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**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

Working Party on the Transport  
of Dangerous Goods

Joint Meeting of Experts on the Regulations  
annexed to the European Agreement concerning  
the International Transport of Dangerous Goods  
by Inland Waterways (ADN)\*  
(Seventh session, Geneva, 20-24 January 2003)

**PROPOSED AMENDMENTS TO THE REGULATIONS ANNEXED  
TO THE RESTRUCTURED ADN**

**Parts 7, 8 and 9**

**Note by the UN/ECE secretariat\*\***

The UN/ECE secretariat has noticed that not all the amendments to the Regulations for the Transport of Dangerous Goods on the Rhine (ADNR) entering into force on 1 January 2003 in accordance with CCNR Resolution 2002-I-37 were brought to the attention of the Joint Meeting at its last session. If the Joint Meeting wishes to bring the Regulations annexed to ADN into line with ADNR, it should make the amendments listed below in Parts 7, 8 and 9.

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\* This meeting is organized jointly by the Economic Commission for Europe and the Central Commission for the Navigation of the Rhine.

\*\* Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR-ZKR/ADN/WP.15/AC.2/2003/3.

**PART 7**

7.1.2.0.2 Insert: “4.2, 4.3, 5.1” between “4.1” and “5.2”.

7.1.5.0.2 Second and third indents, insert: “a substance of Class 2 is involved or” after “are/is required,”.

7.2.4.1.1 Second sentence, after “These intermediate bulk containers, tank-containers or portable tanks shall:” insert:

“meet the requirements of international regulations applicable to the substance concerned.”

– Replace “9.3.2.26” by “9.3.2.26.4”

– Replace “9.3.3.26” by “9.3.3.26.4”

Beginning of the second sentence (second indent), read:

“Receptacles shall meet the packing requirements referred to in Part 4 and shall be placed on board ...”

After 7.2.4.1.3, add:

“7.2.4.1.4 On board supply vessels or other vessels delivering products for the operation of vessels, the number of cargo samples referred to in 7.2.4.1.1 may be increased from 30 to a maximum of 500.”

After 7.2.4.15.1, insert:

“7.2.4.15.2 During the filling of permitted residual cargo tanks, intermediate bulk containers (IBCs), tank-containers or portable tanks, gases shall be safely evacuated.”

7.2.4.15.2 becomes “7.2.4.15.3”.

7.2.4.16.12 Add the following sentence:

“The protection of the vessel against detonations and the passage of flames from the shore is not required when the cargo tanks are inerted in accordance with 7.2.4.19.”

**PART 8**

8.1.2.3 Add a new (i) to read:

“(i) The instructions relating to the loading and unloading flows prescribed in 9.3.2.25.9 or 9.3.3.25.9.”

Number “(i)”, “(j)” and “(k)” as “(j)”, “(k)” and “(l).”

8.2.1.3 Replace “the topics referred to in 8.2.2.3.2” by “the objectives referred to in 8.2.2.3.1.1 and in 8.2.2.3.1.2 or 8.2.2.3.1.3.”

8.2.1.4 Replace “the topics referred to in 8.2.2.3.3” by “the objectives referred to in 8.2.2.3.3.1.”

8.2.1.5 Replace “the topics referred to in 8.2.3.3.4” by “the objectives referred to in 8.2.2.3.3.2.”

8.2.1.6 Replace “the topics referred to in 8.2.2” by “the objectives referred to in 8.2.2.3.1.1 and in 8.2.2.3.1.2 or 8.2.2.3.1.3.”

8.2.1.7 Replace “the topics referred to in 8.2.2.3.3” by “the objectives referred to in 8.2.2.3.3.1.”

8.2.1.8 Replace “the topics referred to in 8.2.3.3.4” by “the objectives referred to in 8.2.2.3.3.2.”

**8.2.2** Read:

**“8.2.2 Special requirements for the training of experts**

8.2.2.1 Theoretical knowledge and practical abilities shall be acquired as a result of training in theory and practical exercises. The theoretical knowledge shall be tested by an examination. During the refresher and advanced courses exercises and tests shall ensure that the participant takes an active role in the training.

