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Working Party on the Transport of
Perishable Foodstuffs

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agenda item 7)

**PROPOSED AMENDMENTS TO THE AGREEMENT ON
THE INTERNATIONAL CARRIAGE OF PERISHABLE
FOODSTUFFS AND ON THE SPECIAL EQUIPMENT
TO BE USED (ATP)**

Submitted by the experts from the Russian Federation

Note: The Russian Federation has submitted proposals for improving the Russian text of the APT Agreement, together with a request to the Working Party to clarify certain provisions of the Agreement for the purpose of its proper implementation. These are set out below by the secretariat.

1. The Transport of Perishable Goods Laboratory of the All-Russian Railway Management Research Institute is the oldest and leading scientific unit dealing with technology for the carriage of perishable goods and the testing of insulated wagons and containers using the techniques of heat engineering.

2. In view of the fact that in 2001 the Government of the Russian Federation designated the Ministry of Transport as the competent body whose tasks include all operations related to certification of insulated rolling stock, our laboratory is interested in the activities of working party WP.11, which is working on the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used (referred to below as the ATP), including testing methods for insulated equipment.

3. We have examined the APT Agreement and the latest version of annex 1 to it (TRANS/WP.11/2003/9), which sets out methods for conducting tests of various types of insulated equipment, including, in our understanding, containers and tanks. After careful study, we would like to raise a number of questions for purposes of clarification, and also to make a number of drafting corrections.

4. Do the rules set out in the APT extend to any kind of insulated equipment or only to equipment transported on land? Do the rules set out in the APT extend to containers (insulated, refrigerated, heated) which are approved for transport by water?

5. What is the current legal force of annex 1 to the APT in the version set out in TRANS/WP.11/2003/9? Can the principles set out in it be considered to be guiding principles?

6. On the first page of the annex, in section 1, we read: "... side walls with a thickness of at least 45 mm for transport equipment of a width greater than 2.50 m". In this connection we wish to know whether, in the case of an insulated tank wagon, it is correct to take the external diameter of the tank boiler as the thickness in question.

7. In section 2, on page 3, we read: "If such equipment includes one or more compartments, receptacles or tanks for the refrigerant, the said compartments, receptacles or tanks shall ... have a capacity in conformity with the provisions of annex 1, appendix 2, paragraph 3.1.3." A reading of the indicated appendix reveals that no specific capacity values are given in annex 1, appendix 2, paragraph 3.1.3. What was the purpose here?

8. Observation of a general editorial nature: the sign "-" should be replaced by the word "minus", so that the sign does not remain separated from the digit at the end of a line, as in the fourth paragraph on page 4 of the Russian version.

9. Have we correctly understood from section 4 on page 4 that class B heated equipment must maintain a temperature of +12° C inside the body for not less than 12 hours when the outside temperature is **minus 20° C**? If so, does there exist a tougher class of heated equipment designed to maintain such a temperature inside the body (12° C) for such a period (12 hours) but with a lower rated temperature outside the body?

10. In section 3 of appendix 1 to annex 1, we read: “In the case of equipment transferred to another country which is a Contracting Party to ATP, it shall be accompanied by the following documents so that the competent authority of the country in which the equipment is to be registered or recorded shall issue an ATP certificate.” Does transfer include also the temporary operation of equipment inside another country (through subleasing, for example), or only the purchase of such equipment by another country where it is recorded as an asset?
11. On page 7 of the document, in section 6 (i), we read: “The inside surface area of the body shall not be as much as 20% greater or smaller.” What considerations underlie the stipulation of such a wide range of areas? Bearing in mind what a major influence the area of the body (which is fact is a heat-transferring surface) has on the overall coefficient of heat transfer, we suspect that there may be a typing mistake. Even if this is not a typing mistake, we consider it would be desirable to tighten the requirements of this section. If not, why ensure such high precision in measuring coefficient K if such a variation in the area of the body is permitted?
12. What are the grounds for stating in section 6 (iii) on page 7 that the reference equipment shall be mechanically refrigerated equipment or **insulated equipment which is complete in every detail but minus its mechanical refrigeration unit which will be fitted at a later date**, while in section 6 (iv) on page 8, a slightly different wording is used for heated equipment: “... in which case the reference equipment may be **insulated** (without any additional stipulation as to fittings - *our comment*) or heated equipment”?
13. On page 9 of the document, in section 1.2 of appendix 2, in the Russian version, the square root sign should apply to the entire expression $S_i.S_e$.
14. Section 1.4 in appendix 2 to annex 1, on page 10, is not expressed quite correctly in our opinion. In fact it is geometrically impossible to place a temperature sensor on the **outside** of a body which is parallelepipedic in shape in such a way that it is equidistant from, and 10 cm from, **all** the walls. It can be done for heat sensors inside the body, but not outside. Consequently we suggest that this section should be supplemented by diagrams indicating the placement of temperature sensors outside the body in a manner similar to that used, for example, in the Rules for the Manufacture of Insulated Containers issued by the Russian Maritime Register.
15. In section 1.6, on page 10, we read of “temperature measuring instruments protected against radiation ...”. From what type of radiation should the devices be protected (we understand that this section refers to temperature sensors)?
16. In section 1.7, on page 10, we read: “The difference between the heating power or cooling capacity measured over two periods of not less than 3 hours at the start and at the end of the steady state period, and separated by at least 6 hours, shall be less than 3%.” Is this equivalent to saying that, for a period of not less than 3 hours at the start and not less than 3 hours at the end of the steady-state period, the combined release (consumption) of energy by heaters installed inside the empty body, for example, should vary by no more than 3%? And are we correct in thinking that the length of the period at the start and at the end of continuous operation is understood to be identical?

