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Economic Commission for Europe**Inland Transport Committee****Working Party on the Transport of Perishable Foodstuffs****Sixty-sixth session**

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Item 4 (a) of the provisional agenda

Status and implementation of the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP): Status of application of the Agreement**Draft multilateral agreement on the recognition of tests for multi-temperature equipment*****Note by the secretariat**

1. Article 7 of ATP states that “The Contracting Parties reserve the right to enter into bilateral or multilateral agreements to the effect that provisions applicable to special equipment and provisions applicable to the temperatures at which certain foodstuffs are required to be maintained during carriage may, more particularly by reason of special climatic conditions, be more stringent than those prescribed in this Agreement. Such provisions shall apply only to international carriage between Contracting Parties which have concluded bilateral or multilateral agreements as referred to in this article. Such agreements shall be transmitted to the Secretary-General of the United Nations, who shall communicate them to Contracting Parties to this Agreement which are not signatories of the said agreements.”

2. France has, based on article 7, taken the initiative of drawing up a multilateral agreement with interested neighbouring countries (Italy, Portugal, Spain) to recognize the technical justification for a procedure to measure the capacity of mechanical refrigeration units and the dimensioning of multi-compartment appliances, as presented in working document ECE/TRANS/WP.11/2009/14, of 14 August 2009. The proposed agreement has been transmitted to WP.11 for information only, not for approval or amendment. It is expected to be finalized before the sixty-sixth session of WP.11.

* 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).

Draft agreement between the Governments of the French Republic, the Kingdom of Spain, the Italian Republic and the Portuguese Republic recognizing the test protocol for multi-temperature units used with the issuance of ATP certificates

The Governments of the French Republic, the Kingdom of Spain, the Italian Republic and the Portuguese Republic (hereunder known as the Parties),

Considering that:

- Annex 1, appendix 3, of the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP), done at Geneva on 1 September 1970, provides a model form for a certificate of compliance for multi-temperature equipment and stipulates, in note No. 7 of this model, that “the test procedure is not yet determined within the ATP Agreement”.
- In the absence of a test procedure, manufacturers and test stations worked together between 1994 and 1998 to design a protocol for testing such appliances.
- They also designed a dimensioning method for multi-temperature equipment, and a model form for a certificate of compliance for such equipment.
- An initial proposal was submitted to the Working Party on the Transport of Perishable Foodstuffs (WP.11) in 1997, and a revised version was submitted to — and approved by — the Working Party in 1998.
- Unfortunately, when the amendment was submitted to Governments for adoption, there was no consensus and although the model form for a certificate of compliance for multi-temperature equipment was approved, the test and dimensioning methods were not.
- Since 1997, nearly all multi-temperature units on the market have been tested in accordance with the procedure approved by the Working Party in 1998. More than 100 multi-temperature unit test reports have been produced by three different ATP test stations for the four manufacturers supplying the market. Several ATP Contracting Parties use the 1998 test results and dimensioning method to issue ATP certificates for multi-temperature equipment. This test method has proved its worth, even if it can be improved in some particulars. The few flaws revealed in the dimensioning method can easily be corrected without making it more complex.
- At the sixty-fifth session of WP.11 held in Geneva (27–30 October 2009), an amendment relating to test procedures and ATP certificates for mechanically refrigerated multi-temperature units was proposed by the French authorities. As the proposal was not validated by all the Contracting Parties to the general ATP Agreement, France took the initiative, based on article 7 of the Agreement, to draw up a multilateral agreement with some interested neighbouring countries (Italy, Portugal, Spain) to facilitate the circulation of goods between these countries.
- The continuing situation whereby ATP certificates are issued for multi-temperature units with no test and dimensioning procedures for mechanically refrigerated units may have an impact on the recognition of official test reports and certificates issued for such units.
- The Contracting Parties to the ATP Agreement are desirous of improving the conditions of preservation of the quality of perishable foodstuffs during their carriage, particularly in international trade.

- The Agreement, in annex 1, appendix 3, explicitly stipulates that Contracting Parties may issue ATP certificates for multi-temperature units, while the test procedure has not been defined in ATP, which may constitute a risk for the technical quality of the units in question.

Have agreed as follows:

Article 1

The Parties have decided:

- To recognize the technical justification of the procedure for measuring the capacity of mechanical refrigeration units and dimensioning multi-compartment appliances as presented in working document ECE/TRANS/WP.11/2009/14 of 14 August 2009, the original of which was in French, which put forward the proposed amendments to ATP mentioned in annexes 1, 2 and 3 of this Agreement.
- To apply these provisions for units used for international transport between the Contracting Parties signatories to this Agreement. For such transport, multi-temperature units certified by the Parties before the date of entry into force of this Agreement shall be usable for transport, but may not be transferred to another Party signatory to this Agreement without its consent.
- To make the application of this protocol mandatory for the type certification of mechanical refrigeration units equipping multi-temperature units during transport, owing to the absence of any other protocol defined by ATP. This provision shall apply to units built after the date of entry into force of this Agreement.
- To inform the Contracting Parties to ATP that have signed this multilateral Agreement of the results of such applications and of decisions handed down in respect of the recognition of certificates issued.
- To exchange technical information relating to the implementation of this Agreement and its effects on the compliance of units in service, so as to submit and support, by consensus, an amendment to the ATP Agreement, with a view to integrating a test procedure recognized by all the Contracting Parties.