8.2.2.2 The training organizer shall ensure that participants have a good knowledge of the subject and shall take into account the latest developments concerning the Regulations and the requirements for training in the transport of dangerous goods. Teaching shall relate closely to practice. In accordance with the approval, the teaching syllabus shall be drawn up on the basis of the objectives referred to in 8.2.2.3.1.1 to 8.2.2.3.1.3 and in 8.2.2.3.3.1 or 8.2.2.3.3.2. Basic training and the refresher and advanced courses shall comprise individual practical exercises (see 8.2.2.3.1.1).

**8.2.2.3      *Organization of training***

Basic training and the refresher and advanced courses shall be organized in the context of basic courses (see 8.2.2.3.1) and if necessary specialization courses (see 8.2.2.3.3). The courses referred to in 8.2.2.3.1 may comprise three variants: transport of dry cargo, transport in tank vessels and combined transport of dry cargo and transport in tank vessels.

**8.2.2.3.1      *Basic course*****Basic course on the transport of dry cargo**

Prior training:            none  
 Knowledge:                ADN in general, except Chapter 3.2, Table C, Chapters 7.2 and 9.3  
 Authorized for:            vessels carrying dry cargo only  
 Training:                    general 8.2.2.3.1.1 and dry cargo vessels 8.2.2.3.1.2

**Basic course on transport by tank vessels**

Prior training:            none  
 Knowledge:                ADN in general, except Chapter 3.2, Tables A and B, Chapters 7.1, 9.1, 9.2 and sections 9.3.1 and 9.3.2  
 Authorized for:            type N tank vessels only  
 Training:                    general 8.2.2.3.1.1 and tank vessels 8.2.2.3.1.3

**Combined basic course on dry cargo and tank vessels**

Prior training:            none  
 Knowledge:                ADN in general, except sections 9.3.1 and 9.3.2  
 Authorized for:            dry cargo vessels and type N tank vessels  
 Training:                    general 8.2.2.3.1.1, dry cargo vessels 8.2.2.3.1.2 and tank vessels 8.2.2.3.1.3

8.2.2.3.1.1      The general part of the basic training course shall comprise at least the following objectives:

General:

- Objectives and structure of ADN.

Construction and equipment:

- Construction and equipment of vessels subject to ADN.

Measurement techniques:

- Measurements of toxicity, oxygen content, explosivity.

Knowledge of products:

- Classification and hazard characteristics of the dangerous goods.

Loading, unloading and transport:

- Loading, unloading, general service requirements and requirements relating to transport.

Documents:

- Documents which must be on board during transport.

Hazards and measures of prevention:

- General safety measures.

Practical exercises:

- Practical exercises, in particular with respect to entry into spaces, use of fire-extinguishers, fire-fighting equipment and personal protective equipment as well as flammable gas detectors, oxygen meters and toximeters.

8.2.2.3.1.2 The “dry cargo vessels” part of the basic training course shall comprise at least the following objectives:

Construction and equipment:

- Construction and equipment of dry cargo vessels.

Treatment of holds and adjacent spaces:

- degassing, cleaning, maintenance,
- ventilation of holds and spaces outside the cargo area.

Loading, unloading and transport:

- loading, unloading, general service and transport requirements,
- labelling of packages.

Documents:

- documents which must be on board during transport.

Hazards and measures of prevention:

- general safety measures,
- personal protective and safety equipment.

8.2.2.3.1.3 The “tank vessel” part of the basic training course shall comprise at least the following objectives:

Construction and equipment:

- construction and equipment of tank vessels,
- ventilation,
- loading and unloading systems.

Treatment of cargo tanks and adjacent spaces:

- degassing, cleaning, maintenance,
- heating and cooling of cargo,
- handling of residual cargo tanks.

Measurement and sampling techniques:

- measurements of toxicity, oxygen content and explosivity,
- sampling.

Loading, unloading and transport:

- loading, unloading, general service and transport requirements.

Documents:

- documents which must be on board during transport.

Hazards and measures of prevention:

- prevention and general safety measures,
- spark formation,
- personal protective and safety equipment,
- fires and fire-fighting.

