
Economic Commission for Europe**Inland Transport Committee**

8 December 2022

Working Party on the Transport of Dangerous Goods

English

Joint Meeting of Experts on the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) (ADN Safety Committee)**Forty-first session**

Geneva, 23-27 January 2023

Item 5 (b) of the provisional agenda

Proposals for amendments to the Regulations annexed to ADN: other proposals

Opening of openings**Transmitted by the Government of Germany***Summary*

Related documents: ECE/TRANS/WP.15/AC.2/2022/43
ECE/TRANS/WP.15/AC.2/2022/45
Informal document INF.19 of the fortieth session
ECE/TRANS/WP.15/AC.2/82 (paragraphs 51 and 52)

Introduction

1. Germany would like to thank all delegations that have sent constructive questions and suggested improvements after the deliberation of the proposal on the opening of openings at the fortieth session of the ADN Safety Committee.
2. In the following, Germany would like to briefly report on the examination and evaluation of these contributions.

I. Questions, proposals and answers

A. Openings used.

3. Working document ECE/TRANS/WP.15/AC.2/2022/43 did not sufficiently describe which specific openings are used on tank vessels, what reasons there are for opening cargo tanks and how this issue is regulated in the currently applicable version of the Regulations.

4. The table below contains descriptions of the use cases.

<i>Measure</i>	<i>Purpose</i>	<i>Opening that must be opened:</i>	<i>Alternative to opening:</i>
Visual inspection of empty cargo tanks that have not been degassed	Visual inspection of cargo tanks prior to loading to ensure that contamination of the cargo by the previous cargo or unwanted reactions of the cargo with residues of the previous cargo are avoided. After unloading, a visual inspection must be carried out to check whether the cargo tanks are empty and not contaminated.	Sampling opening in accordance with the newly proposed definition	Given the current type of construction: None
Sampling	Check of the quality of the cargo (purpose of the check). For certain dangerous goods, open sampling by means of a sampling opening is permitted. If a closed-type or partly closed-type sampling device is mandatory, it may be necessary in exceptional cases in the event of a technical problem of this device to take the sample via the sampling opening or an equivalent opening.	Sampling opening in accordance with the newly proposed definition	Given the current type of construction: None

<i>Measure</i>	<i>Purpose</i>	<i>Opening that must be opened:</i>	<i>Alternative to opening:</i>
Determination of the filling quantity	The determination of the precise filling quantity of the cargo tanks is necessary in particular for fiscal reasons and in the event of accidents. If the measuring equipment installed on board is not available due to malfunction, the measurements must be performed using a measuring tape and a thermometer.	Sampling opening in accordance with the newly proposed definition	Given the current type of construction: None
Addition of stabilizers	It can happen that a journey takes longer than expected. It may therefore be necessary for certain substances to subsequently add a stabilizer to avoid unwanted reactions.	Sampling opening in accordance with the newly proposed definition	Given the current type of construction: None
Gas measurement	A gas measurement has to be performed prior to entering the cargo tanks, to removing cones and lights as well as for the purpose of inerting and to check whether the cargo tank is free from gases.	Sampling opening in accordance with the newly proposed definition	Given the current type of construction: None

B. Explanation of the proposed safety measures

(a) Visual inspection

5. The proposal for a specific paragraph on visual inspection (7.2.4.23.1 in the current draft) contains a provision that the vessel's outgoing piping must be disconnected from the shore facility. This provision is to apply for all measures in the future. (For details see paragraphs 28-32 below).

(b) Sampling

7.2.4.23.2.1. The sampling receptacles including all accessories such as ropes, etc., shall consist of electrostatically conductive material and shall be electrically connected to the vessel's hull.

7.2.4.23.2.2. Sampling shall be permitted only if a device prescribed in column (13) of Table C of Chapter 3.2 or a device ensuring a higher level of safety is used.

New:

"7.2.4.23.2.3. In exceptional cases in the event of a malfunction of the sampling device that cannot be solved in the short term, sampling via the sampling opening shall be permitted."