Article 2

In accordance with article 7 of the ATP Agreement, this Agreement shall be transmitted to the Secretary-General of the United Nations, who shall communicate it to the Contracting Parties to the ATP Agreement not signatories to this Agreement.

Article 3

This Agreement has been concluded for a period of three years and shall be extended by tacit renewal. Any party may upon expiry withdraw from it by informing the other parties within six months of its expiry.

If, during the period of validity of this Agreement, an amendment to ATP sets out the test protocol for multi-temperature units and the method for the dimensioning of multi-compartment appliances, the signatories shall not be obliged to comply with the terms of this Agreement, which would then be deemed to be null and void as from the entry into force of the new ATP provisions.

This Agreement, once initially signed, may be extended to another Contracting Party to the ATP Agreement if such a Contracting Party signs it and notifies the Secretary-General of the United Nations of its signature.

Article 4

This Agreement shall be submitted for signature by the Parties and shall enter into force 30 days after all the signatories have deposited their instruments of approval. The depositary shall inform all Parties of this Agreement's date of entry into force.

The Government of ... shall be the depositary of this Agreement.

IN WITNESS WHEREOF, the undersigned, duly authorized by their respective Governments, have signed this Agreement.

DONE at ..., on ..., in French, Spanish, Italian and Portuguese, the four versions being equally authentic, in a single original copy deposited with the Government of ..., which shall transmit a duly certified copy to each of the signatory States.

Annex 1

Proposed amendment No. 1 to ATP applied by the signatories to this multilateral Agreement

Procedure for measuring the capacity of mechanical refrigeration units and dimensioning multi-compartment appliances: Definitions

(61.)

1. **Multi-compartment equipment:** Equipment with two or three insulated compartments for maintaining different temperatures in each compartment;
2. **Multi-temperature mechanical refrigeration unit:** Mechanical refrigeration unit with compressor, condenser and two or three evaporators to set different temperatures in the various compartments of multi-compartment equipment;
3. **Multi-temperature operation:** Operation of a multi-temperature mechanical refrigeration unit with two or three evaporators operating at different temperatures in multi-compartment equipment;
4. **Nominal refrigerating capacity:** Maximum refrigerating capacity of the condensing unit in mono-temperature operation with two or three evaporators operating simultaneously at the same temperature;
5. **Individual refrigerating capacity:** Maximum refrigerating capacity of each evaporator operating on its own with the condensing unit;
6. **Effective refrigerating capacity:** Refrigerating capacity of each evaporator with the condensing unit in multi-temperature operation with two or three evaporators set at different temperatures;
7. **Relative refrigeration rate:** Effective capacity/Individual capacity.

Annex 2

Proposed amendment No. 2 to ATP applied by the signatories to this multilateral Agreement

Procedure for measuring the capacity of mechanical refrigeration units and dimensioning multi-compartment appliances: Test procedures

(62.) General procedure

The test procedure shall be as defined in ATP annex 1, appendix 2 D.

At issue are ATP annex 1, appendix 2 D and ATP annex 1, appendix 2, paragraph 10.

The condensing unit shall be tested in combination with different evaporators. Each evaporator shall be tested on a separate calorimeter.

The nominal capacity of the condensing unit in multi-temperature operation, as prescribed in paragraph 63, shall be measured with a single combination of two or three evaporators including the smallest and largest.

The individual capacity shall be measured for all evaporators, each in mono-temperature operation with the condensing unit, as prescribed in paragraph 64.

The effective capacity of the evaporators in multi-temperature operation, as prescribed in paragraphs 65 and 66, shall be measured with combinations of two or three evaporators including the smallest and largest.

If the multi-temperature unit can be operated with more than two evaporators:

- The combination of the condensing unit and two evaporators shall be tested with a combination of two evaporators: the largest and smallest
- The combination of the condensing unit and three evaporators shall be tested with a combination of three evaporators: the smallest, the largest and a mid-sized evaporator

The effective capacities shall be calculated for each evaporator in a combination of two evaporators and, if necessary, in a combination of three evaporators.

(63.) Determination of the nominal capacity of the condensing unit

The nominal capacity of the condensing unit in mono-temperature operation shall be measured with a single combination of two or three evaporators operating simultaneously at the same temperature. This test shall be conducted at -20° C and at 0° C. The air inlet temperature of the condensing unit shall be +30° C.

