

Z A K O N
O POTVRĐIVANJU SPORAZUMA O MEĐUNARODNOM
PREVOZU LAKOKVARLJIVIH NAMIRNICA I SPECIJALNIM
SREDSTVIMA ZA NJIHOV PREVOZ (ATP)

Član 1.

Potvrđuje se Sporazum o međunarodnom prevozu lakokvarljivih namirnica i specijalnim sredstvima za njihov prevoz (ATP), sačinjen 1. septembra 1970. godine u Ženevi, na engleskom, francuskom i ruskom jeziku, sa izmenama koje važe od 2. januara 2011. godine .

Član 2.

Tekst Sporazuma o međunarodnom prevozu lakokvarljivih namirnica i specijalnim sredstvima za njihov prevoz (ATP), u originalu na engleskom jeziku i u prevodu na srpski jezik glase:

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

NOTE

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FOREWORD

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 entered into force on 21 November 1976.

The Agreement and its annexes have been regularly amended and updated since their entry into force by the Working Party on the Transport of Perishable Foodstuffs (WP.11) of the Economic Commission for Europe's Inland Transport Committee.

Territorial applicability

The ATP is an Agreement between States, and there is no overall enforcing authority. In practice, highway checks are carried out by Contracting Parties, and non-compliance may then result in legal action by national authorities against offenders in accordance with their domestic legislation. ATP itself does not prescribe any penalties. At the time of publishing, those Contracting Parties are Albania, Andorra, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Moldova, Monaco, Montenegro, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, The former Yugoslav Republic of Macedonia, Tunisia, Ukraine, United Kingdom, United States of America, Uzbekistan.

ATP applies to transport operations performed on the territory of at least two of the above-mentioned Contracting Parties. In addition, a number of countries have also adopted the ATP as the basis for their national legislation.

Additional practical information

Any query concerning the application of ATP should be directed to the relevant competent authority. Additional information may also be found on the UNECE Transport Division web site at the following link:

http://www.unece.org/trans/main/wp11/atp.html

This information, updated on a continuous basis, concerns:

- The status of ATP;
- Depositary notifications (e.g. new Contracting Parties, amendments or corrections to legal texts);
- Publication details (corrections, publication of new amendments);
- List and details of competent authorities and ATP Test Stations.

The text below comprises the Agreement itself and its annexes with the latest amendments which enter into force on 2 January 2011.

TABLE OF CONTENTS

	Page
AGREEMENT ON THE INTERNATIONAL CARRIAGE OF PERISHABLE FOODSTUFFS AND ON THE SPECIAL EQUIPMENT TO BE USED FOR SUCH CARRIAGE (ATP)	1
<u>Annex 1</u>	
DEFINITIONS OF AND STANDARDS FOR SPECIAL EQUIPMENT FOR THE CARRIAGE OF PERISHABLE FOODSTUFFS	8
1. Insulated equipment.....	8
2. Refrigerated equipment.....	9
3. Mechanically refrigerated equipment.....	9
4. Heated equipment.....	9
Annex 1, Appendix 1	
Provisions relating to the checking of insulated, refrigerated, mechanically refrigerated or heated equipment for compliance with standards.....	10
Annex 1, Appendix 2	
Methods and procedures for measuring and checking the insulating capacity and the efficiency of the cooling or heating appliances of special equipment for the carriage of perishable foodstuffs.....	13
1. Definitions and general principles	13
2. Insulating capacity of equipment.....	14
3. Effectiveness of thermal appliances of equipment	17
4. Procedure for measuring the effective refrigerating capacity W_o of a unit when the evaporator is free from frost.....	20
5. Checking the insulating capacity of equipment in service.....	23
6. Verifying the effectiveness of thermal appliances of equipment in service.....	24
7. Test reports	26

Table of contents (cont'd)

	Page
<i>Models of Test Reports</i>	
MODEL No. 1 A	27
MODEL No. 1 B	29
MODEL No. 2 A	31
MODEL No. 2 B	33
MODEL No. 3	35
MODEL No. 4 A	36
MODEL No. 4 B	38
MODEL No. 4 C	41
MODEL No. 5	43
MODEL No. 6	46
MODEL No. 7	48
MODEL No. 8	50
MODEL No. 9	52
MODEL No. 10	54
Annex 1, Appendix 3.....	58
A. Model form of certificate of compliance of the equipment, as prescribed in Annex 1, Appendix 1, paragraph 3	58
B. Certification plate of compliance of the equipment, as provided for in Annex 1, Appendix 1, paragraph 3.....	61
Annex 1, Appendix 4	
Distinguishing marks to be affixed to special equipment.....	63

Table of contents (cont'd)

	Page
<u>Annex 2</u>	
SELECTION OF EQUIPMENT AND TEMPERATURE CONDITIONS TO BE OBSERVED FOR THE CARRIAGE OF QUICK (DEEP)-FROZEN AND FROZEN FOODSTUFFS	65
Annex 2, Appendix 1	
Monitoring of air temperatures for transport of perishable foodstuffs quick-frozen.....	66
Annex 2, Appendix 2	
Procedure for the sampling and measurement of temperature for carriage of chilled, frozen and quick-frozen perishable foodstuffs	67
<u>Annex 3</u>	
SELECTION OF EQUIPMENT AND TEMPERATURE CONDITIONS TO BE OBSERVED FOR THE CARRIAGE OF CHILLED FOODSTUFFS.....	70

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

THE CONTRACTING PARTIES,

DESIROUS of improving the conditions of preservation of the quality of perishable foodstuffs during their carriage, particularly in international trade,

CONSIDERING that the improvement of those conditions is likely to promote the expansion of trade in perishable foodstuffs,

HAVE AGREED as follows:

Chapter I

SPECIAL TRANSPORT EQUIPMENT

Article 1

For the international carriage of perishable foodstuffs, equipment shall not be designated as "insulated", "refrigerated", "mechanically refrigerated", or "heated" equipment unless it complies with the definitions and standards set forth in annex 1 to this Agreement.

Article 2

The Contracting Parties shall take the measures necessary to ensure that the equipment referred to in article 1 of this Agreement is inspected and tested for compliance with the said standards in conformity with the provisions of annex 1, appendices 1, 2, 3 and 4, to this Agreement. Each Contracting Party shall recognize the validity of certificates of compliance issued in conformity with annex 1, appendix 1, paragraph 4 to this Agreement by the competent authority of another Contracting Party. Each Contracting Party may recognize the validity of certificates of compliance issued in conformity with the requirements of annex 1, appendices 1 and 2, to this Agreement by the competent authority of a State not a Contracting Party.