8.2.2.3.2 *Refresher and advanced training courses*

**Refresher and advanced training course on transport of dry cargo**

Prior training: valid ADN “dry cargo vessels” or combined “dry cargo vessels/tank vessels” certificate  
Knowledge: ADN in general, except Chapter 3.2, Table C, Chapters 7.2 and 9.3  
Authorized for: dry cargo vessels only  
Training: general 8.2.2.3.1.1 and dry cargo vessels 8.2.2.3.1.2

**Refresher and advanced training course on transport in tank vessels**

Prior training: valid ADN “tank vessels” or combined “dry cargo vessels/tank vessels” certificate  
Knowledge: ADN in general, except Chapter 3.2, Tables A and B, Chapters 7.1, 9.1 and 9.2 and sections 9.3.1 and 9.3.2  
Authorized for: type N vessels only  
Training: general 8.2.2.3.1.1 and tank vessels 8.2.2.3.1.3

**Refresher and advanced training course on combined transport in “dry cargo vessels/tank vessels”**

Prior training: valid ADN combined “dry cargo vessels and tank vessels” certificate  
Knowledge: ADN in general, including sections 9.3.1 and 9.3.2  
Authorized for: dry cargo vessels and type N tank vessels  
Training: general 8.2.2.3.1.1, dry cargo vessels 8.2.2.3.1.2 and tank vessels 8.2.2.3.1.3

8.2.2.3.3 *Specialization courses*

**Specialization course on gases**

Prior training: valid ADN “tank vessels” or combined “dry cargo vessels/tank vessels” certificate  
Knowledge: ADN, in particular knowledge relating to loading, transport, unloading and handling of gases  
Authorized for: types N and G vessels  
Training: gases 8.2.2.3.3.1

### **Specialization course on chemicals**

Prior training:	valid ADN “tank vessels” or combined “dry cargo vessels/tank vessels” certificate
Knowledge:	ADN, in particular knowledge relating to loading, transport, unloading and handling of chemicals
Authorized for:	types N and C tank vessels
Training:	chemicals 8.2.2.3.3.2

8.2.2.3.3.1 The specialization course on gases shall comprise at least the following objectives:

#### **Knowledge of physics and chemistry:**

- laws of gases, e.g. Boyle, Gay-Lussac and fundamental law
- partial pressures and mixtures, e.g. definitions and simple calculations, pressure increase and gas release from cargo tanks
- Avogadro’s number and calculation of masses of ideal gas and application of the mass formula
- density and volume of liquids, e.g. density, volume in terms of temperature increase and maximum degree of filling
- critical pressure and temperature
- polymerization, e.g. theoretical and practical questions, conditions of carriage
- vaporization, condensation, e.g. definition, liquid volume and vapour volume ratio
- mixtures, e.g. vapour pressure, composition and hazard characteristics
- chemical bonds and formulae.

#### **Practice:**

- flushing of cargo tanks, e.g. flushing in the event of a change of cargo, addition of air to the cargo, methods of flushing (degassing) before entering cargo tanks
- sampling
- danger of explosion
- health risks
- gas concentration measures, e.g. which apparatus to use and how to use it
- monitoring of closed spaces and entry to these spaces
- certificates for degassing and permitted work
- degree of filling and over-filling
- safety installations
- pumps and compressors.



**Emergency measures**

- physical injury, e.g. liquefied gases on the skin, breathing in gas, assistance
- irregularities relating to the cargo, e.g. leak in a connection, over-filling, polymerization and hazards in the vicinity of the vessel.

8.2.2.3.4 *Refresher and advanced training courses***Refresher and advanced training course on gases**

Prior training:	valid ADN “gases” certificate
Knowledge:	ADN, in particular, loading, transport, unloading and handling of gases
Authorization for:	types N and G tank vessels
Training:	gases 8.2.2.3.3.1

**Refresher and advanced training course on chemicals**

Prior training:	valid ADN “chemicals” certificate
Knowledge:	ADN, in particular, loading, transport, unloading and handling of chemicals
Authorization for:	types N and C tank vessels
Training:	chemicals 8.2.2.3.3.2

8.2.2.4 *Planning of refresher and specialization courses*

The following minimum periods of training shall be observed:

Basic “dry cargo vessels course”	24 lessons of 45 minutes each
Basic “tank vessels” course	24 lessons of 45 minutes each
Basic combined course	32 lessons of 45 minutes each
Specialization course on gases	16 lessons of 45 minutes each
Specialization course on chemicals	16 lessons of 45 minutes each

Each day of training may comprise not more than eight lessons.

