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REFERENCE: C.N.66.1985.TREATIES-2 (Depositary Notification)

AGREEMENT ON THE INTERNATIONAL CARRIAGE
OF PERISHABLE FOODSTUFFS AND ON THE SPECIAL EQUIPMENT
TO BE USED FOR SUCH CARRIAGE (ATP)
CONCLUDED AT GENEVA ON 1 SEPTEMBER 1970

AMENDMENTS PROPOSED BY FRANCE TO ANNEX 1 OF THE AGREEMENT

The Secretary-General of the United Nations, acting in his capacity as depositary, communicates the following:

In a communication received by the Secretary-General on 5 July 1985, the Government of France has proposed certain amendments to paragraph 1 of annex 1 and to paragraphs 1 and 4, annex 1, appendix 1, and to paragraphs 1 and 41 and 51 to 60, annex 1, appendix 2, of the Agreement, to be communicated to all States concerned in accordance with the procedure set forth in paragraphs 1 to 7 of article 18 of the above-mentioned Agreement.

A copy, in the English, French and Russian languages, of the text of the proposed amendments is enclosed.

Reference is made in this connexion to the provisions of article 18 (2) of the Agreement, which provide that within a period of six months following the date on which the proposed amendments are communicated by the Secretary-General any Contracting Party may inform the latter (a) that it has an objection to the amendments proposed, or (b) that, although it intends to accept the proposal, the conditions necessary for such acceptance are not yet fulfilled in its country.

If the proposed amendments are deemed to be accepted, they will enter into force in accordance with the provisions of article 18 (6), six months after the date of such acceptance.

30 July 1985

Attention: Treaty Services of Ministries of Foreign Affairs and of international organizations concerned

CORRESPONDENCE UNIT

FEBRUARY 1985

114 MEMBER STATES plus 6 NON-MEMBERS

ENGLISH AND SPANISH

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WITH ANNEX

- THE LEGAL COUNSEL, OFFICE OF LEGAL AFFAIRS, ROOM 3427-C
- THE DIRECTOR, TRANSPORT DIVISION, ECE, GENEVA, SWITZERLAND (E+F)
- THE UNIVERSITY OF NOTTINGHAM, TREATY CENTRE, UNIVERSITY PARK, NOTTINGHAM NG7 2RD, UNITED KINGDOM.

C.N.66.1985.TREATIES-2 (Annex)

AGREEMENT ON THE INTERNATIONAL CARRIAGE OF PERISHABLE FOODSTUFFS AND ON THE SPECIAL EQUIPMENT TO BE USED FOR SUCH CARRIAGE (ATP) CONCLUDED AT GENEVA ON 1 SEPTEMBER 1970

Amendments proposed by France to paragraphs 1 and 4, annex 1, appendix 1, and to paragraphs 1 and 41 and 51 to 60, annex 1, appendix 2, of the Agreement

Annex 1

The last sentence of paragraph 1 read:

"The definition of the K coefficient and a description of the method to be used in measuring it, are given in appendix 2 to this annex."

Annex 1, Appendix 1

Paragraph 1, read:

"1. Checks for conformity with the standards prescribed in this annex shall be made:

(a) Before the equipment is put into service;

(b) Periodically, at least once every six years;

(c) Whenever required by the competent authority.

Except in the cases provided for in appendix 2, paragraphs 29 and 49, to this annex, the checks shall be made at a testing station designated or approved by the competent authority of the country in which the equipment is registered or recorded, unless, in the case of the check referred to in (a) above, a check has already been made on the equipment itself or on its prototype in a testing station designated or approved by the competent authority of the country in which the equipment was manufactured."