Chapter II

**USE OF SPECIAL TRANSPORT EQUIPMENT FOR THE INTERNATIONAL
CARRIAGE OF CERTAIN PERISHABLE FOODSTUFFS**

Article 3

1. The provisions of article 4 of this Agreement shall apply to all carriage, whether for hire or reward or for own account, carried out exclusively - subject to the provisions of paragraph 2 of this article - by rail, by road or by a combination of the two, of

- quick (deep)-frozen and frozen foodstuffs, and of
- foodstuffs referred to in annex 3 to this Agreement even if they are neither quick (deep)-frozen nor frozen,

if the point at which the goods are, or the equipment containing them is, loaded on to a rail or road vehicle and the point at which the goods are, or the equipment containing them is, unloaded from that vehicle are in two different States and the point at which the goods are unloaded is situated in the territory of a Contracting Party.

In the case of carriage entailing one or more sea crossings other than sea crossings as referred to in paragraph 2 of this article, each land journey shall be considered separately.

2. The provisions of paragraph 1 of this article shall likewise apply to sea crossings of less than 150 km on condition that the goods are shipped in equipment used for the land journey or journeys without transloading of the goods and that such crossings precede or follow one or more land journeys as referred to in paragraph 1 of this article or take place between two such land journeys.

3. Notwithstanding the provisions of paragraphs 1 and 2 of this article, the Contracting Parties need not apply the provisions of article 4 of this Agreement to the carriage of foodstuffs not intended for human consumption.

Article 4

1. For the carriage of the perishable foodstuffs specified in annexes 2 and 3 to this Agreement, the equipment referred to in article 1 of this Agreement shall be used unless the temperatures to be anticipated throughout carriage render this requirement manifestly unnecessary for the purpose of maintaining the temperature conditions specified in annexes 2 and 3 to this Agreement. The equipment shall be so selected and used that the temperature conditions prescribed in the said annexes can be complied with throughout carriage. Furthermore, all appropriate measures shall be taken, more particularly as regards the temperature of the foodstuffs at the time of loading and as regards icing or re-icing during the journey or other necessary operations. Nevertheless, the provisions of this paragraph shall apply only in so far as they are not incompatible with international undertakings in the matter of international carriage arising for the Contracting Parties by virtue of conventions in force at the time of the entry into force of this Agreement or by virtue of conventions substituted for them.

2. If during carriage under this Agreement the provisions of paragraph 1 of this article have not been complied with,

- (a) the foodstuffs may not be disposed of in the territory of a Contracting Party after completion of carriage unless the competent authorities of that Contracting Party deem it compatible with the requirements of public health to authorize such disposal and unless such conditions as the authorities may attach to the authorization when granting it are fulfilled; and
- (b) every Contracting Party may, by reason of the requirements of public health or zooprophylaxis and in so far as it is not incompatible with the other international undertakings referred to in the last sentence of paragraph 1 of this article, prohibit the entry of the foodstuffs into its territory or make their entry subject to such conditions as it may determine.

3. Compliance with the provisions of paragraph 1 of this article shall be required of carriers for hire or reward only in so far as they have undertaken to procure or provide services intended to ensure such compliance and if such compliance depends on the performance of those services. If other persons, whether individuals or corporate bodies, have undertaken to procure or provide services intended to ensure compliance with the provisions of this Agreement, they shall be required to ensure such compliance in so far as it depends on performance of the services they have undertaken to procure or provide.

4. During carriage which is subject to the provisions of this Agreement and for which the loading point is situated in the territory of a Contracting Party, responsibility for compliance with the requirements of paragraph 1 of this article shall rest, subject to the provisions of paragraph 3 of this article,

- in the case of transport for hire or reward, with the person, whether an individual or a corporate body, who is the consignor according to the transport document or, in the absence of a transport document, with the person, whether an individual or a corporate body, who has entered into the contract of carriage with the carrier;
- in other cases with the person, whether an individual or a corporate body, who performs carriage.

Chapter III

MISCELLANEOUS PROVISIONS

Article 5

The provisions of this Agreement shall not apply to carriage in containers classified as thermal maritime by land without transloading of the goods where such carriage is preceded or

followed by a sea crossing other than a sea crossing as referred to in article 3, paragraph 2, of this Agreement.

Article 6

1. Each Contracting Party shall take all appropriate measures to ensure observance of the provisions of this Agreement. The competent administrations of the Contracting Parties shall keep one another informed of the general measures taken for this purpose.

2. If a Contracting Party discovers a breach committed by a person residing in the territory of another Contracting Party, or imposes a penalty upon such a person, the administration of the first Party shall inform the administration of the other Party of the breach discovered and of the penalty imposed.

Article 7

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.

Article 8

Failure to observe the provisions of this Agreement shall not affect either the existence or the validity of contracts entered into for the performance of carriage.

Chapter IV

FINAL PROVISIONS

Article 9

1. States members of the Economic Commission for Europe and States admitted to the Commission in a consultative capacity under paragraph 8 of the Commission's terms of reference may become Contracting Parties to this Agreement

- (a) by signing it;
- (b) by ratifying it after signing it subject to ratification; or
- (c) by acceding to it.

2. States which may participate in certain activities of the Economic Commission for Europe under paragraph 11 of the Commission's terms of reference may become Contracting Parties to this Agreement by acceding thereto after its entry into force.

3. This Agreement shall be open for signature until 31 May 1971 inclusive. Thereafter, it shall be open for accession.

4. Ratification or accession shall be effected by the deposit of an instrument with the Secretary-General of the United Nations.

Article 10

1. Any State may at the time of signing this Agreement without reservation as to ratification or of depositing its instrument of ratification or accession or at any time thereafter declare by notification addressed to the Secretary-General of the United Nations that the Agreement does not apply to carriage performed in any or in a particular one of its territories situated outside Europe. If notification as aforesaid is made after the entry into force of the Agreement in respect of the notifying State the Agreement shall, ninety days after the date on which the Secretary-General has received the notification, cease to apply to carriage in the territory or territories named in that

notification. New Contracting Parties acceding to ATP as from 30 April 1999 and applying paragraph 1 of this article shall not be entitled to enter any objection to draft amendments in accordance with the procedure provided for in article 18, paragraph 2.