Justification for the new provision:

6. It is ensured that the unloading of the vessel is not prevented and its operational plan is not significantly disrupted (resulting in economic damage for the carrier) in cases where the damage cannot be repaired in the short term with the vessel's own resources or by external service providers within possible time buffers.

(c) Determination of the filling quantity

7. If the quantity of the cargo measured by the filler differs from the quantity determined on board by means of measuring instruments, the filling quantity in the cargo tank may be determined manually via the sampling opening using a measuring tape and a thermometer. The measuring instruments used for determining the filling quantity in cargo tanks must consist of electrostatically conductive material and must be electrically connected to the vessel's hull during measuring. The measuring instrument must be suitable for use in zone 0.

Justification for the new provision:

8. The measurement by means of the fixed measurement systems as mentioned in the new paragraph 7.2.4.23.2.5 can occasionally be incorrect. This may be due to air bubbles or drops that confuse radar or sonic measuring systems or due to floaters that are "stuck". Defective sensors may be another reason. As a result, the quantity indicated by the filler to the carrier during loading or by the carrier at the unloading site may differ from the quantity indicated by the fixed measurement system on the cargo tank. In this case, the precise quantity and value of the cargo can only be determined by means of a measuring tape and a thermometer. The determination of the quantity by means of the calibration marks is fault-prone, as the readings are dependent on external factors such as wave height and wave frequency. This is, of course, also true for the determination of quantity for customs clearance.

(d) Addition of stabilizers

New provision for ADN:

"7.2.4.23.2.6: When adding stabilizer via the sampling opening, static charging shall be prevented."

Justification for the new provision:

9. The requirement in 7.2.4.23.6 takes up an issue that is already regulated in other places in ADN, e.g. for inerting in 7.2.4.18.4 or for loading in 7.2.4.16.15, in order to prevent electrostatic charging. For this, the rate of filling has to be kept as low as possible, taking into consideration the conductivity. In practice, the amounts of stabilizer added are relatively small.

(e) Gas measurement

New provision for ADN:

"7.2.4.23.2.7 The requirements in accordance with 7.2.3.1.4 shall apply additionally for gas measurement."

Justification for the new provision:

10. Gas measurements can be safely performed if the requirements in accordance with 7.2.3.1.4 are complied with in addition to the new provisions.

C. Definition of sampling opening: equivalent openings

11. Austria had suggested that the equivalency of other openings should be worded more clearly in the definition of "sampling opening".

12. A new sentence in the definition of "Sampling opening" in 1.2.1 could read as follows:

"Other cargo tank openings, except cargo tank hatches, shall be deemed to be sampling openings if they comply with the aforementioned requirements."

D. Degassing: Flame arrester that must be fitted to the outlet

13. Germany supports the proposal presented by the Netherlands at the fortieth session in working document ECE/TRANS/WP.15/AC.2/2022/45 to prescribe the use of "flame arresters capable of withstanding a detonation" instead of "flame arresters capable of withstanding steady burning" in the first sentence of 7.2.3.7.1.3. The proposal is to be included in a revision of the amendment package.

E. Degassing: Description of the opening through which gases may be removed from the tank

14. The Netherlands have also suggested that the original proposal for an insertion in 7.2.3.7.1.3. ("The gas/air mixture may be removed from the cargo tanks through the device ...") be moved to the definition. This proposal is not accepted. The insertion is an operational provision detailing where the gas/air mixture may be removed from the cargo tanks. It is not intended to define the "suitable venting equipment" more closely. The equipment consists of fans that do not need to be described in more detail.

15. As Austria has accurately noted, it is not immediately evident in the previous proposal for amending 7.2.3.7.1.3 whether the outlets listed are merely examples or whether the list is exhaustive. It is an exhaustive list, and this should also be obvious from the wording:

"The air/gas mixture shall only be removed from the cargo tanks:

- (a) through the device for the safe depressurization of cargo tanks [as referred to in 9.3.2.22.4 (a) and 9.3.2.22.4 (b) or 9.3.3.22.4 (a) and 9.3.3.22.4 (b)];
- (b) through the sampling opening [(9.3.2.21.1. (g) or 9.3.3.21.1 (g))],
- (c) through the open housing of the flame arrester at the connection of the cargo tank and the venting piping [(9.3.2.22.4 (b) or 9.3.3.22.4 (d))], or

(d) through a suitable hose that is connected to the venting piping and equipped with a flame arrester preceding the hose (explosion group/subgroup according to column (16) of Table C of Chapter 3.2)."

