T2	TP1	LGBV		3	W12			CE4	30	
1203	MOTOR SPIRIT or GASOLINE or PETROL	3	F1	II	3	243 363 534	1 L	E2	P001 IBC02 R001	BB2	MP19	T4	TP1	LGBF	TU9	2				CE7	33	
1204	NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1% nitroglycerin	3	D	II	3	601	1 L	E0	P001 IBC02	PP5	MP2					2				CE7	33	

Part 3 - Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities

- **Chapter 3.2: Dangerous goods lists**
 - **Table B: Alphabetical list of dangerous goods**
 - (1): Name and description
 - (2): UN number
 - (3): Note
 - (4): NHM code

Table B: Alphabetical list of dangerous goods

Name and description	UN No.
DICHLOROSILANE	2189
1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	1958
DICYCLOHEXYLAMINE	2565
DICYCLOHEXYLAMMONIUM NITRITE	2687
DICYCLOPENTADIENE	2048
1,2-DI-(DIMETHYLAMINO) ETHANE	2372
DIDYMIUM NITRATE	1465
DIESEL FUEL	1202
1,2-Diethoxyethane: see	1153
DIETHOXYMETHANE	2373
3,3-DIETHOXYPROPENE	2374
DIETHYLAMINE	1154
2-DIETHYLAMINOETHANOL	2686
3-DIETHYLAMINOPROPYLAMINE	2684

Seite 14

Part 5 - Consignment procedures

- **Chapter 5.2 (cont'd)**
 - Labelling provisions
 - Labels indicated in column (5) of Table A
 - on one side (packagings)
 - on two opposite sides (IBC > 450 litres and large packagings)
 - on a background of contrasting colour or dotted or solid outer boundary line
 - dimension: 100 x 100 mm

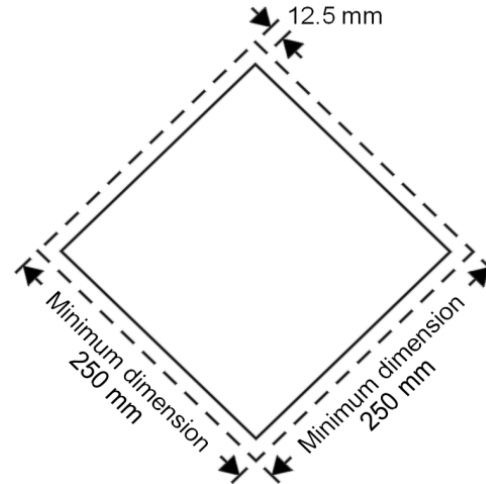
Part 5 – Danger labels



Part 5 - Consignment procedures

- **Chapter 5.3 Placarding and marking**

- on both (lateral) sides of wagons
(= 2)
- on all lateral sides of containers
(= 4)
- dimensions: 250 mm x 250 mm

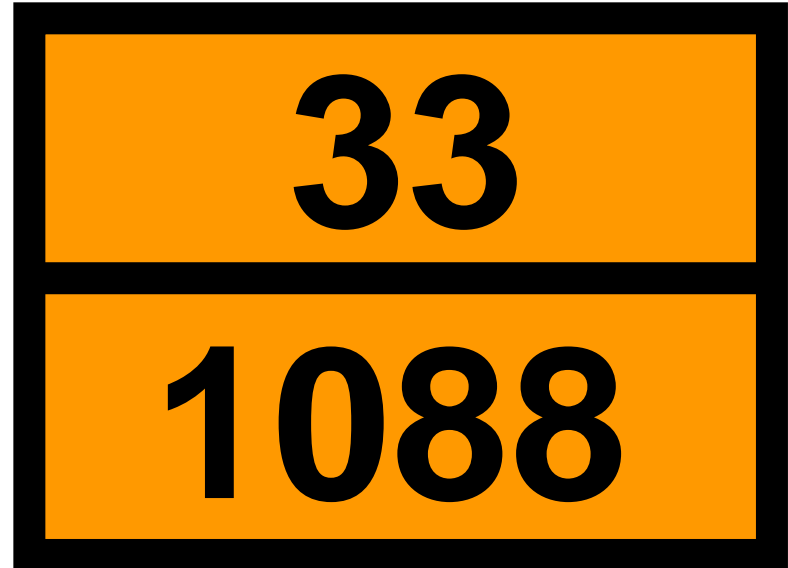


Part 5 - Consignment procedures

- **Chapter 5.3 (cont'd)**
 - Orange-coloured plate marking on
 - tank-wagons
 - battery-wagons
 - wagons with demountable tanks
 - tank-containers
 - portable tanks
 - MEGC
 - wagons or containers for carriage in bulk

Part 5 - Consignment procedures

- **Chapter 5.3 (cont'd)**
 - Orange-coloured plate marking
 - upper half: hazard identification number (see column (20) of Table A)
 - bottom half: UN number (see column (1) of Table A)