2. Any State which has made a declaration under paragraph 1 of this article may at any time thereafter declare by notification addressed to the Secretary-General of the United Nations that the Agreement will be applicable to carriage performed in a territory named in the notification made under paragraph 1 of this article and the Agreement shall become applicable to carriage in that territory one hundred and eighty days after the date on which the Secretary-General has received that notification.

Article 11

1. This Agreement shall come into force one year after five of the States referred to in its article 9, paragraph 1, have signed it without reservation as to ratification or have deposited their instruments of ratification or accession.

2. With respect to any State which ratifies, or accedes to, this Agreement after five States have signed it without reservation as to ratification or have deposited their instruments of ratification or accession, this Agreement shall enter into force one year after the said State has deposited its instrument of ratification or accession.

Article 12

1. Any Contracting Party may denounce this Agreement by giving notice of denunciation to the Secretary-General of the United Nations.

2. The denunciation shall take effect fifteen months after the date on which the Secretary-General received the notice of denunciation.

Article 13

This Agreement shall cease to have effect if the number of Contracting Parties is less than five throughout any period of twelve consecutive months after its entry into force.

Article 14

1. Any State may at the time of signing this Agreement without reservation as to ratification or of depositing its instrument of ratification or accession or at any time thereafter declare by notification addressed to the Secretary-General of the United Nations that this Agreement will be applicable to all or any of the territories for the international relations of which that State is responsible. This Agreement shall be applicable to the territory or territories named in the notification as from the ninetieth day after receipt of the notice by the Secretary-General or, if on that day the Agreement has not yet entered into force, as from its entry into force.

2. Any State which has made a declaration under paragraph 1 of this article making this Agreement applicable to a territory for whose international relations it is responsible may denounce the Agreement separately in respect of that territory in conformity with article 12 hereof.

Article 15

1. Any dispute between two or more Contracting Parties concerning the interpretation or application of this Agreement shall so far as possible be settled by negotiation between them.

2. Any dispute which is not settled by negotiation shall be submitted to arbitration if any one of the Contracting Parties concerned in the dispute so requests and shall be referred accordingly to one or more arbitrators selected by agreement between those Parties. If within three months from the date of the request for arbitration, the Parties concerned in the dispute are unable to agree on the selection of an arbitrator or arbitrators, any of those Parties may request the Secretary-General of the United Nations to designate a single arbitrator to whom the dispute shall be referred for decision.

3. The decision of the arbitrator or arbitrators designated under the preceding paragraph shall be binding on the Contracting Parties concerned in the dispute.

Article 16

1. Any State may, at the time of signing, ratifying, or acceding to, this Agreement, declare that it does not consider itself bound by article 15, paragraphs 2 and 3 of this Agreement. The other Contracting Parties shall not be bound by these paragraphs with respect to any Contracting Party which has entered such a reservation.
2. Any Contracting Party which has entered a reservation under paragraph 1 of this article may at any time withdraw the reservation by notification addressed to the Secretary-General of the United Nations.
3. With the exception of the reservation provided for in paragraph 1 of this article, no reservation to this Agreement shall be permitted.

Article 17

1. After this Agreement has been in force for three years, any Contracting Party may, by notification addressed to the Secretary-General of the United Nations, request that a conference be convened for the purpose of revising this Agreement. The Secretary-General shall notify all Contracting Parties of the request and a revision conference shall be convened by the Secretary-General if, within a period of four months from the date of the notification sent by the Secretary-General, not less than one third of the Contracting Parties signify their assent to the request.
2. If a conference is convened in pursuance of paragraph 1 of this article, the Secretary-General shall so advise all the Contracting Parties and invite them to submit within a period of three months, the proposals which they wish the conference to consider. The Secretary-General shall circulate the provisional agenda for the conference, together with the text of such proposals, to all Contracting Parties not less than three months before the date on which the conference is to open.
3. The Secretary-General shall invite to any conference convened in pursuance of this article all the countries referred to in article 9, paragraph 1, of this Agreement, and also the countries which have become Contracting Parties under the said article 9, paragraph 2.

Article 18

1. Any Contracting Party may propose one or more amendments to this Agreement. The text of any proposed amendment shall be communicated to the Secretary-General of the United Nations, who shall communicate it to all Contracting Parties and bring it to the notice of all the other States referred to in article 9, paragraph 1, of this Agreement.

The Secretary-General may also propose amendments to this Agreement or to its annexes which have been transmitted to him by the Working Party on the Transport of Perishable Foodstuffs of the Inland Transport Committee of the Economic Commission for Europe.

2. Within a period of six months following the date on which the proposed amendment is communicated by the Secretary-General, any Contracting Party may inform the Secretary-General
 - (a) that it has an objection to the amendment proposed, or
 - (b) that, although it intends to accept the proposal, the conditions necessary for such acceptance are not yet fulfilled in its country.
3. If a Contracting Party sends the Secretary-General a communication as provided for in paragraph 2 (b) of this article, it may, so long as it has not notified the Secretary-General of its acceptance, submit an objection to the proposed amendment within a period of nine months following the expiry of the period of six months prescribed in respect of the initial communication.
4. If an objection to the proposed amendment is stated in accordance with the terms of paragraphs 2 and 3 of this article, the amendment shall be deemed not to have been accepted and shall be of no effect.

5. If no objection to the proposed amendment has been stated in accordance with paragraphs 2 and 3 of this article, the amendment shall be deemed to have been accepted on the date specified below:

- (a) if no Contracting Party has sent a communication to the Secretary-General in accordance with paragraph 2 (b) of this article, on the expiry of the period of six months referred to in paragraph 2 of this article;
- (b) if at least one Contracting Party has sent a communication to the Secretary-General in accordance with paragraph 2 (b) of this article, on the earlier of the following two dates:
 - the date by which all the Contracting Parties which sent such communications have notified the Secretary-General of their acceptance of the proposed amendment, subject however to the proviso that if all the acceptances were notified before the expiry of the period of six months referred to in paragraph 2 of this article the date shall be the date of expiry of that period;
 - the date of expiry of the period of nine months referred to in paragraph 3 of this article.

6. Any amendment deemed to be accepted shall enter into force six months after the date on which it was deemed to be accepted.

7. The Secretary-General shall as soon as possible inform all Contracting Parties whether an objection to the proposed amendment has been stated in accordance with paragraph 2 (a) of this article and whether one or more Contracting Parties have sent him a communication in accordance with paragraph 2 (b) of this article. If one or more Contracting Parties have sent him such a communication, he shall subsequently inform all the Contracting Parties whether the Contracting Party or Parties which have sent such a communication raise an objection to the proposed amendment or accept it.