F. Scope of application of the provisions on the opening of openings

16. The first two amendments proposed by Belgium in the informal document INF.19 of the fortieth session (indicating the name of the vessel types instead of the hazard classes, visual inspection only from deck level) are justified and can be included in a revised version of the amendment package:

"7.2.4.22 and 7.2.4.23 shall only apply to tank vessels of Type C and Type N, ~~that have unloaded goods of Classes 3, 4.1, 5.1, 6.1, 8 or 9 or intend to load such goods.~~"

"...is permitted under the following conditions for cleaning and/or replacing the flame arrester plate stack, visual inspection from deck level, sampling..."

17. This also addresses another objection. Austria had noted that the previous proposals were ambiguous as to whether cargo tanks may also be opened when they are loaded or only when they have been discharged.

18. There are substances of Class 3, e.g. UN 1089 acetaldehyde or UN 1267 and 1268 petroleum crude oil, for which the appropriate vessel first has to be determined by applying the flowchart in 3.2.3.3 of ADN. For those substances, the use of a tank vessel of type "C-1-1" (tank vessel of type C with pressure cargo tanks) is prescribed. However, such vessels do not exist. The substances have to be carried in tank vessels of type G (with pressure cargo tanks).

19. Depending on the respective substance carried, it is necessary in individual cases to open openings for the purposes mentioned above also on tank vessels of type G. This is the reason why the scope of application has so far not been restricted to tank vessels of type C and N but rather the application of these provisions to the carriage of dangerous goods of Class 2 in tank vessels has been excluded.

20. For those specific cases, no solution has been found so far.

G. Transport operations where the opening of openings should be prohibited

21. The third proposal of the Belgian delegation to prohibit the opening of openings in the case of instructions by the consignor is not endorsed by Germany. Such cases are unknown in Germany and could be better addressed by a remark in Column (20) of Table C.

H. Exceptional cases where the opening of openings is permitted

22. The Netherlands have noted that in several places the proposal mentions exceptional "cases" where cargo tanks may be opened. The question is whether it is easy to determine during checks whether such an exceptional case applies. Germany would like to address this comment and adapt the proposed amendments as follows:

7.2.4.23.2.3 new:

"In the event of a malfunction of the sampling device that cannot be solved in the short term, open sampling via the sampling opening shall be permitted."

Reference (German only):

https://binnenschifffahrt-online.de/wp-content/uploads/2018/01/Recht_07_17.pdf

7.2.4.23.2.6 new:

"Where due to an unexpected extension of the duration of the journey additional stabilizer has to be added to one or more cargo tanks during the transport operation, the stabilizer shall only be added through the sampling opening. Static charging shall be prevented."

I. Opening of the cargo tank hatches

23. Regarding the proposal for a new paragraph 7.2.4.22.2, the Netherlands have pointed out that there is an error in the German translation of ADN 2021. In accordance with the English and French versions, cargo tank hatches may be opened when the cargo tanks have been "degassed" ("entgast"), in the German version, this may be done when the cargo tanks have been "unloaded" ("entladen"). After consultation with the CCNR Secretariat and Switzerland, the German translation was corrected with effect from 1 January 2023.

J. Replacement of the flame arrester plate stacks in flame arresters

24. Regarding the proposal for a new paragraph 7.2.4.22.4, the Netherlands have pointed out that in order to replace the flame arrester plate stacks the housing of the flame arrester first needs to be opened. This is reflected in the current wording of paragraph 7.2.4.22.5. Germany agrees to the proposal to keep this aspect reflected in the wording.

