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RESTRUCTURING OF ADR

Annex B of ADR

Part 12 - Requirements concerning carriage

Proposal by the secretariat

The secretariat has prepared the following proposal for Part 12 of the restructured ADR.

After considering the various solutions proposed to date for Annex B of ADR by the Working Group on the Restructuring of ADR and the RID/ADR Joint Meeting, the secretariat suggests that Annex B should have the following structure:

Part 10: General requirements

Part 11: Requirements concerning the transport equipment to be used for loading and unloading

Note by the secretariat: It had been intended to include these requirements in Chapter 4.3 (see TRANS/WP.15/AC.1/68, annex 2). However, in the United Nations Model Regulations they appear in Part 7. Since these requirements do not correspond entirely to those of RID, the secretariat suggests that they should be the subject of Part 11 of Annex B of ADR and Part 7 of RID.

Part 12: Requirements concerning carriage

Part 13: Requirements concerning the construction of vehicles and
their approval

The requirements of Part 12 are primarily intended for the carrier and crew of the vehicle.

PART 12

REQUIREMENTS CONCERNING CARRIAGE

CHAPTER 12.1

GENERAL REQUIREMENTS CONCERNING TRANSPORT UNITS AND EQUIPMENT ON BOARD

12.1.1 Transport units

A transport unit loaded with dangerous substances may in no case include more than one trailer or semi-trailer [10 204(1)].

12.1.2 Documents to be carried on the transport unit [10 381]

12.1.2.1 In addition to the documents required under other regulations, the following documents shall be carried on the transport unit:

(a) The transport documents prescribed in Annex A, paragraph [5.4.2], covering all the dangerous substances carried and, when appropriate, the container packing certificate prescribed in paragraph [5.4.4];

(b) The instructions prescribed in section 5.4, relating to all the dangerous substances carried in a language the driver(s) taking over the dangerous goods is (are) able to read and to understand, and in all languages of the countries of origin, transit and destination [10 381(2)(c)];

(c) A copy of the main text of the special agreement(s) concluded in accordance with [paragraphs 1 ... and 10 ...], if transport is carried out on the basis of such agreement(s).

12.1.2.2 Where the provisions of this Annex [or of Annex A]* require the following documents to be drawn up, they shall likewise be carried on the transport unit:

(a) The certificate of approval referred to in paragraph [13 ...] for each transport unit or element thereof;

(b) The driver's training certificate prescribed in section 12.2.1 and reproduced in Appendix B.6;

[(c) The permit authorizing the transport operation.]*

12.1.2.3 The instructions in writing prescribed in paragraph 5.4 ... shall be kept in a readily identifiable form in the driver's cab. The carrier shall ensure that the drivers concerned understand and are capable of carrying out these instructions properly [10 385(4) and (6)].

* Note by the secretariat: In order to avoid misunderstandings on the interpretation of the paragraph, the secretariat suggests that a reference should be added to the paragraphs in which this permit is required.

12.1.2.4 Instructions in writing which are not applicable to the goods which are on board the vehicle shall be kept separate from pertinent documents in such a way as to prevent confusion [10 385(5)].

12.1.3 Fire-fighting appliances [10 240]

12.1.3.1 Every transport unit carrying dangerous goods shall be equipped with:

(a) At least one portable fire extinguisher of minimum capacity 2 kg dry powder (or equivalent rating for suitable extinguishants) suitable for fighting a fire in the engine or cab of the transport unit, and such that, if it is used to fight a fire involving the load, it does not aggravate the fire and, if possible, controls it; however, if the vehicle is equipped with a fixed fire extinguisher, automatic or easily brought into action for fighting a fire in the engine, the portable extinguisher need not be suitable for fighting a fire in the engine;

(b) In addition to the equipment prescribed under (a) above, at least one portable fire extinguisher of minimum capacity 6 kg dry powder (or equivalent rating for suitable extinguishants) suitable for fighting a tyre/brake fire or one involving the load, and such that, if it is used to fight a fire in the engine or cab of the transport unit, it does not aggravate the fire. Motor vehicles with a permissible maximum laden weight of less than 3.5 tons may be equipped with a portable fire extinguisher of a minimum capacity of 2 kg of powder.