8. Independently of the amendment procedure laid down in paragraphs 1 to 6 of this article, the annexes and appendices to this Agreement may be modified by agreement between the competent administrations of all the Contracting Parties. If the administration of a Contracting Party has stated that under its national law its agreement is contingent on special authorization or on the approval of a legislative body, the consent of the Contracting Party concerned to the modification of an annex shall not be deemed to have been given until the Contracting Party has notified the Secretary-General that the necessary authorization or approval has been obtained. The agreement between the competent administrations may provide that, during a transitional period, the old annexes shall remain in force, wholly or in part, concurrently with the new annexes. The Secretary-General shall specify the date of the entry into force of the new texts resulting from such modifications.

Article 19

In addition to communicating to them the notifications provided for in articles 17 and 18 of this Agreement, the Secretary-General of the United Nations shall notify the States referred to in article 9, paragraph 1, of this Agreement and the States which have become Contracting Parties under article 9, paragraph 2, of:

- (a) signatures, ratifications and accessions under article 9;
- (b) the dates of entry into force of this Agreement pursuant to article 11;
- (c) denunciations under article 12;
- (d) the termination of this Agreement under article 13;
- (e) notifications received under articles 10 and 14;
- (f) declarations and notifications received under article 16, paragraphs 1 and 2;
- (g) the entry into force of any amendment pursuant to article 18.

Article 20

After 31 May 1971, the original of this Agreement shall be deposited with the Secretary-General of the United Nations, who shall transmit certified true copies to each of the States mentioned in article 9, paragraphs 1 and 2, of this Agreement.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto, have signed this Agreement.

DONE at Geneva, this first day of September, one thousand nine hundred and seventy, in a single copy, in the English, French and Russian languages, the three texts being equally authentic.

Annex I

**DEFINITIONS OF AND STANDARDS FOR SPECIAL EQUIPMENT¹
FOR THE CARRIAGE OF PERISHABLE FOODSTUFFS**

1. **Insulated equipment.** Equipment of which the body² is built with insulating walls, doors, floor and roof, by which heat exchanges between the inside and outside of the body can be so limited that the overall coefficient of heat transfer (K coefficient), is such that the equipment is assignable to one or other of the following two categories:

I_N = Normally insulated equipment specified by: - a K coefficient equal to or less than $0.70 \text{ W/m}^2\cdot\text{K}$;

I_R = Heavily insulated equipment specified by: - a K coefficient equal to or less than $0.40 \text{ W/m}^2\cdot\text{K}$ and by side-walls with a thickness of at least 45 mm for transport equipment of a width greater than 2.50 m.

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.

2. **Refrigerated equipment.** Insulated equipment which, using a source of cold (natural ice, with or without the addition of salt; eutectic plates; dry ice, with or without sublimation control; liquefied gases, with or without evaporation control, etc.) other than a mechanical or "absorption" unit, is capable, with a mean outside temperature of $+30^\circ\text{C}$, of lowering the temperature inside the empty body to, and thereafter maintaining it:

At $+7^\circ\text{C}$ maximum in the case of class A;

At -10°C maximum in the case of class B;

At -20°C maximum in the case of class C; and

At 0°C maximum in the case of class D.

If such equipment includes one or more compartments, receptacles or tanks for the refrigerant, the said compartments, receptacles or tanks shall:

be capable of being filled or refilled from the outside; and

have a capacity in conformity with the provisions of annex I, appendix 2, paragraph 3.1.3.

The K coefficient of refrigerated equipment of classes B and C shall in every case be equal to or less than $0.40 \text{ W/m}^2\cdot\text{K}$.

3. **Mechanically refrigerated equipment.** Insulated equipment either fitted with its own refrigerating appliance, or served jointly with other units of transport equipment by such an appliance (fitted with either a mechanical compressor, or an "absorption" device, etc.). The appliance shall be capable, with a mean outside temperature of $+30^\circ\text{C}$, of lowering the temperature T_i inside the empty body to, and thereafter maintaining it continuously in the following manner at:

In the case of classes A, B and C, any desired practically constant inside temperature T_i in conformity with the standards defined below for the three classes:

Class A. Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i may be chosen between $+12^\circ\text{C}$ and 0°C inclusive;

¹ Wagons, lorries, trailers, semi-trailers, containers and other similar equipment.

² In the case of tank equipment, the term "body" means under this definition, the tank itself.

Class B. Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i may be chosen between + 12 °C and - 10 °C inclusive;

Class C. Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i may be chosen between + 12 °C and - 20 °C inclusive.

In the case of classes D, E and F a fixed practically constant inside temperature T_i in conformity with the standards defined below for the three classes:

Class D. Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i is equal to or less than 0 °C;

Class E. Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i is equal to or less than - 10 °C;

Class F. Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i is equal to or less than - 20 °C. The K coefficient of equipment of classes B, C, E and F shall in every case be equal to or less than 0.40 W/m².K.

4. **Heated equipment.** Insulated equipment, which is capable of raising the inside temperature of the empty body to, and thereafter maintaining it for not less than 12 hours without renewal of supply at, a practically constant value of not less than + 12 °C when the mean outside temperature, is as indicated below:

-10 °C in the case of class A heated equipment;

-20 °C in the case of class B heated equipment.

Heat producing appliances shall have a capacity in conformity with the provisions of annex 1, appendix 2, paragraphs 3.3.1 to 3.3.5.

The K coefficient of equipment of class B shall in every case be equal to or less than 0.40 W/m².K.

Annex 1, Appendix 1

**PROVISIONS RELATING TO THE CHECKING OF INSULATED, REFRIGERATED,
MECHANICALLY REFRIGERATED OR HEATED EQUIPMENT
FOR COMPLIANCE WITH THE STANDARDS**

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

- (a) before equipment enters 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, sections 5 and 6, 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.

2. The methods and procedures to be used in checking for compliance with the standards are described in appendix 2 to this annex.

3. 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 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:

- (a) in all cases, the test report - of the equipment itself or, in the case of serially produced equipment, of the reference equipment;
- (b) in all cases, the ATP certificate issued by the competent authority of the country of manufacture or, for equipment in service, the competent authority of the country of registration. This certificate will be treated as a provisional certificate valid, if necessary, for three months;
- (c) in the case of serially produced equipment, the technical specification of the equipment to be certified as issued by the manufacturer of the equipment or his duly accredited representative (this specification shall cover the same items as the descriptive pages concerning the equipment which appear in the test report and shall be drawn up in at least one of the three official languages).

