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Working Party on the Transport of Perishable Foodstuffs

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Items 5 (a) and 6 of the provisional agenda

Proposals for amendments to ATP: Pending proposals and ATP Handbook

Amendments to and clarifications of ATP annex 1, appendix 2, paragraph 20 and supplements to annex 1, appendix 2, of the ATP Handbook*

Transmitted by the Government of the Russian Federation

Summary

Executive summary: The analysis of requirements for the placement of air temperature measurement devices inside and outside of tanks with a few compartments given in ATP annex 1, appendix 2, paragraph 20 (b) has shown that the said requirements should only be applied to tanks with three and more compartments, as in tanks with two compartments the placement of air temperature measurement devices aimed at determining the K coefficient should be different.

There is a contradiction between the requirements regarding the number and placement of air temperature measurement devices inside and outside of tanks aimed at identifying the K coefficient in the last indents of paragraphs 3 and 4 of ATP annex 1, appendix 2 and the second sentence of the last indent of ATP annex 1, appendix 2, paragraph 20 (b) regarding tanks with two compartments.

* Submitted in accordance with the programme of work of the Inland Transport Committee for 2010–2014 (ECE/TRANS/208, para. 106; ECE/TRANS/2010/8, programme activity 02.11).

Action to be taken: Make the first indent of the current version of ATP annex 1, appendix 2, paragraph 20 (b) more specific, stating that the requirements for the placement of temperature measurement devices given below in that paragraph pertain to tanks with three and more compartments.

 Renumber ATP annex 1, appendix 2, paragraph 20 (b) as 20 (c).

 Renumber figure 2 in the ATP Handbook as 3. Amend the comments to annex 1, appendix 2, paragraph 20 (c) of the ATP Handbook, as revised, accordingly.

 Supplement ATP annex 1, appendix 2, paragraph 20 (b), as revised, with a description of the requirements for the placement of air temperature measurement devices inside and outside of tanks with two compartments during tests aimed at determining the K coefficient.

 Make the last indent of the current ATP annex 1, appendix 2, paragraph 20 (b) into a separate subparagraph, (d), and make the last sentence of that new subparagraph more specific, stating the minimum total number of air temperature measurements inside tanks with two and more compartments.

 Supplement ATP Handbook annex 1, appendix 2, with the layout of the placement of air temperature measuring devices inside and outside tanks with two compartments (figure 2, as renumbered) during tests aimed at determining the K coefficient.

Related documents: None.

Introduction

1. During the preparation of document ECE/TRANS/WP.11/2009/19, adopted at the sixty-fifth session of the Working Party on the Transport of Perishable Foodstuffs (WP.11), the Russian Federation determined that the requirements for the placement of air temperature measurement devices inside and outside tanks with several compartments given in ATP annex 1, appendix 2, paragraph 20 (b) may only be applied to tanks with three and more compartments, as in tanks with two compartments the placement of air temperature measurement devices aimed at determining the K coefficient should be different.

2. ATP annex 1, appendix 2, paragraphs 3 and 4 state “If the body is not parallelepipedic, the 12 points of measurements shall be distributed as satisfactorily as possible having regard to the shape of the body.”

At the same time, fulfilling the requirements of ATP annex 1, appendix 2, paragraph 20 (b) concerning tanks with two compartments requires a total of 8 (eight) air temperature measurement devices inside and outside of the tank: at the extremities of a horizontal diameter near the bottoms and at the extremities of a vertical diameter near both sides of the common partition.

3. The installation of fewer temperature measuring devices aimed at determining the K coefficient in tanks with two compartments than specified in the last indents of ATP annex 1, appendix 2, paragraphs 3 and 4, respectively, may worsen the measurement error, the requirements for which are given in ATP annex 1, appendix 2, paragraph 25.

4. In line with the requirements of ATP annex 1, appendix 2, paragraph 25, during tests aimed at determining the K coefficient when using the internal heating method, the maximum measurement error shall be $\pm 5\%$.

Comments to paragraph 25 in the ATP Handbook contain formulas for the calculation of this error. It largely depends on the quotient of the absolute error of the temperature measurement devices and the difference between the air temperature inside and outside the tested transport equipment's body that in turn depends on the number and placement of air temperature measurement devices inside and outside the tested transport equipment.

5. In order to fulfil the requirements given in the last indents of paragraphs 3 and 4 and paragraph 25 of ATP annex 1, appendix 2, and achieve a smaller measurement error it is important to specify the ATP requirements for:

- The number and placement of air temperature measurement devices inside and outside tanks with two compartments during tests of tanks aimed at determining the K coefficient. The minimum number of air temperature measurement devices inside and outside tanks with two compartments must also be no less than 12 (twelve), which will ensure a lower measurement error than the currently suggested 8 (eight) temperature measurement devices.
- The minimum total number of air temperature measurements inside tanks with two and more compartments.