12.1.2.2 The extinguishing agents contained in the fire extinguishers with which a transport unit is equipped shall be such that they are not liable to release toxic gases into the driver's cab or under the influence of the heat of the fire.

12.1.2.3 The portable fire extinguishers conforming to the provisions of paragraph 12.1.3.1 above shall be fitted with a seal verifying that they have not been used. In addition, they shall bear a mark of compliance with a standard recognized by a competent authority and an inscription indicating the date when they should next be inspected.

12.1.4 Miscellaneous equipment [10 260]

Every transport unit carrying dangerous goods shall be equipped with:

(a) For each vehicle, at least one scotch of a size suited to the weight of the vehicle and to the diameter of the wheels;

(b) The necessary equipment to take the general actions referred to in the safety instructions set out in paragraphs 12.1.2.1 (b) and [5.4 ...], in particular:

- Two self-standing warning signs (e.g. reflective cones or triangles or flashing amber lights which are independent from the electrical equipment of the vehicle);

- A suitable warning vest or warning clothing (e.g. as described in European Standard EN 471) for each member of the vehicle crew;
- A pocket lamp (see also 12.2.4.3) for each member of the vehicle crew.

(c) The necessary equipment to take the additional and special actions referred to in the safety instructions set out in paragraphs 12.1.2.1 (b) and [5.4 ...].

CHAPTER 12.2

GENERAL REQUIREMENTS CONCERNING THE VEHICLE CREW

12.2.1 Special training of drivers [10 315, 11 315 and 71 315]

12.2.1.1 Drivers of vehicles, carrying dangerous goods in fixed tanks or demountable tanks with a capacity exceeding 1,000 litres, drivers of battery-vehicles with a total capacity exceeding 1,000 litres and drivers of vehicles carrying dangerous goods in tank-containers with an individual capacity exceeding 3,000 litres on a transport unit, shall hold a certificate issued by the competent authority or by any organization recognized by that authority stating that they have participated in a training course and passed an examination on the particular requirements that have to be met during carriage of dangerous goods in tanks.

12.2.1.2 Drivers of vehicles with a permissible maximum weight exceeding 3,500 kg carrying dangerous goods, other than those referred to in paragraph 12.2.1.1 and, where so required under the provisions of Part II of this Annex, drivers of other vehicles shall hold a certificate issued by the competent authority or by any organization recognized by that authority stating that they have participated in a training course and passed an examination on the particular requirements that have to be met during carriage of dangerous goods other than in tanks.

12.2.1.3 By means of appropriate endorsements on his certificate made every five years by the competent authority or by any organization recognized by that authority, a vehicle driver shall be able to show that he has in the year before the date of expiry of his certificate completed a refresher training course and has passed corresponding examinations. The new period of validity shall begin with the date of expiry of the certificate.

12.2.1.4 Drivers of vehicles specified in paragraphs 12.2.1.1 and 12.2.1.2 shall attend a basic training course. Training shall be given in the form of a course approved by the competent authority. Its main objectives are to make drivers aware of hazards arising in the carriage of dangerous goods and to give them basic information indispensable for minimizing the likelihood of an incident taking place and, if it does, to enable them to take measures which may prove necessary for their own safety and that of the public and the environment, for limiting the effects of an incident. This training, which shall include individual practical exercises, shall act as the basis of training for all categories of drivers covering at least the subjects defined [in marginal 240 102 of Appendix B.4].

12.2.1.5 Drivers of vehicles specified in paragraph 12.2.1.1 shall attend a specialization training course for transport in tanks covering at least the subjects defined [in marginal 240 103 of Appendix B.4].

12.2.1.6 Irrespective of the permissible maximum weight of the vehicle, drivers of vehicles carrying substances or articles of Class 1 (see special provision S1 in Chapter 12.4) or certain radioactive material (see special

provisions S23 and S24 in Chapter 12.4) shall attend specialization training courses covering at least the subjects defined [in marginal 240 104 of Appendix B.4].

12.2.1.7 Initial or refresher basic training courses and initial or refresher specialization training courses may be given in the form of comprehensive courses, performed in an integrated way, on the same occasion and by the same training organization.

12.2.1.8 Initial training courses, refresher courses, practical exercises, examinations and the role of competent authorities shall comply with the provisions of Appendix B.4.