In the case of equipment transferred after it has been in use, the equipment may be subject to a visual inspection to confirm its identity before the competent authority of the country in which it is to be registered or recorded issues 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 a certification plate, as reproduced in appendix 3 to this annex, is fixed to the equipment, the ATP plate shall be recognized as equivalent to an ATP certificate. ATP certification plates shall be removed as soon as the equipment ceased to conform to the standards laid down in this annex.

4. Distinguishing marks and particulars shall be affixed to the equipment in conformity with the provisions of appendix 4 to this annex. They shall be removed as soon as the equipment ceases to conform to the standards laid down in this annex.

5. The insulated bodies of "insulated", "refrigerated", "mechanically refrigerated" or "heated" transport equipment and their thermal appliances shall each bear a durable manufacturer's plate firmly affixed by the manufacturer in a conspicuous and readily accessible position on a part not subject to replacement in use. It shall be able to be checked easily and without the use of tools. For insulated bodies, the manufacturer's plate shall be on the outside of the body. The manufacturer's plate shall show clearly and indelibly at least the following particulars:³

Country of manufacture or letters used in international road traffic;

Name of manufacturer or company;

Model (figures and/or letters);

Serial number;

Month and year of manufacture.

6. (a) New equipment of a specific type serially produced may be approved by testing one unit of that type. If the unit tested meets the class specification, the resulting test report shall be regarded as a Type Approval Certificate. This certificate shall expire at the end of a period of six years beginning from the date of completion of the test.

The date of expiry of test reports shall be stated in months and years.

- (b) The competent authority shall take steps to verify that production of other units is in conformity with the approved type. For this purpose it may check by testing sample units drawn at random from the production series.

- (c) A unit shall not be regarded as being of the same type as the unit tested unless it satisfies the following minimum conditions:

- (i) If it is insulated equipment, in which case the reference equipment may be insulated, refrigerated, mechanically refrigerated or heated equipment,

the construction shall be comparable and, in particular, the insulating material and the method of insulation shall be identical;

the thickness of the insulating material shall be not less than that of the reference equipment;

the interior fittings shall be identical or simplified;

the number of doors and the number of hatches or other openings shall be the same or less; and

the inside surface area of the body shall not be as much as 20% greater or smaller;

- (ii) If it is refrigerated equipment, in which case the reference equipment shall be refrigerated equipment,

the conditions set out under (i) above shall be satisfied;

inside circulating fans shall be comparable;

the source of cold shall be identical; and

the reserve of cold per unit of inside surface area shall be greater or equal;

³ These requirements shall apply to new plates only. A transitional period of three months shall be granted from the date of entry into force of this requirement.

(iii) If it is mechanically refrigerated equipment, in which case the reference equipment shall be either:

(a) mechanically refrigerated equipment;

- the conditions set out in (i) above shall be satisfied; and
- the effective refrigerating capacity of the mechanical refrigeration appliance per unit of inside surface area, under the same temperature conditions, shall be greater or equal; or

(b) insulated equipment which is complete in every detail but minus its mechanical refrigeration unit which will be fitted at a later date.

The resulting aperture will be filled, during the measurement of the K coefficient, with close fitting panels of the same overall thickness and type of insulation as is fitted to the front wall. In which case:

- the conditions set out in (i) above shall be satisfied; and
- the effective refrigerating capacity of the mechanical refrigeration unit fitted to insulated reference equipment shall be as defined in annex 1, appendix 2, paragraph 3.2.6.

(iv) If it is heated equipment, in which case the reference equipment may be insulated or heated equipment,

- the conditions set out under (i) above shall be satisfied;
- the source of heat shall be identical; and
- the capacity of the heating appliance per unit of inside surface area shall be greater or equal.

(d) If, in the course of the six-year period, the production series exceeds 100 units, the competent authority shall determine the percentage of units to be tested.

Annex I, Appendix 2

**METHODS AND PROCEDURES FOR MEASURING AND CHECKING THE
INSULATING CAPACITY AND THE EFFICIENCY OF THE COOLING OR HEATING
APPLIANCES OF SPECIAL EQUIPMENT FOR
THE CARRIAGE OF PERISHABLE FOODSTUFFS**

1. DEFINITIONS AND GENERAL PRINCIPLES

- 1.1 K coefficient. The overall heat transfer coefficient (K coefficient) of the special equipment is defined by the following formula:

$$K = \frac{W}{S \cdot \Delta T}$$

where W is either the heating power or the cooling capacity, as the case may be, required to maintain a constant absolute temperature difference ΔT between the mean inside temperature T_i and the mean outside temperature T_e , during continuous operation, when the mean outside temperature T_e is constant for a body of mean surface area S.

- 1.2 The mean surface area S of the body is the geometric mean of the inside surface area S_i and the outside surface area S_e of the body:

$$S = \sqrt{S_i \cdot S_e}$$

In determining the two surface areas S_i and S_e , structural peculiarities and surface irregularities of the body, such as chamfers, wheel-arches and similar features, shall be taken into account and shall be noted under the appropriate heading in test reports; however, if the body is covered with corrugated sheet metal the area considered shall be that of the plane surface occupied, not that of the developed corrugated surface.

Temperature measuring points

- 1.3 In the case of parallelepipedic bodies, the mean inside temperature of the body (T_i) is the arithmetic mean of the temperatures measured 10 cm from the walls at the following 12 points:

- (a) The eight inside corners of the body; and
- (b) The centres of the four inside faces having the largest area.

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.

- 1.4 In the case of parallelepipedic bodies, the mean outside temperature of the body (T_e) is the arithmetic mean of the temperatures measured 10 cm from the walls at the following 12 points:

- (a) The eight outside corners of the body; and
- (b) The centres of the four outside faces having the largest area.

If the body is not parallelepipedic, the 12 points of measurement shall be distributed as satisfactorily as possible having regard to the shape of the body.

- 1.5 The mean temperature of the walls of the body is the arithmetic mean of the mean outside temperature of the body and the mean inside temperature of the body:

$$\frac{T_e + T_i}{2}$$

- 1.6 Temperature measuring instruments protected against radiation shall be placed inside and outside the body at the points specified in paragraphs 1.3 and 1.4 of this appendix.