Paragraph 4, read:

"4. A certificate of compliance with the standards shall be issued by the competent authority of the country in which the equipment is to be registered and recorded on a form conforming to the model reproduced in appendix 3 to this annex. In the case of equipment transferred to another country signatory 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:

(i) The test report of the equipment itself or, in the case of serially produced equipment, of the reference equipment;

(ii) In the case of serially produced equipment, the technical specification of the equipment to be certified; this specification shall cover the same items as the descriptive pages concerning the equipment which appear in the test report;

(iii) For new equipment the ATP certificate issued by the competent authority of the country of manufacture;

(iv) For equipment in service the ATP certificate issued by the competent authority of the country from which the equipment is transferred.

In the case of equipment transferred after it has been in use, the equipment may be subject to a visual inspection before the competent authority of the country in which it is to be registered or recorded issue a certificate of compliance. The certificate or a certified true photographic copy thereof shall be carried on the equipment during carriage and be produced whenever so required by the control authorities. However, if the certification plate reproduced in appendix 3 to this annex is affixed to the equipment, the said plate shall be recognized as equivalent to an ATP certificate. The said certification plate shall be removed as soon as the equipment ceases to conform to the standards laid down in this annex. If equipment cannot be designated as belonging to a category or class except by virtue of the transitional provisions contained in paragraph 5 of this annex, the validity of the certificate issued for such equipment shall be limited to the period laid down in the said transitional provisions."

Annex 1, Appendix 2

I. Paragraph 1 read :

"1. K coefficient. The overall coefficient of heat transfer (K coefficient), which represents the insulating capacity of the equipment, is defined by ...".

The remainder of the text without change.

II. Paragraph 41 read:

"41. If the refrigerating appliance with all its accessories has undergone separately, to the satisfaction of the competent authority, a test to determine its effective refrigerating capacity at the prescribed reference temperatures, the transport equipment may be accepted as refrigerated equipment without undergoing an efficiency test if the effective refrigerating capacity of the appliance in continuous operation exceeds the heat loss through the walls for the class under consideration, multiplied by the factor 1.75.

The test to determine the effective refrigerating capacity shall be carried out in accordance with the provisions of paragraphs 51 to 60 of this appendix on the refrigerating appliance to be installed on the equipment or on a refrigerating appliance identical in all respects. The calculation of heat loss shall be made using the results of the insulation test on the body of the equipment or on a reference body belonging to the same production series within the meaning of paragraph 2 (c) (i) of appendix 1 to this annex; such body may or may not be equipped with a thermal appliance.

In the case of a reference insulated body not equipped with a thermal appliance, the K coefficient of the equipment to be approved shall be corrected by the following formula:

$$K \text{ corrected} = K + \frac{\varphi}{S}$$

where:

K is the over-all thermal transmission coefficient of the reference insulated body not equipped with a refrigerating appliance;

S is the mean exchange surface area of the equipment to be approved;

φ is the increase in heat flow per degree of difference resulting from the attachment of the refrigerating appliance to an insulated body. The value of this heat flow shall be stated in the report of the test to measure the effective refrigerating capacity of the refrigerating appliance in a calorimeter box.

The corrected K coefficient shall not exceed the insulation value limit for the class of equipment under consideration.

Equipment so approved shall not be subject to the requirements of paragraph 2 (c) (iii) of appendix 1 to this annex for the approval of equipment belonging to the same series.

III. The following chapter D - paragraphs 51 to 60 - should be added to annex 1, appendix 2:

"D. Procedure for measuring the effective refrigerating capacity W_o of a unit when the evaporator is free from frost

51. At each equilibrium temperature, this capacity is equal to the sum of the heat flow $U\Delta\theta$ flowing through the walls of the insulated body to which the refrigeration unit is attached and the quantity of heat Wj which is dissipated in the interior of the body by the fan heater unit:

$$W_o = W_j + U\Delta\theta$$

52. The refrigeration unit is fitted to either (i) a calorimeter box, or (ii) a unit of transport equipment.

In the case of (i), the over-all heat transfer is measured at a single mean wall temperature prior to the capacity test. An arithmetical correction, based upon the insulating characteristics of the calorimeter box, is made for the conditions under which the refrigerating capacity test is carried out.