If the theoretical training is by correspondence, equivalences to the above-mentioned lessons shall be determined. Training by correspondence shall be completed within a period of nine months.

Approximately 30% of basic training shall be devoted to practical exercises. Practical exercises shall, where possible, be undertaken during the period of theoretical training; in any event, they shall be completed not later than three months following the completion of theoretical training.

**8.2.2.5      *Planning of refresher and advanced training courses***

The refresher and advanced training courses shall take place before the expiry of the deadline referred to in 8.2.1.4, 8.2.1.6 or 8.2.1.8.

The following minimum periods of training shall be observed:

Basic refresher course:

– dry cargo vessels	16 lessons of 45 minutes each
– tank vessels	16 lessons of 45 minutes each
– combined dry cargo vessels and tank vessels	16 lessons of 45 minutes each
Specialization refresher course on gases	8 lessons of 45 minutes each
Specialization refresher course on chemicals	8 lessons of 45 minutes each

If the theoretical training is by correspondence, equivalences to the above-mentioned lessons shall be determined. Training by correspondence shall be completed within a period of nine months.

Approximately 50% of basic training shall be devoted to practical exercises. Practical exercises shall, where possible, be undertaken during the period of theoretical training; in any event, they shall be completed not later than three months following the completion of theoretical training.

**8.2.2.6      *Approval of training courses***

8.2.2.6.1      Training courses shall be approved by the competent authority.

8.2.2.6.2      Approval shall be granted only on written application.

8.2.2.6.3      Applications for approval shall be accompanied by:

- (a) the detailed course curriculum showing the course topics and the length of time to be devoted to them, as well as the teaching methods envisaged;
- (b) the roster of teaching staff, listing their qualifications and the subjects to be taught by each one;
- (c) information on classrooms and teaching materials, as well as on the facilities available for practical exercises;
- (d) enrolment requirements, e.g. the number of participants.

8.2.2.6.4      The competent authority shall be responsible for monitoring training courses and examinations.

- 8.2.2.6.5 The approval comprises the following conditions, inter alia:
- (a) training courses shall conform to the information accompanying the application for approval;
  - (b) the competent authority may send inspectors to attend training courses and examinations;
  - (c) the timetables for the various training courses shall be notified in advance to the competent authority.

Approval shall be granted in writing. It may be withdrawn in the event of failure to comply with the conditions of approval.

- 8.2.2.6.6 The approval document shall indicate whether the course in question is a basic training course, a specialization course or a refresher and advanced training course.
- 8.2.2.6.7 If, after approval is granted, the organizer of the training course wishes to change conditions affecting the approval, he shall seek the prior agreement of the competent authority. This provision shall apply in particular to amendments to syllabuses.
- 8.2.2.6.8 Training courses shall take account of the current developments in the various subjects taught. The course organizer shall be responsible for ensuring that recent developments are brought to the attention of, and properly understood by, teachers.

#### **8.2.2.7 *Examinations***

(Include the text of the existing 8.2.3.5)

#### **8.2.2.8 *ADN specialized knowledge certificate***

Include the text of the existing 8.2.3.6, replacing the last sentence by:

“The validity of the basic training certificate shall be five years as from the date of the examination.

The validity of the ‘gases’ and/or ‘chemicals’ specialized training certificate shall be brought into line with the validity of the basic training certificate.

If the refresher and advanced training course was not fully completed before the expiry of the period of validity of the certificate, a new certificate shall not be issued until the candidate has completed a further initial basic training course and passed an examination referred to in 8.2.2.7 above.”