6. On the basis of the above, the Russian Federation submitted for consideration by WP.11 at its sixty-fifth session informal document INF.6. Following consideration of the document, the Russian Federation submits herewith this proposal as an official document at the sixty-sixth session of WP.11, highlighting the amendments that should be made to ATP

annex 1, appendix 2, paragraph 20 and the new comments to be included in the ATP Handbook.

Proposals

7. Amend the first indent of ATP annex 1, appendix 2, paragraph 20 (b) as given below and change subparagraph (b) to (c):

(a) *If the tank has three or more compartments, measurements shall be made at the following points: ... {further according to the text}.*

8. Supplement ATP annex 1, appendix 2, paragraph 20 with a new subparagraph (b) as follows:

(b) *If the tank has two compartments, the measurements shall be made at least at the following points:*

- *Near the bottom of the first compartment and near the common partition in the second compartment – at the extremities of three radiuses forming 120° angles, one of the radiuses being directed vertically upwards*
- *Near the bottom of the second compartment and near the common partition in the first compartment – at the extremities of three radiuses forming 120° angles, one of the radiuses being directed vertically downwards*

9. Make the last indent of the current version of ATP annex 1, appendix 2, paragraph 20 (b) into a separate paragraph, 20 (d), and amend the final sentence of the new subparagraph as follows:

(d) *... For tanks with ~~several~~ **two and more** compartments the mean inside temperature of each compartment shall be the arithmetic mean of the measurements made in the compartment, while the number of those measurements **in each compartment** shall be no less than four, **and the total number of measurements in all compartments of the tank shall be no less than twelve.***

10. For ease of understanding, the proposed new version of ATP annex 1, appendix 2, paragraph 20 is shown below, as from subparagraph (b):

(b) *If the tank has two compartments, the measurements shall be made at least at the following points:*

- *Near the bottom of the first compartment and near the common partition in the second compartment – at the extremities of three radiuses forming 120° angles, one of the radiuses being directed vertically upwards*
- *Near the bottom of the second compartment and near the common partition in the first compartment – at the extremities of three radiuses forming 120° angles, one of the radiuses being directed vertically downwards*

(c) *If the tank has three or more compartments, measurements shall be made at the following points:*

For each of the two end compartments, at least the following:

- *At the extremities of a horizontal diameter near the bottom and at the extremities of a vertical diameter near the common partition*

And for each of the remaining compartments, at least the following:

- *At the extremity of a diameter inclined at an angle of 45° to the horizontal near one of the partitions, and at the extremities of a diameter perpendicular to the first and near the other partition*

(d) *The mean inside temperature and the mean outside temperature of the tank shall respectively be the arithmetic mean of all the measurements made inside and outside the tank. For tanks having two and more compartments, the mean inside temperature of each compartment shall be the arithmetic mean of the measurements made in the compartment, and the number of those measurements in each compartment shall be no less than four and the total number of measurements in all compartments of the tank shall be no less than twelve.*

11. Supplement the ATP Handbook with the following comments to the new version of ATP annex 1, appendix 2, paragraph 20 (b) (replacing the comment to this subparagraph in the current version of the ATP Handbook) and ATP annex 1, appendix 2, paragraph 20 (c):

Comment to the new ATP annex 1, appendix 2, paragraph 20 (b):

The layout of the placement of air temperature measurement devices inside and outside tanks with two compartments is shown in figure 2.

Comment to the new ATP annex 1, appendix 2, paragraph 20 (c):

The layout of the placement of air temperature measurement devices inside and outside tanks with three and more compartments is shown in figure 3.

12. Renumber figure 2 in the current version of the ATP Handbook as figure 3 in the new version.

13. The new figure 2 is included below.

14. Change the subsequent numbering of figures in the ATP Handbook.

Justification

15. In the Russian Federation's view it is crucial to ensure the harmonized observance of ATP requirements by all Contracting Parties. The specialists at the testing facilities of the Contracting Parties must be fully aware of all the ATP provisions regarding the testing of tanks with one, two, three and more compartments to determine the K coefficient.

16. After the introduction of the supplements and precisions proposed by the Russian Federation into ATP and the ATP Handbook, no questions should remain as to the placement of air temperature measuring devices inside and outside tanks with one, two, three and more compartments during tests of tanks aimed at determining the K coefficient.

Simplification

17. The introduction of the amendments and clarifications proposed by the Russian Federation into ATP and the ATP Handbook will make it easier to understand the ATP requirements for the placement of air temperature measuring devices inside and outside tanks with one, two, three and more compartments and facilitate the training of specialists to conduct tests of tanks' compliance with the corresponding ATP requirements.