In the case of (ii), the over-all heat transfer coefficient is measured at two or more mean wall temperatures before the capacity test and the curve so obtained is then extrapolated to the conditions of the capacity test.

Measurements and procedures shall be as described in paragraphs 1 to 15 above; however, it is sufficient to measure U directly, the value of this coefficient being defined by the following relationship:

$$U = \frac{W}{\Delta\theta_m}$$

where:

W is the heat (in watts) dissipated by the internal heater and fans;

$\Delta\theta_m$ is the temperature difference between the mean internal temperature θ_i and the mean external temperature θ_e;

U is the heat flow per degree of difference between the air temperature inside and outside the body when the refrigeration unit is fitted.

In the case of (i), the heat flow through the calorimeter box is also measured when the insulated panel to which the unit is attached is replaced by a panel not fitted with the refrigeration unit (U_o). U_o is measured at the same mean wall temperature as U.

The calorimeter or transport unit is placed in a test chamber. If a calorimeter box is used, shall be not more than 35 per cent of the total heat flow W_o.

53. The following method may be used both for reference equipment and for tests on series-manufactured equipment. In this case the refrigerating capacity is measured by multiplying the mass (m) of the refrigerant liquid by the difference in enthalpy between this liquid at the inlet to the unit (h_1) and the refrigerant vapour leaving the unit (h_o). To obtain the effective refrigerating capacity, the heat produced by the air circulating fans (W_F) is deducted. (It is difficult to measure W_F if the air circulating fans are driven by an external motor: in this particular case the enthalpy method is not recommended.) When the fans are driven by an internal motor, the electrical power is measured by an integrated watt-hour meter with an accuracy of ± 1 per cent.

The heat balance is given by the formula:

$$W_o = (h_o - h_1)\, m - W_F$$

Appropriate methods are described in Standards ISO 971, BS 3122, DIN, NEN, etc. An electric heater is placed inside the equipment in order to attain thermal equilibrium.

54. Instrumentation

Test stations shall be equipped with instruments to measure the coefficient U to an accuracy of ± 2 per cent. Heat transfer through air leakage shall not exceed 1 per cent of the total heat transfer through the calorimeter box or through the transport unit. The refrigerant flow measurement shall be accurate to ± 2 per cent. The refrigerating capacity shall be determined with an accuracy of ± 5 per cent.

The instrumentation of the calorimeter box shall conform to paragraphs 3 and 4 above. The following are to be measured:

(a) Air temperatures:

At the inlet to and exit from the evaporator: at least four thermometers in each case, uniformly distributed;

At the inlet to the condenser: at least four thermometers, uniformly distributed

The thermometers shall be protected against radiation.

(b) Energy consumption: instruments shall be provided for measuring the electricity or fuel consumption.

(c) Speed of rotation: instruments shall be provided to measure the speed of rotation of the electric motors and the internal combustion engines driving both the compressors and the fans.

(d) Pressure: high precision pressure gauges (accurate to ± 1 per cent shall be fitted to the condenser and evaporator, and to the evaporator outlet when the evaporator is fitted with a pressure regulator.

(e) Heat quantity: the heat dissipated by the internal fan heaters fitted with electrical resistances shall not exceed a flow of 1 W/cm^2 and the heater unit shall be protected by a casing of low emissivity.

55. Test conditions

(i) Outside the calorimeter box: the air temperature at the inlet to the condenser shall be maintained at 303 K ± 0.5 K. The maximum difference between temperatures measured at different points on the outside of the box shall not exceed 2 K.

(ii) Inside the calorimeter box (at the air inlet to the refrigeration unit): there shall be three levels of temperature between 248 K and 285 K, depending on the characteristics of the unit, one temperature level being at the minimum prescribed for the class requested by the manufacturer with a tolerance of ± 1 K.