### 8.7.3 Checklist

Page 2:

After “kPa  
(permissible maximum pressure in the cargo tank)”

insert:

“litres  
(estimated residual quantity)”.

After “Questions to the master”, insert:

“or the person mandated by him”.

Page 3:

Question 2, insert after “master”:

“or the person mandated by him”.

In the explanation for question 10, add the following sentence:

“When supervision is effected by additional technical means it must be agreed between the shore installation and the vessel how it is to be ensured.”

In the explanation for question 13, insert after “master”:

“or the person mandated by him”.

## PART 9

9.1.0.52.1 End, add the following sentence:

“Submerged pumps installed or used in the holds shall be of the certified safe type at least for temperature class T4 and explosion group II B.”

9.1.0.80 Between “4.1” and “5.2” insert “4.2, 4.3, 5.1,”

9.1.0.88.1 Between “4.1” and “5.2” insert “4.2, 4.3, 5.1,”

- 9.2 Word the heading of 9.2 to read:
- “Rules for construction applicable to seagoing vessels which comply with the requirements of the SOLAS 74 Convention, Chapter II-2, Regulation 19 or SOLAS 74, Chapter II-2, Regulation 54” (twice)**
- 9.2 Number the text under the heading 9.2.0 and word it to read:
- “9.2.0 The requirements of 9.2.0.0 to 9.2.0.79 are applicable to seagoing vessels which comply with the following requirements:
- SOLAS 74, Chapter II-2, Regulation 19 in its amended version or
  - SOLAS 74, Chapter II-2, Regulation 54 in its amended version in accordance with the applicable resolutions mentioned in II-2/1.2.1.
- Seagoing vessels which do not comply with the requirements of the SOLAS 74 Convention, Chapter II-2, Regulation 19 or SOLAS 74, Chapter II-2, Regulation 54 shall meet the requirements of 9.1.0.0 to 9.1.0.79.”
- 9.2.0.80 Between “4.1” and “5.2” insert: “4.2, 4.3, 5.1,”
- 9.2.0.88.1 Between “4.1” and “5.2” insert: “4.2, 4.3, 5.1,”
- 9.3.1.21.1 (f), read:
- “(f) an instrument for measuring the temperature of the cargo if in column (9) of Table C of Chapter 3.2 a heating installation is required or if in column (20) a possibility of heating the cargo is required or if a maximum temperature is indicated;”
- 9.3.1.21.10 Replace: “a switch” by “switches”
- and “The switch shall be placed” by “The switches shall be placed”.
- 9.3.1.28 Replace: “vapours” by “gases”
- Second paragraph, add the following second sentence:
- “The spray nozzles shall be so installed that released gases are precipitated safely.”
- 9.3.2.11.4 Third paragraph, end of second sentence, read:
- “... provided that the discharge pipes are fitted with shut-off devices at the outlet from the cargo tank and in the cargo pump-room direct at the bulkhead.”

9.3.2.21.1 (f), read:

“(f) an instrument for measuring the temperature of the cargo if in column (9) of Table C of Chapter 3.2 a heating installation is required or if in column (20) a possibility of heating the cargo is required or if a maximum temperature is indicated;”

9.3.2.21.7 Second paragraph, first sentence, after “activate the alarm” insert “at latest”.

9.3.2.21.12 Replace: “a switch” by “switches”

and “The switch shall be placed” by “The switches shall be placed”.

9.3.2.26.4 Insert this number in front of “The residual cargo tank ...” and word 9.3.2.26.4 to read:

“9.3.2.26.4 The residual cargo tank shall be equipped with:

- pressure-relief and vacuum-relief valves.

The high-velocity vent valve shall be so regulated as not to open during carriage. This condition is met when the opening pressure of the valve meets the conditions set out in column (19) of Table C of Chapter 3.2,

When anti-explosion protection is required in column (17) of Table C of Chapter 3.2, the vacuum-relief valve shall be capable of withstanding deflagrations and the high-velocity vent valve shall withstand steady burning;

- a level indicator;
- connections with shut-off devices, for pipes and hoses.