Steady state period and duration of test

- 1.7 The mean outside temperatures and the mean inside temperatures of the body, taken over a steady period of not less than 12 hours, shall not vary by more than ± 0.3 K, and these temperatures shall not vary by more than ± 1.0 K during the preceding 6 hours.

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 %.

The mean values of the temperatures and heating or cooling capacity over at least the last 6 hours of the steady state period will be used in K coefficient calculation.

The mean inside and outside temperatures at the beginning and the end of the calculation period of at least 6 hours shall not differ by more than 0.2 K.

2. INSULATING CAPACITY OF EQUIPMENT

Procedures for measuring the K coefficient

2.1 Equipment other than liquid-foodstuffs tanks

- 2.1.1 The K coefficient shall be measured in continuous operation either by the internal cooling method or by the internal heating method. In either case, the empty body shall be placed in an insulated chamber.

Test method

- 2.1.2 Where the internal cooling method is used, one or more heat exchangers shall be placed inside the body. The surface area of these exchangers shall be such that, if a fluid at a temperature not lower than 0°C ⁴ passes through them, the mean inside temperature of the body remains below $+10^{\circ}\text{C}$ when continuous operation has been established. Where the internal heating method is used, electrical heating appliances (resistors, etc.) shall be used. The heat exchangers or electrical heating appliances shall be fitted with fans having a delivery rate sufficient to obtain 40 to 70 air charges per hour related to the empty volume of the tested body, and the air distribution around all inside surfaces of the tested body shall be sufficient to ensure that the maximum difference between the temperatures of any 2 of the 12 points specified in paragraph 1.3 of this appendix does not exceed 2 K when continuous operation has been established.

- 2.1.3 Heat quantity: The heat dissipated by the electrical resistance fan heaters shall not exceed a flow of $1\text{W}/\text{cm}^2$ and the heater units shall be protected by a casing of low emissivity.

The electrical energy consumption shall be determined with an accuracy of $\pm 0.5\%$.

Test procedure

- 2.1.4 Whatever the method employed, the mean temperature of the insulated chamber shall throughout the test be kept uniform, and constant in compliance with paragraph 1.7 of this appendix, to within ± 0.5 K, at a level such that the temperature difference between the inside of the body and the insulated chamber is $25^{\circ}\text{C} \pm 2$ K, the average temperature of the walls of the body being maintained at $+20^{\circ}\text{C} \pm 0.5$ K.
- 2.1.5 During the test, whether by the internal cooling method or by the internal heating method, the mass of air in the chamber shall be made to circulate continuously so that the speed of movement of the air 10 cm from the walls is maintained at between 1 and 2 metres/second.
- 2.1.6 The appliances for generating and distributing cold or heat and for measuring the quantity of cold or heat exchanged and the heat equivalent of the air-circulating fans shall be started up. Electrical cable losses between the heat input measuring

⁴ To prevent frosting.

instrument and the tested body shall be established by a measurement or calculation and subtracted from the total heat input measured.

2.1.7 When continuous operation has been established, the maximum difference between the temperatures at the warmest and at the coldest points on the outside of the body shall not exceed 2 K.

2.1.8 The mean outside temperature and the mean inside temperature of the body shall each be read not less than four times per hour.

2.2 Liquid-foodstuffs tanks

2.2.1 The method described below applies only to single-compartment or multiple-compartment tank equipment intended solely for the carriage of liquid foodstuffs such as milk. Each compartment of such tanks shall have at least one manhole and one discharge-pipe connecting socket; where there are several compartments they shall be separated from one another by non-insulated vertical partitions.

2.2.2 K coefficients shall be measured in continuous operation by internal heating of the empty tank in an insulated chamber.

Test method

2.2.3 An electrical heating appliance (resistors, etc.) shall be placed inside the tank. If the tank has several compartments, an electrical heating appliance shall be placed in each compartment. The electrical heating appliances shall be fitted with fans with a delivery rate sufficient to ensure that the difference between the maximum temperature and the minimum temperature inside each compartment does not exceed 3 K when continuous operation has been established. If the tank comprises several compartments, the difference between the mean temperature in the coldest compartment and the mean temperature in the warmest compartment shall not exceed 2 K, the temperatures being measured as specified in paragraph 2.2.4 of this appendix.

2.2.4 Temperature measuring instruments protected against radiation shall be placed inside and outside the tank 10 cm from the walls, as follows:

(a) If the tank has only one compartment, measurements shall be made at a minimum of 12 points positioned as follows:

The four extremities of two diameters at right angles to one another, one horizontal and the other vertical, near each of the two ends of the tank;

The four extremities of two diameters at right angles to one another, inclined at an angle of 45° to the horizontal, in the axial plane of the tank;

(b) If the tank has several compartments, the points of measurement shall be as follows:

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

The extremities of a horizontal diameter near the end and the extremities of a vertical diameter near the partition;

and for each of the other compartments, at least the following:

The extremities of a diameter inclined at an angle of 45° to the horizontal near one of the partitions and the extremities of a diameter perpendicular to the first and near the other partition.

The mean inside temperature and the mean outside temperature of the tank shall respectively be the arithmetic mean of all the measurements taken inside and all the measurements taken outside the tank. In the case of a tank having several compartments, the mean inside temperature of each compartment shall be the arithmetic mean of the measurements, numbering not less than four, relating to that compartment.

Test procedure

- 2.2.5 Throughout the test, the mean temperature of the insulated chamber shall be kept uniform, and constant in compliance with paragraph 1.7 of this appendix, at a level such that the difference in temperature between the inside of the tank and that of the insulated chamber is not less than $25\text{ }^{\circ}\text{C} \pm 2\text{ K}$, with the average temperature of the tank walls being maintained at $+20\text{ }^{\circ}\text{C} \pm 0.5\text{ K}$.
- 2.2.6 The mass of air in the chamber shall be made to circulate continuously so that the speed of movement of the air 10 cm from the walls is maintained at between 1 and 2 metres/second.
- 2.2.7 The appliances for heating and circulating the air and for measuring the quantity of heat exchanged and the heat equivalent of the air-circulating fans shall be started up.
- 2.2.8 When continuous operation has been established, the maximum difference between the temperatures at the warmest and at the coldest points on the outside of the tank shall not exceed 2 K.
- 2.2.9 The mean outside temperature and the mean inside temperature of the tank shall each be read not less than four times per hour.

2.3 Provisions common to all types of insulated equipment

2.3.1 Verification of the K coefficient

Where the purpose of the tests is not to determine the K coefficient but simply to verify that it is below a certain limit, the tests carried out as described in paragraphs 2.1.1 to 2.2.9 of this appendix may be stopped as soon as the measurements made show that the K coefficient meets the requirements.