12.2.1.9 All training certificates conforming to the requirements of this marginal and issued in accordance with the model shown in Appendix B.6 by the competent authority of a Contracting Party or by any organization recognized by that authority shall be accepted during their period of validity by the competent authorities of other Contracting Parties.

12.2.1.10 The certificate shall be prepared in the language or one of the languages of the country of the competent authority which issued the certificate or recognized the issuing organization and, if this language is not English, French or German, also in English, French or German, except where otherwise provided by agreements concluded between the countries concerned with the transport operation.

12.2.2 Training of on-board crew, other than drivers

12.2.2.1 All members of the crew of the vehicle, other than the driver, shall receive training in accordance with [Annex A, section 1.3] [section 10.3 of this Annex] [10 316].

12.2.3 Passengers

Apart from members of the vehicle crew, no passengers may be carried in transport units carrying dangerous substances [10 325].

12.2.4 Miscellaneous provisions to be complied with by the vehicle crew

12.2.4.1 Use of fire-fighting appliances

The crew of the vehicle must know how to use the fire-fighting appliances [10 340].

12.2.4.2 Goods

Drivers and crew may not open a package containing dangerous substances [10 414(3)].

12.2.4.3 Portable lighting apparatus

A vehicle may not be entered by persons carrying lighting apparatus comprising a flame. In addition, the light apparatus used shall not exhibit any metal surface liable to produce sparks [10 353(1)].

12.2.4.4 Prohibition of smoking

Smoking shall be prohibited during handling operations in the vicinity of vehicles and inside the vehicles [10 416].

12.2.4.5 Running the engine during loading or unloading

Except where the engine has to be used to drive the pumps or other appliances for loading or unloading the vehicle and the laws of the country in which the vehicle is operating permit such use, the engine shall be shut off during loading and unloading operations [10 431].

12.2.4.6 Parking in general [10 503]

No transport unit carrying dangerous substances may be parked without the parking brakes being applied.

12.2.4.7 Parking of a vehicle constituting a special danger [10 507]

If the nature of the dangerous substances carried in the parked vehicle constitutes a source of special danger to road-users (e.g. in the event of substances dangerous to pedestrians, animals or vehicles spilling over the road) and the crew of the vehicle is unable to eliminate the danger quickly, the driver shall alert the nearest competent authorities, or cause them to be alerted, immediately. He shall also, where necessary, take the measures prescribed in the instructions in writing furnished with the documents on board (see 12.1.2.1(b)).

CHAPTER 12.3

REQUIREMENTS CONCERNING THE SUPERVISION OF VEHICLES [10 321]

Vehicles carrying dangerous goods in the quantities shown in Chapter 12.4 for a given substance according to column ... of table A of Chapter 3.2 shall be supervised or alternatively may be parked, unsupervised, in a secure depot or secure factory premises. If such facilities are not available, the vehicle, after having been properly secured, may be parked in an isolated position meeting the requirements of paragraphs (i), (ii) or (iii) below.

- (i) A vehicle park supervised by an attendant who has been notified of the nature of the load and the whereabouts of the driver;
- (ii) A public or private vehicle park where the vehicle is not likely to suffer damage from other vehicles; or
- (iii) A suitable open space separated from the public highway and from dwellings, where the public does not normally pass or assemble.

The parking facilities permitted in paragraph (ii) shall be used only if those described in paragraph (i) are not available, and those described in paragraph (iii) may be used only if facilities described in paragraphs (i) and (ii) are not available.

Chapter 12.4

ADDITIONAL REQUIREMENTS RELATING TO PARTICULAR CLASSES OR SUBSTANCES

In addition to the requirements of Chapters 12.1 to 12.3, when reference is made to them in column [...] of table A of Chapter 3.2, the following requirements shall apply to the carriage of the substances or articles concerned. In the event of conflict with the requirements of Chapters 12.1 to 12.3, the requirements of this Chapter shall take precedence.

