

**Workshop “ACCESSION OF PAKISTAN TO COTIF”  
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**RID**

**Carriage of dangerous goods  
Regulation**

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OTIF



# Scope of Appendix C

- international carriage of dangerous goods by rail on territory of MS and carriage supplementary to carriage by rail to which the CIM UR are applicable, subject to the international provisions governing carriage by another mode of transport
- activities referred to in the Annex (RID)



# Structure of the Annex: 7 parts

- 1 - General Requirements
- 2 - Classification
- 3 - Dangerous goods lists, special provisions and exemptions related to limited and excepted quantities
- 4 - Use of packaging, intermediate bulk containers (IBCs), large packaging and tanks
- 5 - Consignment procedures
- 6 - Requirements for the construction and testing of packaging, intermediate bulk containers (IBCs), large packaging and tanks
- 7 - Provisions concerning the conditions of carriage, loading, unloading and handling



# General Requirements

- Exemptions related to
  - nature of the transport operation
  - carriage of gases
  - carriage of liquid fuels
  - “special provisions”
  - dangerous goods packed in limited quantities
  - empty uncleaned packagings (nullified hazard)
- Carriage in a transport chain including maritime or air carriage
- Piggyback transport



# General Requirements

- definitions: > 150 mostly technical
  - but also carriage, carrier, consignor, consignee, consignment, dangerous goods, enterprise, loader, packer
- training of persons involved in the cdg
- safety obligations of the participants
- temporary derogations (multilateral special agreements)
- transitional measures



# General Requirements

- administrative controls of dg
- mutual administrative support
- safety adviser
- notifications of occurrences involving dg
- restrictions on carriage imposed by the competent authorities



# Security Provisions

- measures / precautions to be taken to minimise theft or misuse of dg that may endanger persons, property, environment
- dg shall only be offered for carriage to carriers that have been appropriately identified



# Security Provisions

- Areas within temporary storage terminals, temporary storage sites, vehicle depots, berthing areas and marshalling yards used for temporary storage during cdg shall be properly secured, well lit and, where possible and appropriate, not accessible to the general public



# Security Provisions

- Each crew member of a train carrying dg shall carry with them means of identification, which includes their photograph, during carriage
- Security awareness training
- Carriers, consignors and others engaged in carriage of “high consequence dg” (table) shall adopt, implement and comply with a security plan



# Marshalling Yards

- Internal emergency plans to be drawn up for cdg in marshalling yards so that
  - in the event of an accident or incident in marshalling yards, all those involved cooperate in a coordinated way and
  - the consequences of the accident or incident for human life or for the environment are minimised to the greatest possible extent
- Details in UIC Leaflet 201



# Classification

- by chemical, physical etc. properties according to standardised tests and criteria
- 13 “classes” = types of dangerous goods
  - classified in accordance with their main hazard
- packing groups I, II, III (high, medium, low danger within class)
- 4 digit UN Number



# Dangerous Goods Classes

**Class 1 Explosive substances and articles**

**Class 2 Gases**

**Class 3 Flammable liquids**

**Class 4.1 Flammable solids, self-reactive substances and solid desensitized explosives**

**Class 4.2 Substances liable to spontaneous combustion**

**Class 4.3 Substances which, in contact with water, emit flammable gases**

**Class 5.1 Oxidizing substances**

**Class 5.2 Organic peroxides**

**Class 6.1 Toxic substances**

**Class 6.2 Infectious substances**

**Class 7 Radioactive material**

**Class 8 Corrosive substances**

**Class 9 Miscellaneous dangerous substances and articles**



# UN Number

- Single entries
  - for well defined substances or articles e.g.: UN No. 1090 ACETONE
- Collective entries for
  - a well defined group of substances or articles e.g.: UN No. 1133 ADHESIVES
  - a group of substances or articles of a particular chemical or technical nature, not otherwise specified, e.g.: UN No. 1477 NITRATES, INORGANIC, N.O.S.
  - a group of substances or articles having one or more dangerous properties, n.o.s, e.g.: UN No. 1325 FLAMMABLE SOLID, ORGANIC, N.O.S.



# Dangerous goods lists

- Table A: substances and articles listed in UN numerical order
  - references to all provisions applicable to substance(s) or article(s) falling under a specific UN Number in particular concerning the means of enclosure
- Table B: alphabetical list of the substances and articles which are listed in UN numerical order in Table A



# Consignment procedures

- marking and labelling
- orange-coloured plate marking
- dangerous goods transport document





(No. 1)

Divisions 1.1, 1.2 and 1.3

Symbol (exploding bomb): black; Background: orange; Figure '1' in bottom corner

\*\* Place for division - to be left blank if explosive is the subsidiary risk

\* Place for compatibility group - to be left blank if explosive is the subsidiary risk



(No. 1.4)

Division 1.4



(No. 1.5)

Division 1.5



(No. 1.6)

Division 1.6

Background: orange; Figures: black; Numerals shall be about 30 mm in height and be about 5 mm thick (for a label measuring 100 mm x 100 mm); Figure '1' in bottom corner

**CLASS 2**  
Gases



(No. 2.1)

Division 2.1

Flammable gases

Symbol (flame): black or white;  
(except as provided for in 5.2.2.2.1.6 (d))



(No. 2.2)