17. Section 2.1.2, on page 11, contains a requirement which is not entirely clear: “The surface area of these exchangers shall be such that, if a fluid at a temperature not lower than 0° C passes through them, the mean inside temperature of the body remains below +10° C when continuous operation has been established.” In fact there are rules in section 2.1.4 on page 11 which apply “whatever the method employed”, and on analysing these it is simple to reach the conclusion that the mean temperature inside the body when continuous operation (does this mean steady-state operation? - *our comment*) has been established using the method of internal cooling of the body may vary within limits of only +6..+9° C. In any other circumstances the requirements of section 2.1.4 will not be met. In the light of the above, we suggest that the second sentence in section 2.1.2 in appendix 2 to annex 1 to the APT should be worded as follows: “The surface area of these exchangers shall be such that, if a fluid at a temperature not lower than 0° C passes through them, the mean inside temperature of the body remains within the limits of +6° C to +9° C when continuous operation has been established.”

18. Please clarify the requirement in section 2.1.3, on page 11: “Heat quantity: The heat dissipated by the electrical resistance fan heaters shall not exceed a flow of 1W/cm² and the heater units shall be protected by a casing of low emissivity”:

- (a) Does heat flow mean calorific value?
- (b) Does the yardstick of 1W/cm² apply to the heat-emitting surface of the heaters?
- (c) What is meant in technical terms by “a casing of low emissivity”?

19. In section 2.1.4 there is an error: in the context of the newly adopted version of annex 1 to the APT, the temperature difference between the inside of the body and the insulated chamber should be given not in degrees Celsius, but in degrees Kelvin.

20. At what intervals should the speed of movement of the mass of air in the chamber be measured? At what minimum number of points should it be measured?

21. Section 2.1.8 of appendix 2 to annex 1 should be worded as follows: “The mean outside temperature and the mean inside temperature of the body shall each be read **at regular intervals** not less than four times per hour.”

22. In section 2.2.4 of appendix 2 to annex 1, on pages 12 and 13, a diagram should be added indicating the placement of temperature sensors (temperature measurement sites) when defining the coefficient K for tanks.

23. Why is it that, when conducting tests for the purpose of defining coefficient K, temperature measurements must be carried out not less than four times per hour, whereas it is stated in sections 3.1.4, 3.3.4 and several other places in annex 1 that the measurements must be carried out not less often than once every 30 minutes? We suggest that in the two cases the measurements should be made with the same frequency.

24. On what basis is such a large factor as 1.75 specified in section 3.2.6 on page 17?

25. Section 3.3.1 in appendix 2 to annex 1 on page 17 is imprecisely worded: “The empty equipment shall be placed in an insulated chamber whose temperature shall be kept uniform and constant **at as low a level as possible.**” Please explain to us what upper temperature limit was intended here.

26. In section 4.1.1 on page 18, does “this capacity” mean the maximum capacity?

27. We do not understand the second paragraph of section 4.2.1 on page 18: “In each case, the heat leakage is measured at a single mean wall temperature prior to the capacity test. An arithmetical correction factor, based upon the experience of the testing station, is made to take into account the average temperature of the walls at each thermal equilibrium during the determination of the effective refrigerating capacity.” Please explain to us the mechanism for calculating this arithmetical correction factor and the principle governing its use.

28. On page 25 of the Russian text there is a surplus word on line 20.

29. Where can we find out the content of ISO 917, BS 3122, DIN, NEN, BS 848, ISO 5801, AMCA 210-85, DIN 24163, NFE 36101, NF X10.102, DIN 4796, which are referred to in the text?