S01: Additional requirements concerning the carriage of explosive substances and articles (Class 1)

(1) Special training of drivers [11 315]

(a) Irrespective of the permissible maximum weight of the vehicle, the requirements of section 12.2.1 shall apply to drivers of vehicles carrying substances or articles of Class 1;

(b) Drivers of vehicles carrying substances or articles of Class 1 shall attend a specialization training course covering at least the subjects defined in [marginal 240 104 of Appendix B.4];

(c) If, according to other regulations applicable in the country of a Contracting Party, a driver has followed equivalent training under a different regime or for a different purpose, covering the subjects referred to in paragraph (b), the specialization course may be totally or partially dispensed with.

(2) Driver's assistant [10 311] [11 311]

(a) A driver's assistant shall be carried on every transport unit. He must be able to take over from the driver. If the national regulations so provide, the competent authority of a country party to ADR may require an approved official to be carried in the vehicle at the carrier's expense;

(b) The first sentence of paragraph (a) does not apply to convoys of more than two vehicles if the drivers of the first and last vehicles of the convoy are accompanied by an assistant;

(c) The presence of a driver's assistant is not required on board a vehicle carrying articles of 43°, identification No. 0336, in amounts not exceeding a net explosive mass of 5,000 kg.

(3) Prohibition of fire and naked flame [11 354]

The use of fire or naked flame shall be prohibited on vehicles carrying substances and articles of Class 1, in their vicinity and during the loading and unloading of these substances and articles.

(4) Halts for operational requirements

When vehicles carrying substances and articles of Class 1 are obliged to stop for loading or unloading operations in a public place, a distance of at least 50 m shall be maintained between the stationary vehicles.

(5) Convoys [11 520]

(a) When vehicles carrying substances and articles of Class 1 travel in convoy, a distance of not less than 50 m shall be maintained between each transport unit and the next.

(b) The competent authority may lay down rules for the order or composition of convoys.

(6) Supervision of vehicles [11 321]

The requirements of Chapter 12.3 shall be applicable only when substances and articles of Class 1 having a total mass of explosive substance of more than 50 kg are carried in a vehicle.

In addition, these substances and articles shall be supervised at all times in order to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire.

Empty packagings are exempted.

S02: Additional requirements concerning the carriage of flammable liquids or gases*

(1) Portable lamps

Closed vehicles carrying liquids having a flashpoint of 61° C or below or flammable substances or article of Class 2, group F shall not be entered by persons carrying lighting apparatus other than portable lamps so designed and constructed that they cannot ignite any flammable vapours or gases which may have penetrated into the interior of the vehicle [10 353(2)].

[Applicability: all substances of Class 3 or substances with a Class 3 subsidiary risk; Class 2, group F]

(2) Operation of combustion heaters during loading or unloading

The operation of combustion heaters of vehicles of type FL (see Part 13) is forbidden during loading and unloading and at loading sites [10 300(2)].

[(3) Precautions against electrostatic charges

In the case of [substances having a flashpoint of 61° C or below] [vehicles of type FL], a good electrical connection from the vehicle chassis to earth shall be established before tanks are filled or emptied. In addition, the rate of filling shall be limited [10 417].]

S03: Special provisions concerning the carriage of infectious substances

For transport units carrying dangerous substances of Class 6.2, the requirements of paragraph 12.1.2.1 (b), paragraph 12.1.2.3 and paragraph 12.2.4.3 shall not apply [marginals 62 240 and 62 353].

* Note by the secretariat: Are these requirements applicable to liquids of Classes 4.1, 4.2, 4.3 and 5.2?

S04: Additional requirements concerning carriage under controlled temperatures

Maintenance of the prescribed temperature is essential for safe carriage. In general, there shall be:

- thorough inspection of the transport unit prior to loading;
- instructions to the carrier about the operation of the refrigeration system, including a list of the suppliers of coolant available en route;
- procedures to be followed in the event of loss of control;
- regular monitoring of operating temperatures; and
- availability of a back-up refrigeration system or spare parts.

[41 105(4), 52 105(2)]

The temperature of the air space within the transport unit shall be measured by two independent sensors and the output shall be so recorded that temperature changes are readily detectable.

The temperature shall be checked every four to six hours and logged.

[41 105(5); 52 105(3), 2nd and 3rd sentences]

If the control temperature is exceeded during carriage, an alert procedure shall be initiated involving any necessary repairs to the refrigeration equipment or an increase in the cooling capacity (e.g. by adding liquid or solid coolant). There shall also be frequent checking of the temperature and preparations for implementation of the emergency procedures. If the emergency temperature (see also paragraphs ...) is reached, the emergency procedures shall be set in operation.