Division 2.2

Non-flammable, non-toxic gases

Symbol (gas cylinder): black or white;  
Background: green; Figure '2' in bottom corner



**CLASS 3**  
Flammable liquids



(No. 2.3)

Division 2.3

Toxic gases

Symbol (skull and crossbones): black;  
Background: white; Figure '2' in bottom corner



(No. 3)

Symbol (flame): black or white;

Background: red; Figure '3' in bottom corner



**CLASS 4**



(No. 4.1)  
Division 4.1  
Flammable solids  
Symbol (flame): black;  
Background: white with  
seven vertical red stripes;  
Figure '4' in bottom corner



(No. 4.2)  
Division 4.2  
Substances liable  
to spontaneous combustion  
Symbol (flame): black;  
Background: upper half white,  
lower half red;  
Figure '4' in bottom corner



(No. 4.3)  
Division 4.3  
Substances which, in contact  
with water, emit flammable gases  
Symbol (flame): black or white;  
Background: blue;  
Figure '4' in bottom corner



**CLASS 5**



(No. 5.1)  
Division 5.1  
Oxidizing substances  
Symbol (flame over circle): black;  
Background: yellow;  
Figure '5.1' in bottom corner



(No. 5.2)  
Division 5.2  
Organic peroxides  
Symbol (flame): black or white;  
Background: upper half red; lower half yellow;  
Figure '5.2' in bottom corner



(No. 6.2)  
Division 6.2  
Infectious substances  
The lower half of the label may bear the inscriptions: 'INFECTIOUS SUBSTANCE'  
and 'In the case of damage or leakage immediately notify Public Health Authority';  
Symbol (three crescents superimposed on a circle) and inscriptions: black;  
Background: white; Figure '6' in bottom corner



(No. 6.1)  
Division 6.1  
Toxic substances  
Symbol (skull and crossbones): black;  
Background: white; Figure '6' in bottom corner



**CLASS 7**  
Radioactive material



(No. 7A)

Category I - White  
 Symbol (trefoil): black;  
 Background: white;  
 Text (mandatory): black in lower half of label:  
 'RADIOACTIVE'  
 'CONTENTS .....'  
 'ACTIVITY .....'  
 One red bar shall follow the word 'RADIOACTIVE';  
 Figure '7' in bottom corner



(No. 7B)

Category II - Yellow  
 Symbol (trefoil): black;  
 Background: upper half yellow with white border, lower half white;  
 Text (mandatory): black in lower half of label:  
 'RADIOACTIVE'  
 'CONTENTS .....'  
 'ACTIVITY .....'  
 In a black outlined box: 'TRANSPORT INDEX';  
 Two red vertical bars shall follow the word 'RADIOACTIVE';  
 Figure '7' in bottom corner



(No. 7C)

Category III - Yellow

Symbol (trefoil): black;  
 Background: upper half yellow with white border, lower half white;  
 Text (mandatory): black in lower half of label:  
 'RADIOACTIVE'  
 'CONTENTS .....'  
 'ACTIVITY .....'  
 In a black outlined box: 'TRANSPORT INDEX';  
 Three red vertical bars shall follow the word 'RADIOACTIVE';  
 Figure '7' in bottom corner

**CLASS 8**  
Corrosive substances



(No. 8)

Symbol (liquids, spilling from two glass vessels and attacking a hand and a metal): black;  
 Background: upper half white;  
 lower half black with white border;  
 Figure '8' in bottom corner

**CLASS 9**  
Miscellaneous dangerous substances and articles



(No. 9)

Symbol (seven vertical stripes in upper half): black;  
 Background: white;  
 Figure '9' underlined in bottom corner

# orange-coloured plate marking



# Dangerous goods transport document

- shall contain the following information for each dangerous substance, material or article handed over for carriage,
  - (a) the UN number preceded by "UN";
  - (b) the proper shipping name supplemented, when applicable, with the technical name
  - (c) the class N°
  - (d) packing group "PG" I, II or III



# Dangerous goods transport document

- (e) number and description of packages (see also CIM Article 13 § 1 (e))
- (f) with the exception of empty means of containment, uncleaned, the total quantity of each type of dangerous goods bearing a different UN number, proper shipping name or packing group (as a volume or as a gross mass, or as a net mass as appropriate)
- (g) the name and address of the consignor, (see also CIM Article 13 § 1 (h))



# Dangerous goods transport document

- (h) the name and address of the consignee(s),  
(see also CIM Article 13 § 1 (b))
- (i) a declaration as required by the terms of  
any special agreement;
- (j) when a marking in accordance with 5.3.2.1  
is prescribed, the hazard identification  
number shall also be inscribed before the  
UN number



# Conditions concerning loading, unloading and handling

- in general requirements in force at the dispatching station apply
- certain dangerous goods may only be forwarded as a wagon load or full load



# Conditions concerning loading, unloading and handling

- packages must be so loaded in wagons that they cannot shift dangerously, overturn or fall (load securing)
- mixed loading of certain goods prohibited



# Conditions concerning loading, unloading and handling

- between wagons carrying certain dg a protective distance of:
  - $\geq 18$  m or
  - two 2-axle wagons or
  - one wagon with 4 or more axlesshall be observed
- certain dg shall not be loaded in immediate proximity to packages known to contain foodstuffs, other articles of consumption or animal feeds in wagons, in containers and at places of loading, unloading or transshipment.