K. Use of tools

25. The words "hand tools" or "*outils à main*" are to be retained in the English and in the French version of the new paragraph 7.2.4.22.7 (previously 7.2.4.22.6). [*Secretariats: please check the Russian language version*] However, the proposal by the Netherlands to keep the example of tools made from "chromium vanadium steel" is not endorsed for safety reasons. This specification is not precise enough, as low sparking can only be guaranteed for very specific chrome vanadium alloys. A consequential amendment to paragraph 8.3.5 of ADN might be required. The German delegation points out that "low-sparking hand tools" with a corresponding CE marking are available on the market.

L. Avoiding the opening of openings

26. The delegation from the Netherlands has posed the question of whether technical equipment could increasingly be used to avoid the opening of cargo tank openings, for example in the case of filling quantity measurement in the cargo tank or when subsequently adding stabilizers during the journey of the vessel. The German delegation does not know of existing technical solutions or innovations to that effect to be expected in the medium term. For the future, however, Germany is open to considering such improvements.

27. Thus, the German delegation is of the opinion that at the moment certain safety provisions need to be laid down for all cases relevant to practice, even if these measures have to be implemented only in a few cases. In all individual cases, incidents should be avoided.

M. Opening of openings for the purpose of washing the cargo tanks

28. The European Barge Union/ European Skippers Organization (EBU/ESO) delegation has proposed to also include in this amendment package on the "opening of openings" all provisions necessary for washing tanks (for which the cargo tanks are also opened). It is true that, in addition to the previous proposals, there should also be a description of when and how the "butterwash opening" is permitted to be used as well as what restrictions apply in this case.

29. See, for instance, ADN 2021 catalogue of questions — chemical questions, Question 332 03.0-04 "Cleaning the cargo tanks".

30. The list in 7.2.4.22.1 could be supplemented for this purpose:

"By derogation from 7.2.3.22, the opening of openings is permitted in exceptional cases under the following conditions for cleaning and/or replacing the flame arrester plate stack, visual inspection, sampling, gas measurement, connection to a tank washing system, determining the filling quantity in the cargo tank and subsequently adding stabilizer but only if and insofar it is not prohibited on the basis of other legal requirements."

31. A possible operational provision could read as follows:

"For washing the cargo tanks, only the dedicated opening for the connection of the tank washing system fitted to the cargo tank shall be used."

32. Germany would like to ask EBU/ESO to submit their own proposal to the Safety Committee for aspects going beyond that. The problems that might have to be considered in this context seem to be very complex and probably go far beyond the opening of the cargo tanks.

N. New proposal for all measures

33. The following requirement should be included in the general part of the provisions on the opening of openings (7.2.4.22 in the current proposal):

"Cargo tanks may be opened when the vessel is not connected to the shore facility or the shut-off devices on the vessel and at the shore facility are closed."

34. The original proposal only lays down that visual inspections (7.2.4.23.1.1 in the current proposal) may only be performed when the vessel is not connected to the shore facility. "First foot samples", by contrast, are to also be permitted to be performed when the vessel is not disconnected from the shore facility (7.2.4.23.2.4 in the current proposal).

35. However, there is no reason why a provision should only be introduced for visual inspections and first foot samples. Rather, the above safety provision must apply for every measure involving the opening of cargo tanks.

Justification:

36. When the vessel is not connected to the shore facility, in the case of an incident such as a fire, this fire cannot spread from the vessel to the shore facility and vice versa. When the vessel is connected to the shore facility, the shut-off devices on the vessel and at the shore facility, i.e. the shut-off devices of the piping for loading and unloading and the venting piping, must be closed. This ensures a level of safety equivalent to when the vessel is not connected to the shore facility. The requirements to be met by shut-off devices are set out in detail in Part 9 - Rules for construction of ADN.

II. Next steps

37. Germany would like to ask the Safety Committee to re-evaluate the original proposal as presented in document ECE/TRANS/WP.15/AC.2/2022/43 in the light of the above amendments. A revised amendment package is to be presented at the forty-second session.