2.3.2 Accuracy of measurements of the K coefficient

Testing stations shall be provided with the equipment and instruments necessary to ensure that the K coefficient is determined with a maximum margin of error of $\pm 10\%$ when using the method of internal cooling and $\pm 5\%$ when using the method of internal heating.

3. EFFECTIVENESS OF THERMAL APPLIANCES OF EQUIPMENT

Procedures for determining the efficiency of thermal appliances of equipment

3.1 Refrigerated equipment

- 3.1.1 The empty equipment shall be placed in an insulated chamber whose mean temperature shall be kept uniform, and constant to within $\pm 0.5\text{ K}$, at $+30\text{ }^{\circ}\text{C}$. The mass of air in the chamber shall be made to circulate as described in paragraph 2.1.5 of this appendix.
- 3.1.2 Temperature measuring instruments protected against radiation shall be placed inside and outside the body at the points specified in paragraphs 1.3 and 1.4 of this appendix.

Test procedure

- 3.1.3 (a) In the case of **equipment other than equipment with fixed eutectic plates, and equipment fitted with liquefied gas systems**, the maximum weight of refrigerant specified by the manufacturer or which can normally be accommodated shall be loaded into the spaces provided when the mean inside temperature of the body has reached the mean outside temperature of the body ($+30\text{ }^{\circ}\text{C}$). Doors, hatches and other openings shall be closed and the inside ventilation appliances (if any) of the equipment shall be started up at maximum capacity. In addition, in the case of new equipment, a heating appliance with a heating capacity equal to 35% of the heat exchanged through the walls in continuous operation shall be started up inside the body when the temperature

prescribed for the class to which the equipment is presumed to belong has been reached. No additional refrigerant shall be loaded during the test;

- (b) In the case of **equipment with fixed eutectic plates**, the test shall comprise a preliminary phase of freezing of the eutectic solution. For this purpose, when the mean inside temperature of the body and the temperature of the plates have reached the mean outside temperature (+ 30 °C), the plate-cooling appliance shall be put into operation for 18 consecutive hours after closure of the doors and hatches. If the plate-cooling appliance includes a cyclically-operating mechanism, the total duration of operation of the appliance shall be 24 hours. In the case of new equipment, as soon as the cooling appliance is stopped, a heating appliance with a heating capacity equal to 35% of the heat exchanged through the walls in continuous operation shall be started up inside the body when the temperature prescribed for the class to which the equipment is presumed to belong has been reached. The solution shall not be subjected to any re-freezing operation during the test;
- (c) In the case of **equipment fitted with liquefied gas systems**, the following test procedure shall be used: when the mean inside temperature of the body has reached the mean outside temperature (+ 30 °C), the receptacles for the liquefied gas shall be filled to the level prescribed by the manufacturer. Then the doors, hatches and other openings shall be closed as in normal operation and the inside ventilation appliances (if any) of the equipment shall be started up at maximum capacity. The thermostat shall be set at a temperature not more than 2 degrees below the limit temperature of the presumed class of the equipment. Cooling of the body then shall be commenced. During the cooling of the body the refrigerant consumed is simultaneously replaced. This replacement shall be effected:

either for a time corresponding to the interval between the commencement of cooling and the moment when the temperature prescribed for the class to which the equipment is presumed to belong is reached for the first time; or

for a duration of three hours counting from the commencement of cooling, whichever is shorter.

Beyond this period, no additional refrigerant shall be loaded during the test.

In the case of new equipment, a heating appliance with a heating capacity equal to 35% of the heat exchanged through the walls in continuous operation shall be started up inside the body when the class temperature has been reached.

Provisions common to all types of refrigerated equipment

- 3.1.4 The mean outside temperature and the mean inside temperature of the body shall each be read not less often than once every 30 minutes.
- 3.1.5 The test shall be continued for 12 hours after the mean inside temperature of the body has reached the lower limit prescribed for the class to which the equipment is presumed to belong (A = + 7 °C; B = - 10 °C; C = - 20 °C; D = 0 °C) or, in the case of equipment with fixed eutectic plates, after stoppage of the cooling appliance.

Criterion of satisfaction

- 3.1.6 The test shall be deemed satisfactory if the mean inside temperature of the body does not exceed the aforesaid lower limit during the aforesaid period of 12 hours.

3.2 Mechanically refrigerated equipment

Test method

- 3.2.1 The test shall be carried out in the conditions described in paragraphs 3.1.1 and 3.1.2 of this appendix.

Test procedure

- 3.2.2 When the mean inside temperature of the body reaches the outside temperature (+ 30 °C), the doors, hatches and other openings shall be closed and the refrigerating appliance and the inside ventilating appliances (if any) shall be started up at maximum capacity. In addition, in the case of new equipment, a heating appliance with a heating capacity equal to 35% of the heat exchanged through the walls in continuous operation shall be started up inside the body when the temperature prescribed for the class to which the equipment is presumed to belong has been reached.
- 3.2.3 The mean outside temperature and the mean inside temperature of the body shall each be read not less often than once every 30 minutes.
- 3.2.4 The test shall be continued for 12 hours after the mean inside temperature of the body has reached:
- either the lower limit prescribed for the class to which the equipment is presumed to belong in the case of classes A, B and C (A = 0 °C; B = - 10 °C; C = - 20 °C); or
 - a level not lower than the upper limit prescribed for the class to which the equipment is presumed to belong in the case of classes D, E, and F (D = 0 °C; E = - 10 °C; F = - 20 °C).

Criterion of satisfaction

- 3.2.5 The test shall be deemed satisfactory if the refrigerating appliance is able to maintain the prescribed temperature conditions during the said 12-hour periods, with any automatic defrosting of the refrigerating unit not being taken into account.
- 3.2.6 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 mechanically 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.
- 3.2.7 If the mechanically refrigerating unit is replaced by a unit of a different type, the competent authority may:
- (a) require the equipment to undergo the determinations and verifications prescribed in paragraphs 3.2.1 to 3.2.4; or
 - (b) satisfy itself that the effective refrigerating capacity of the new mechanically refrigerating unit is, at the temperature prescribed for equipment of the class concerned, at least equal to that of the unit replaced; or
 - (c) satisfy itself that the effective refrigerating capacity of the new mechanically refrigerating unit meets the requirements of paragraph 3.2.6.