The average temperatures shall be maintained within a tolerance of ± 0.5 K. During the measurement of refrigerating capacity the heat dissipated in steady state within the calorimeter box shall be maintained at a constant level with a tolerance of ± 0.5 per cent.

56. Test procedure

The test shall be divided into two major parts: the cooling phase and the measurement of the effective refrigerating capacity at three increasing temperature levels.

(a) Cooling phase: the initial temperature of the calorimeter box or transport equipment shall be within ± 3 K of the prescribed ambient temperature. It is then lowered to 248 K (or to the minimum class temperature).

(b) Measurement of effective refrigerating capacity: at each internal temperature level:

One test shall be carried out with the internal temperature at a constant value to calibrate and establish the differential of the thermostat of the refrigeration unit. The test shall be continued until the cycles are regular, both in period and amplitude.

A second test shall be carried out without the thermostat in operation in order to determine the maximum refrigerating output, the quantity of heat liberated by the internal heater producing an equilibrium condition at each temperature level as prescribed in paragraph 55.

The duration of the second test shall be not less than four hours for the calorimeter box and not less than eight hours for the complete unit of transport equipment. Before changing from one temperature level to another, the box or unit shall be manually defrosted.

If the refrigeration unit can be operated by more than one form of energy, the tests shall be repeated.

If the compressor is driven by the vehicle engine, the test shall be carried out at both the minimum speed and at the optimum speed of rotation as specified by the manufacturer.

The same procedure shall be followed for the enthalpy method described in paragraph 53, but in this case the heat dissipated by the evaporator fans at each temperature level is also measured.

57. Precautions

As the tests for maximum refrigerating capacity are carried out with the thermostat disconnected and at the maximum speed of the refrigeration unit, the following precautions must be observed:

If the equipment has a hot gas injection system, it must be inoperative during the test;

If the refrigerating capacity is regulated by unloading individual compressor cylinders to reduce power, all the cylinders must be in operation during the capacity test.

58. Determination of the additional heat flow due to the fitting of the refrigeration unit on an insulated body and calculation of the corrected K-value of this equipment

At each separate test of a refrigeration unit the heat flow φ (W/K) per degree of difference in temperature between the outside and inside, resulting from the fitting of the unit and caused by the thermal bridges created by the pipes and other components connecting the inner and outer parts of the unit, shall be determined. Prior to the measurement of the capacity of the unit, the calorimeter shall be subjected to two heat flow measurements through its walls, U_o before and U after the fitting of the unit.

The heat flow φ is defined as: $\varphi = U - U_o$

The ascertained value of the heat flow φ shall be stated in the test report and the corrected K-value K_c of a body fitted with a unit shall be calculated as:

$$K_c = K + \frac{\varphi}{S}$$

where S is the mean surface area of the body of the equipment to be approved.

59. Checks

It is necessary to verify that:

(i) The defrosting system and the thermostat are functioning correctly;

(ii) The rate of air circulation is that specified by the manufacturer;

(iii) The refrigeration unit can maintain internal temperatures of between 0°C and +12°C in low ambient temperature.

60. Test report

A test report of the appropriate type shall be drawn up in accordance with model No. 10 below. It shall include:

A description of the refrigeration unit, its main components and, where applicable, the coupling device in the case of a compressor driven by the vehicle engine;

The compressor rotational speed, internal temperature of the body, etc., for which the refrigerating capacities have been measured;

The value of the additional heat flow due to the fitting of the refrigeration unit to the calorimeter box, measured in accordance with paragraph 58.

Article 41 of this appendix sets out the conditions under which the information given in this test report, and the test report for the reference body to which the refrigeration unit is to be fitted, shall be used for the approval of the transport equipment."

IV. Test report model No. 10 should be added to appendix 2 of annex 1 as follows:

MODEL No. 10 TEST REPORT

prepared in conformity with the provisions of the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP)

Test report No. .....

Determination of the effective refrigerating capacity of a refrigeration unit in accordance with paragraphs 51-60 of ATP annex 1, appendix 2

Approved testing station

Name: .....