[41 105(6), 52 105(4)]

Applicability: Class 4.1, 41° to 50°

Class 5.2, 11° to 20°

S05: Special provisions common to the carriage of radioactive material of Class 7 in excepted packages (UN Nos. 2908, 2909, 2910 and 2911) only

The requirements of paragraphs or sections 12.1.2.1 (b), 12.1.2.3, 12.1.2.4, 12.2.1, 12.2.3, 12.2.4.3 and 12.2.4.7 shall not apply.

S06: Special provisions common to the carriage of radioactive material of Class 7 other than in excepted packages

The provisions of paragraph 12.2.3 prohibiting the carriage of passengers in transport units shall not apply to vehicles carrying

only packages, overpacks or containers bearing category I-WHITE labels (UN, para. 7.2.3.1.3; IAEA, para. 572).

The provisions of paragraph 12.2.4.3 shall not apply provided there is no subsidiary risk [Class 7, other than excepted packages]

[marginal 71 353].

Other additional requirements or special provisions

S11: When gases or articles designated with letters T, TO, TF, TC, TFC, TOC are being carried, each member of the vehicle crew shall be provided with a respiratory protective device enabling them to escape (e.g. escape hood or mask with a combined gas/particle cartridge A1B2E1K1-P2, as described in European standard EN14) [21 260].

S17: If the vehicle is carrying more than 2,000 kg of these substances, stops for service requirements shall as far as possible not be made near inhabited places or frequented places. A longer stop near such places is permissible only with the consent of the competent authorities.

[Class 4.1, 33°, 34°, 43° and 44° - marginal 41 509
Class 5.2, 3°, 4°, 13° and 14° - marginal 51 509]

S20: During the carriage of these substances, stops for service requirements shall as far as possible not be made near inhabited places or frequented places. A longer stop near such places is permissible only with the consent of the competent authorities.

[Class 4.1, 31°, 32°, 41° and 42° - marginal 41 509
Class 5.2, 1°, 2°, 11° and 12° - marginal 52 509
Class 6.1 - marginal 61 509
Class 6.2, 1° and 2° - marginal 62 509]

S21: When a transport unit is loaded with more than 2,000 kg of these substances, stops for service requirements shall as far as possible not be made near inhabited places or frequented places. A longer stop near such places is permissible only with the consent of the competent authorities.

[Applicability: substances of 33°, 34°, 43° and 44° of Class 4.1 (marginal 41 509);

Class 5.2, 3°, 4°, 13° and 14° (marginal 52 509)]

S22: During the period April to October, when a vehicle is stationary, the packages shall, if the legislation of the country in which the vehicle is halted so requires, be effectively protected against the action of the sun, e.g. by means of sheets placed not less than 20 cm above the load.

[Applicability: UN 1051, UN 1614 - Class 6.1, 1° (marginal 61 515)]

- S23:** (1) Irrespective of the permissible maximum weight of the vehicle, the requirements of section 12.2.1 shall apply.
- (2) Drivers shall attend a specialization training course covering at least the subjects defined in marginal 240 105 of Appendix B.4.
- (3) If, according to other regulations applicable in the country of a Contracting Party, a driver has followed approved equivalent training under a different regime or for a different purpose covering the subjects referred to in paragraph (2), the specialization course may be totally or partially dispensed with [marginal 71 315, Class 7, UN Nos. other than 2908, 2909, 2910, 2911, 2915, 3332].
- S24:** (1) Irrespective of the permissible maximum weight of the vehicle, the requirements of section 12.2.1 with regard to approved training and the issue of an approved training certificate shall apply if the total number of packages containing radioactive material carried by the vehicle exceeds 10 and the sum of the transport indices exceeds 3.
- (2) Drivers of vehicles shall attend a specialization training course covering at least the subjects defined [in marginal 240 105 of Appendix B.4].
- (3) If the total number of packages containing radioactive material carried does not exceed 10, and the sum of the transport indices does not exceed 3, drivers shall receive appropriate training, commensurate with and appropriate to their duties, which provides them with an awareness of the radiation hazards involved in the carriage of radioactive material. Such awareness training shall be confirmed by a certificate provided by their employer.
- (4) If, according to other regulations applicable in the country of a Contracting Party, a driver has already followed approved equivalent training under a different regime or for a different purpose covering the subjects referred to in paragraph (2), the specialization course may be totally or partially dispensed with.
- [marginal 71 315, UN Nos. 2915 and 3332].
- S25:** When a consignment cannot be delivered, it shall be placed in a safe place; the competent authority should be informed as soon as possible and requested for instructions on how to proceed [UN, para. 7.1.6.6.1; IAEA, para. 582].
- [Class 7, all entries]
- S30:** The provisions of Chapter 12.3 concerning the supervision of vehicles shall apply when the total mass of these substances in the vehicle exceeds 100 kg [Class 4.1, 26°] [marginal 41 321]
- S31:** The provisions of Chapter 12.3 concerning the supervision of vehicles shall apply to substances of hazard group 4 whatever their mass and for substances of hazard group 3 when the total mass of such substances in