Intermediate bulk containers (IBCs), tank containers and portable tanks intended to collect cargo remains, cargo residues or slops shall be equipped with:

- a connection enabling gases released during filling to be evacuated safely;
- a possibility of indicating the degree of filling;
- connections with shut-off devices, for pipes and hoses.

Residual cargo tanks, intermediate bulk containers (IBCs), tank containers and portable tanks shall be connected to the vapour pipe of cargo tanks only for the time necessary to fill them in accordance with 7.2.4.15.2.

Residual cargo tanks, intermediate bulk containers (IBCs), tank containers and portable tanks placed on the deck shall be located at a minimum distance from the hull equal to one quarter of the vessel's breadth."

9.3.2.28 Read:

**"9.3.2.28 *Water-spray system***

When water-spraying is required in column (9) of Table C of Chapter 3.2, a water-spray system shall be installed in the cargo area on deck to enable gas emissions from loading to be precipitated and to cool the tops of cargo tanks by spraying water over the whole surface so as to avoid safely the activation of the high-velocity vent valve at 50 kPa.

The gas precipitation system shall be fitted with a connection device for supply from a shore installation.

The spray nozzles shall be so installed that the entire cargo deck area is covered and the gases released are precipitated safely.

The system shall be capable of being put into operation from the wheelhouse and from the deck. Its capacity shall be such that when all the spray nozzles are in operation, the outflow is not less than 50 litres per square metre of deck area and per hour."

9.3.3.11.4 Third paragraph, end of second sentence, read:

"... provided that the discharge pipes are fitted with shut-off devices at the outlet from the cargo tank and in the cargo pump-room direct at the bulkhead."

Third paragraph, add the following as the penultimate sentence:

"All penetrations in cargo tanks shall be fitted with stop valves."

9.3.3.11.10 Delete.

9.3.3.11.11 Becomes 9.3.3.11.10.

9.3.3.12.9 Delete.

9.3.3.12.10 Delete.

- 9.3.3.21.10 (f), read:
- “(f) an instrument for measuring the temperature of the cargo if in column (9) of Table C of Chapter 3.2 a heating installation is required or if in column (20) a possibility of heating the cargo is required or if a maximum temperature is indicated;”
- 9.3.3.21.7 Second paragraph, first sentence, after “activate the alarm” insert “at latest”.
- 9.3.3.21.14 Delete.
- 9.3.3.22.7 Delete.
- 9.3.3.25.2 Delete (h).
- 9.3.3.26.3 Leave only the first sentence with this number. Transfer the rest to a new 9.3.3.26.4 with the following amendments:
- Read: “The high-velocity vent valve shall be so regulated” instead of “The valve shall be so regulated”.
- Replace the last sentence by:
- Intermediate bulk containers (IBCs), tank containers and portable tanks intended to collect cargo remains, cargo residues or slops shall be equipped with:
- a connection enabling gases released during filling to be evacuated safely;
  - a possibility of indicating the degree of filling;
  - connections with shut-off devices, for pipes and hoses.
- Residual cargo tanks, intermediate bulk containers (IBCs), tank containers and portable tanks shall be connected to the vapour pipe of cargo tanks only for the time necessary to fill them in accordance with 7.2.4.15.2.
- Residual cargo tanks, intermediate bulk containers (IBCs), tank containers and portable tanks placed on the deck shall be located at a minimum distance from the hull equal to one quarter of the vessel’s breadth.”
- 9.3.3.26.4 Becomes 9.3.3.26.5.



9.3.3.28 Read:

**“9.3.2.28 *Water-spray system***

When water-spraying is required in column (9) of Table C of Chapter 3.2, a water-spray system shall be installed in the cargo area on deck for the purpose of cooling the tops of cargo tanks by spraying water over the whole surface so as to avoid safely the activation of the high-velocity vent valve at 10 kPa or as regulated.

The spray nozzles shall be so installed that the entire cargo deck area is covered and the gases released are precipitated safely.

The system shall be capable of being put into operation from the wheelhouse and from the deck. Its capacity shall be such that when all the spray nozzles are in operation, the outflow is not less than 50 litres per square metre of deck area and per hour.”

9.3.3.42.5 Delete.

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