Costs

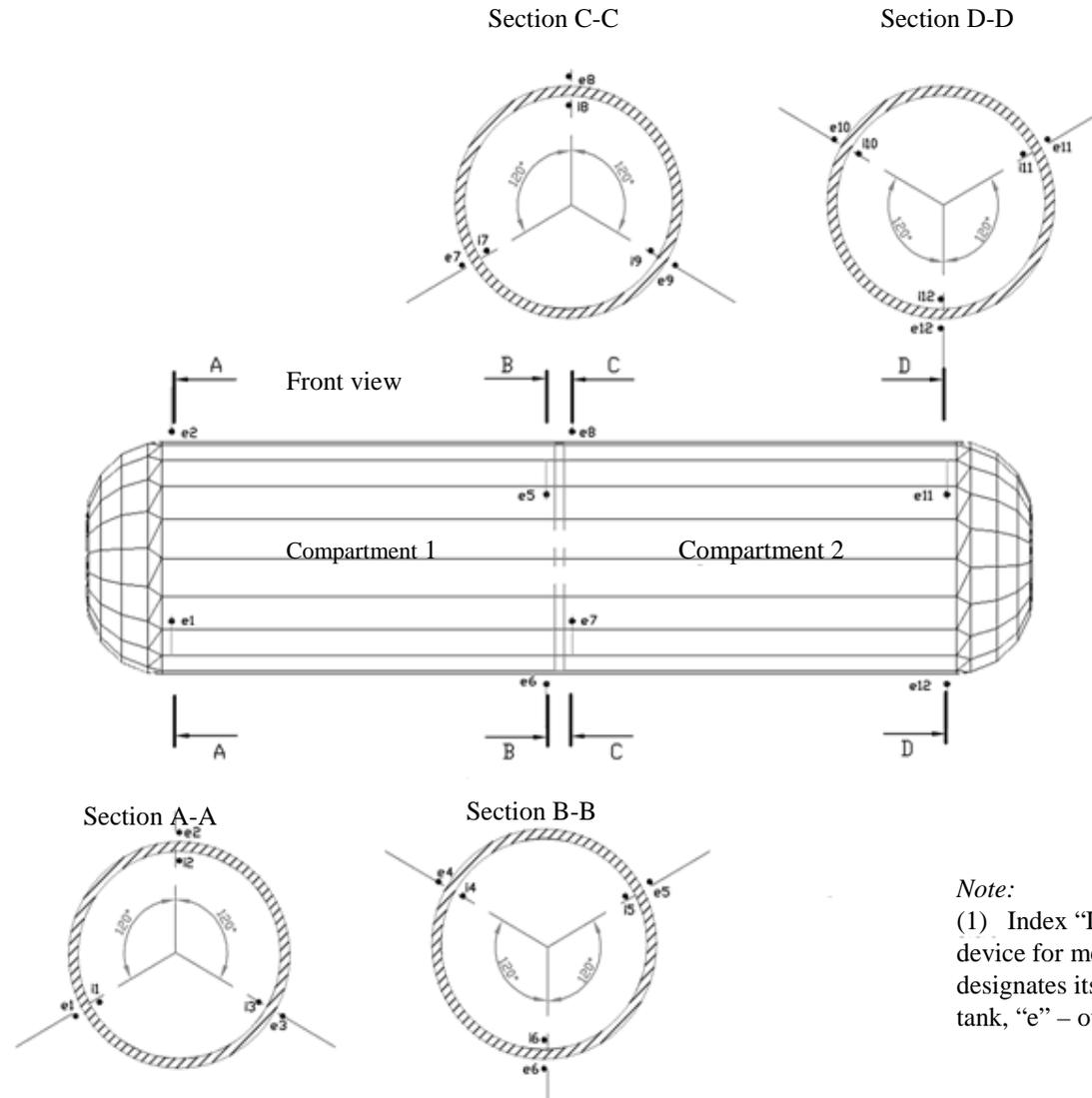
18. None.

Feasibility

19. It is expected that the proposed supplements and clarifications will enable the specialists of ATP Contracting Parties' testing facilities to achieve an unambiguous interpretation of the ATP requirements for the placement of air temperature measuring devices inside and outside tanks with one, two, three and more compartments during tests of tanks aimed at determining the K coefficient.

Enforceability

20. No problems with ensuring application are expected.



Note:
 (1) Index "I" in the number of the device for measuring air temperature designates its installation inside the tank, "e" – outside.

Fig. 2

Scheme of accommodation of devices for measuring air temperature inside and outside a tank with two compartments.