The nominal capacity at -10° C shall be calculated by linear interpolation from the capacities at -20° C and 0° C.

(64.) Determination of the individual capacity of each evaporator

The individual capacity of each evaporator shall be measured in solo operation with the condensing unit. The test shall be conducted at -20° C and 0° C. The air inlet temperature of the condensing unit shall be +30° C.

The individual capacity at -10° C shall be calculated by linear interpolation from the capacities at 0° C and -20° C.

- (65.) Determination of the effective capacities of a set of evaporators in multi-temperature operation

The maximum effective capacity of each evaporator shall be measured at -20°C with the other evaporator(s) operating under control of a thermostat set at 0°C with a heat load of 20% of the individual capacity at -20°C of the evaporator in question. The air inlet temperature of the condensing unit shall be $+30^{\circ}\text{C}$.

This test shall be conducted with two or three evaporators including the smallest, the largest and, if necessary, a mid-sized evaporator.

- (66.) Determination of the effective capacity of each evaporator in multi-temperature operation

The effective capacity of each evaporator in multi-temperature operation shall be calculated using the individual capacity at -20°C of the evaporator in solo operation with the condensing unit, and the unit's relative refrigeration rate.

The relative refrigeration rate (R) shall be determined for a configuration of two evaporators and for a configuration of three evaporators where applicable.

Determination of the relative refrigeration rate of the unit for a configuration of two evaporators

- $R = \text{mean}(R_i)$
- $R_i = U_i / I_i$

where:

- U_i is the effective capacity at -20°C of evaporator (i)
- R_i is the relative refrigeration rate of evaporator (i)
- R is the mean relative refrigeration rate for a configuration of two evaporators
- I_i is the individual capacity of evaporator (i) operating at -20°C

Determination of the effective capacity of each evaporator for a configuration of two evaporators:

- At -20°C : $U_n(-20^{\circ}\text{C}) = R \times I_n(-20^{\circ}\text{C})$
- At 0°C : $U_n(0^{\circ}\text{C}) = R \times I_n(0^{\circ}\text{C})$

where:

- $U_n(-20^{\circ}\text{C})$ and $U_n(0^{\circ}\text{C})$ are the effective capacities of evaporator (n) at -20°C and 0°C respectively
- R is the relative refrigeration rate
- $I_n(-20^{\circ}\text{C})$ and $I_n(0^{\circ}\text{C})$ are the individual capacities of evaporator (n) at -20°C and 0°C respectively

The effective capacities at -10°C shall be calculated by linear interpolation from the effective capacities at 0°C and -20°C .

The same calculation shall be made for configurations with three evaporators. This involves determining the relative refrigeration rate for configurations with three evaporators as well as the effective capacity of each evaporator operating with a configuration of three evaporators.

Annex 3

Proposed amendment No. 3 to ATP applied by the signatories to this multilateral Agreement

Dimensioning and certification of mechanically refrigerated multi-temperature equipment

(67.) General procedure

The refrigerating capacity demand of multi-temperature equipment shall be based on the refrigerating capacity demand of mono-temperature equipment as defined in ATP annex 1, appendix 2.

For multi-compartment equipment, a K coefficient less than or equal to 0.40W/m²K (IR) for the body as a whole shall be approved in accordance with ATP annex 1, appendix 2, paragraphs 7 to 25.

For issuance of an ATP certificate, the nominal capacity of all the appliances installed shall at least be equal to the heat loss through the [internal dividing] walls of the equipment as a whole multiplied by the same factor as in paragraph 41.

For issuance of an ATP certificate, in each compartment, the effective capacity of the evaporator in multi-temperature operation shall be greater than or equal to the maximum refrigeration demand of the compartment multiplied by the same factor as in paragraph 41.

(68.) Calculation of the refrigerating demand

Calculation of the maximum refrigerating capacity demand for each compartment shall be based on the minimum class temperature. In the case of removable [internal dividing] walls, the calculation shall be based on the most unfavourable position of the wall for each compartment.

The insulation capacities of the [internal dividing] walls may be measured inside an insulated unit or calculated using the coefficients in the table in paragraph 69.

The K coefficient of the compartment shall be the mean of the K coefficients on the various sides weighted by the inside surfaces of the panels.

The outside temperature of the compartment shall be considered equal to +30° C on each side of the compartment both for both inside and outside panels.

(69.) Internal dividing walls

Thermal losses through internal dividing walls may be calculated using the coefficients in the following table. Alternatively, the K coefficient of the internal dividing walls may be measured on a complete insulated body in accordance with ATP annex 1, appendix 2, paragraphs 7–25.

	<i>K coefficient – [W/m²K]</i>		<i>Minimum foam thickness</i>
	Fixed	Removable	[mm]
Longitudinal	2.5	3.5	25
Transversal	1.5	2.5	40