the vehicle exceeds 100 kg. However, the provisions of Chapter 12.3 need not be applied when the loaded compartment is locked and the packages carried are otherwise protected against any illicit unloading.

[marginal 62 321]

- S32:** The provisions of Chapter 12.3 concerning the supervision of vehicles shall apply when the total mass of these substances in the vehicle exceeds 500 kg.

[Class 4.1, 41° and 42°, Class 4.2, 11° and 12°]

In addition, vehicles carrying more than 500 kg of these substances shall be subject at all times to supervision to prevent any malicious act and to alert the driver and competent authorities in the event of loss or fire.

[marginals 41 321, 42 321]

- S33:** The provisions of Chapter 12.3 concerning the supervision of vehicles shall apply when the total mass of these substances in the vehicle exceeds 1,000 kg.

[Class 2, 1°T, TF, TC, TO, TFC, TOC; 2°T, TF, TC, TO, TFC, TOC; 3°F
Class 4.1, 21° to 25°, 31°, 32°, 43° and 44°
Class 5.2, 1°, 2°, 13° and 14°
Class 6.1, 1° to 5° and PG I
Class 8, bromine (14°)
Class 9, 13°(b)]

[marginals 21 321, 41 321, 52 321, 61 321, 81 321, 91 321]

- S34:** The provisions of Chapter 12.3 concerning the supervision of vehicles shall apply when the total mass of such substances in the vehicle exceeds 2,000 kg.

[Class 4.1, 33°, 44°, 45° and 46°
Class 5.2, 3°, 4°, 15° and 16°]

[marginals 41 321 and 52 321]

- S35:** The provisions of Chapter 12.3 concerning the supervision of vehicles shall apply when the total mass of such substances in the vehicle exceeds 5,000 kg.

[Class 3, 6°, 11° to 19°, 27° and 28° and toxic or highly toxic substances of 41°
Class 4.1, 35°, 36°, 47° and 48°
Class 5.2, 5°, 6°, 17° and 18°
Class 6.1, PG II
Class 9, PG III]

[marginals 31 321, 41 321, 52 321, 61 321 and 91 321]

S36: The provisions of Chapter 12.3 concerning the supervision of vehicles shall apply when the total mass of these substances in the vehicle exceeds 10 000 kg.

[Class 2, 2°F, 3°A and 3°O
Class 3, 1° to 5° (a) and (b), 7° (b), 21° to 26° and substances with a slight risk of toxicity of 41°
Class 4.2, PG I and 22°
Class 6.1, PG I
Class 9, PG I and 5°]

[marginals 21 321, 31 321, 42 321, 61 321 and 91 321]

S37: The provisions of Chapter 12.3 shall apply to all material, in whatever mass. In addition, these goods shall be subject at all times to supervision to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire. However, the provisions of Chapter 12.3 need not be applied where:

- (a) The loaded compartment is locked and the packages carried are otherwise protected against illicit unloading; and
- (b) The dose rate does not exceed $5\mu\text{Sv/h}$ (0.5 mrem/h) at any accessible point on the outer surface of the vehicle.

[Class 7, all entries] [marginal 71 321]

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