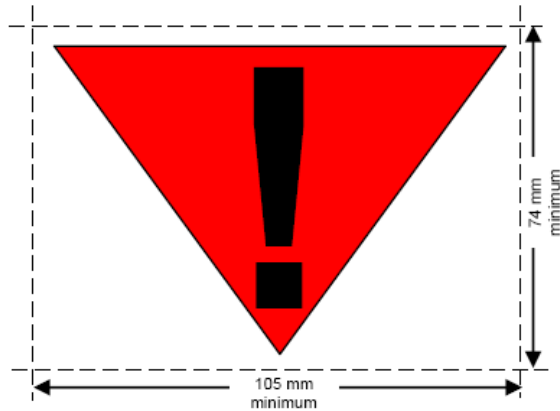


Part 5 - Consignment procedures

- **Chapter 5.3 (cont'd)**
– Shunting labels (see column (5) of Table A)

No. 13

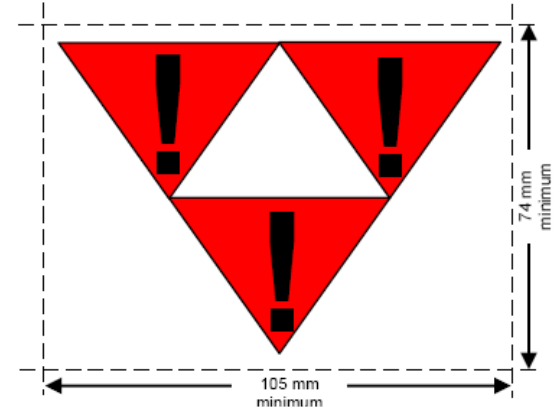
Shunt with care



red triangle with an exclamation mark in black on white background

No. 15

Loose shunting or hump shunting forbidden. Shall be accompanied by a motive power unit. Shall not bump, or be bumped by, other wagons.



three triangles, red, with black exclamation mark

Part 5 - Consignment procedures










- **Chapter 5.4: Documentation**
 - UN number preceded by the letters "UN"
 - Proper shipping name
 - Label numbers indicated in column (5) of Table A
 - Packing group
 - Number and description of packages
 - Total quantity of each dangerous good
 - Name and address of consignor and consignee
 - Hazard identification number

Part 5 - Consignment procedures

- **Chapter 5.4 (cont'd)**
 - One or more languages but at least in English, French or German

Part 5 - Consignment procedures

- **Chapter 5.4 (cont'd)**
 - Instructions in writing for the locomotive driver

Additional guidance to drivers on the hazard characteristics of dangerous goods by class and on actions subject to prevailing circumstances		
Danger labels and placards, description of the hazards	Hazard characteristics	Additional guidance
(1)	(2)	(3)
 <p>Explosive substances and articles</p> <p>1 1.5 1.6</p>	<p>May have a range of properties and effects such as mass detonation; projection of fragments; intense fire/heat flux; formation of bright light, loud noise or smoke.</p> <p>Sensitive to shocks and/or impacts and/or heat.</p>	<p>Take cover but stay away from windows.</p>
 <p>Explosive substances and articles</p> <p>1.4</p>	<p>Slight risk of explosion and fire.</p>	<p>Take cover.</p>
 <p>Flammable gases</p> <p>2.1</p>	<p>Risk of fire.</p> <p>Risk of explosion.</p> <p>May be under pressure.</p> <p>Risk of asphyxiation.</p> <p>May cause burns and/or frostbite.</p> <p>Containments may explode when heated.</p>	<p>Take cover.</p> <p>Keep out of low areas.</p>
 <p>Non-flammable, non-toxic gases</p> <p>2.2</p>	<p>Risk of asphyxiation.</p> <p>May be under pressure.</p> <p>May cause frostbite.</p> <p>Containments may explode when heated.</p>	<p>Take cover.</p> <p>Keep out of low areas.</p>
 <p>Toxic gases</p> <p>2.3</p>	<p>Risk of intoxication.</p> <p>May be under pressure.</p> <p>May cause burns and/or frostbite.</p> <p>Containments may explode when heated.</p>	<p>Take cover.</p> <p>Keep out of low areas.</p>
 <p>Flammable liquids</p> <p>3</p>	<p>Risk of fire.</p> <p>Risk of explosion.</p> <p>Containments may explode when heated.</p>	<p>Take cover.</p> <p>Keep out of low areas.</p>
 <p>Flammable solids, self-reactive substances and solid desensitized explosives</p> <p>4.1</p>	<p>Risk of fire. Flammable or combustible, may be ignited by heat, sparks or flames.</p> <p>May contain self-reactive substances that are liable to exothermic decomposition in the case of heat supply, contact with other substances (such as acids, heavy-metal compounds or amines), friction or shock. This may result in the evolution of harmful and flammable gases or vapours or self-ignition.</p> <p>Containments may explode when heated.</p> <p>Risk of explosion of desensitized explosives after loss of desensitizer.</p>	
 <p>Substances liable to spontaneous combustion</p> <p>4.2</p>	<p>Risk of fire by spontaneous combustion if packages are damaged or contents spoiled.</p> <p>May react vigorously with water.</p>	
 <p>Substances which, in contact with water, emit flammable gases</p> <p>4.3</p>	<p>Risk of fire and explosion in contact with water.</p>	

Thank you very much for your attention!





Organisation intergouvernementale pour les transports internationaux ferroviaires
Zwischenstaatliche Organisation für den internationalen Eisenbahnverkehr
Intergovernmental Organisation for International Carriage by Rail

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