Address: .....

Refrigeration unit presented by: .....

.....

(a) Technical specifications of the unit

Date of manufacture: ..... Make: .....

Type: ..... Serial number: .....

Category (1)

Self-contained/not self-contained

Removable/not removable

Single unit/assembled components

Description: .....

.....

.....

.....

Compressor - Make: ..... Type: .....

Number of cylinders: ..... Cubic capacity: .....

Mean speed of rotation: .....

Methods of drive (1): electric motor, separate internal combustion engine, vehicle engine

Compressor drive motor:

Electrical: Make: ..... Type: .....

Power: ..... kW Supply voltage: V

Internal combustion engine:

Make: ..... Type: .....

Number of cylinders: ..... Cubic capacity: .....

Power: ..... kW Fuel: .....

Hydraulic motor:

Make: ..... Type: .....

Method of drive: .....

Alternator: Make: ..... Type: .....

Speed of rotation: {nominal speed given by the manufacturer: ..... rpm
minimal speed: ..... rpm

Refrigerant fluid: .....

Heat exchangers

		Condenser	Evaporator
Make-Type			
Number of tube banks			
Fin pitch (mm) (2)			
Tube: nature and diameter (mm) (2)			
Exchange surface area (m^2) (2)			
Frontal area (m^2)			
FANS	Number		
	Number of blades		
	Diameter (mm)		
	Nominal power (W) (2)		
	Nominal output at a pressure of ..... Pa (m^3/h) (2)		
	Method of drive		

Expansion valve: Make: ..... model: .....

Adjustable: ..... Not adjustable: .....

Defrosting device: .....

Automatic device: .....

(b) Test method and results:

Test method (1): heat balance method/enthalpy difference method

In a calorimeter box of mean surface area Σ = ... m^2

measured value of the U-coefficient of a box fitted with a refrigeration unit: ..... W/K, at the mean wall temperature of ..... K.

In an item of transport equipment:

measured value of the U-coefficient of an item of transport equipment fitted with a refrigeration unit: ..... W/K, at a mean wall temperature of ..... K.

measured value of the U-coefficient of an item of transport equipment fitted with a refrigeration unit: ..... W/K, at another mean wall temperature of ..... K.

Results of measurements and refrigerating performance
(Mean temperature of the air to the condenser ..... K)

Speed of rotation		Power of internal fan heater	Refrigerant mass flow rate (4)	Refrigerant enthalpy at evaporator inlet (4)	Refrigerant enthalpy at evaporator outlet (4)	Power absorbed by the unit cooler fan (4)	Mean temperature around the body	Internal temperature		Effective refrigerating capacity
Alternator (3)	Compressor (3)							Mean	Inlet to evaporator	
rpm	rpm	W	kg/h	J/kg	J/kg	W	K	K	K	W
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
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Method employed for the correction of the U-coefficient of the body as a function of the mean wall temperature of the body: .....
.....
.....

Maximum errors of determination { of the U-coefficient of the body ..... %
{ of the refrigerating capacity of the unit ..... %

(c) Effect of fitting the refrigeration unit

Heat flow through the calorimeter body prior to fitting the refrigeration unit
U_o ..... W/K

Additional heat flow due to the fitting of the refrigeration unit
$\varphi = U - U_o$ = ... W/K

(d) Checks

Temperature regulator: Setting ..... Differential ..... °C
Functioning of the defrosting device (1): satisfactory/unsatisfactory
Air flow volume leaving the evaporator: value measured ..... m^3/h
at a pressure of ..... Pa
Existence of a means of supplying heat to the evaporator for setting the thermostat between 0 and 12°C (1): yes / no

(e) Remarks .....
.....
.....
.....

Done at: .....

On: ....

Testing Officer

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(1) Delete where applicable
(2) Value indicated by the manufacturer
(3) Where applicable
(4) Enthalpy difference method only