3.3 Heated equipment

Test method

- 3.3.1 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. The atmosphere of the chamber shall be made to circulate as described in paragraph 2.1.5 of this appendix.
- 3.3.2 Temperature measuring instruments protected against radiation shall be placed inside and outside the body at the points specified in paragraphs 1.3 and 1.4 of this appendix.

Test procedure

- 3.3.3 Doors, hatches and other openings shall be closed and the heating equipment and the inside ventilating appliances (if any) shall be started up at maximum capacity.
- 3.3.4 The mean outside temperature and the mean inside temperature of the body shall each be read not less often than once every 30 minutes.
- 3.3.5 The test shall be continued for 12 hours after the difference between the mean inside temperature and the mean outside temperature of the body has reached the level corresponding to the conditions prescribed for the class to which the equipment is presumed to belong. In the case of new equipment, the above temperature difference shall be increased by 35 per cent.

Criterion of satisfaction

- 3.3.6 The test shall be deemed satisfactory if the heating appliance is able to maintain the prescribed temperature difference during the 12 hours aforesaid.

4. PROCEDURE FOR MEASURING THE EFFECTIVE REFRIGERATING CAPACITY W_o OF A UNIT WHEN THE EVAPORATOR IS FREE FROM FROST

4.1 General principles

- 4.1.1 When attached to either a calorimeter box or the insulated body of a unit of transport equipment, and operating continuously, this capacity is:

$$W_o = W_j + U \cdot \Delta T$$

where U is the heat leakage of the calorimeter box or insulated body, Watts/°C.

ΔT is the difference between the mean inside temperature T_i and the mean outside temperature T_e of the calorimeter or insulated body (K),

W_j is the heat dissipated by the fan heater unit to maintain each temperature difference in equilibrium.

4.2 Test method

- 4.2.1 The refrigeration unit is either fitted to a calorimeter box, or the insulated body of a unit of transport equipment.

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.

It is preferable to use a calibrated calorimeter box to obtain maximum accuracy.

Measurements and procedure shall be as described in paragraphs 1.1 to 2.1.8 above; however, it is sufficient to measure U the heat leakage only, the value of this coefficient being defined by the following relationship:

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

where:

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

ΔT_m is the difference between the mean internal temperature T_i and the mean external temperature T_e ;

U is the heat flow per degree of difference between the air temperature inside and outside the calorimeter box or unit of transport equipment measured with the refrigeration unit fitted.

The calorimeter box or unit of transport equipment is placed in a test chamber. If a calorimeter box is used, $U \cdot \Delta T$ should be not more than 35% of the total heat flow W_o .

The calorimeter box or unit of transport equipment shall be heavily insulated.

4.2.2 Instrumentation

Test stations shall be equipped with instruments to measure the U value to an accuracy of $\pm 5\%$. Heat transfer through air leakage should not exceed 5% of the total heat transfer through the calorimeter box or through the insulated body of the unit of transport equipment. The refrigerating capacity shall be determined with an accuracy of $\pm 5\%$.

The instrumentation of the calorimeter box or unit of transport equipment shall conform to paragraphs 1.3 and 1.4 above. The following are to be measured:

- (a) *Air temperatures:* At least four thermometers uniformly distributed at the inlet to the evaporator;

At least four thermometers uniformly distributed at the outlet to the evaporator;

At least four thermometers uniformly distributed at the air inlet(s) to the refrigeration unit;

The thermometers shall be protected against radiation.

The accuracy of the temperature measuring system shall be ± 0.2 K;

- (b) *Energy consumption:* Instruments shall be provided to measure the electrical energy or fuel consumption of the refrigeration unit.

The electrical energy and fuel consumption shall be determined with an accuracy of $\pm 0.5\%$;

- (c) *Speed of rotation:* Instruments shall be provided to measure the speed of rotation of the compressors and circulating fans or to allow these speeds to be calculated where direct measurement is impractical.

The speed of rotation shall be measured to an accuracy of $\pm 1\%$;

- (d) *Pressure:* High precision pressure gauges (accurate to $\pm 1\%$) shall be fitted to the condenser and evaporator and to the compressor inlet when the evaporator is fitted with a pressure regulator.

4.2.3 Test conditions

- (i) The average air temperature at the inlet(s) to the refrigeration unit shall be maintained at $30\text{ }^{\circ}\text{C} \pm 0.5\text{ K}$.

The maximum difference between the temperatures at the warmest and at the coldest points shall not exceed 2 K.

- (ii) Inside the calorimeter box or the insulated body of the unit of transport equipment (at the air inlet to the evaporator): there shall be three levels of temperature between $-25\text{ }^{\circ}\text{C}$ and $+12\text{ }^{\circ}\text{C}$ 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 $\pm 1\text{ K}$.

The mean inside temperature shall be maintained within a tolerance of $\pm 0.5\text{ K}$. During the measurement of refrigerating capacity, the heat dissipated within the calorimeter box or the insulated body of the unit of transport equipment shall be maintained at a constant level with a tolerance of $\pm 1\%$.

When presenting a refrigeration unit for test, the manufacturer shall supply:

- Documents describing the unit to be tested;

- A technical document outlining the parameters that are most important to the functioning of the unit and specifying their allowable range;
- The characteristics of the equipment series tested; and
- A statement as to which prime mover(s) shall be used during testing.

4.3 Test procedure

4.3.1 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 $30\text{ }^{\circ}\text{C} \pm 3\text{ K}$. It shall then be lowered to the following temperatures: $-25\text{ }^{\circ}\text{C}$ for $-20\text{ }^{\circ}\text{C}$ class, $-13\text{ }^{\circ}\text{C}$ for $-10\text{ }^{\circ}\text{C}$ class or $-2\text{ }^{\circ}\text{C}$ for $0\text{ }^{\circ}\text{C}$ class;
- (b) Measurement of effective refrigerating capacity, at each internal temperature level.

A first test to be carried out, for at least four hours at each level of temperature, under control of the thermostat (of the refrigeration unit) to stabilize the heat transfer between the interior and exterior of the calorimeter box or unit of transport equipment.

A second test shall be carried out without the thermostat in operation in order to determine the maximum refrigerating capacity, with the heating power of the internal heater producing an equilibrium condition at each temperature level as prescribed in paragraph 4.2.3.

The duration of the second test shall be not less than four hours.

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 accordingly.

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

If the compressor is driven by the vehicle motion, the test shall be carried out at the nominal speed of rotation of the compressor as specified by the manufacturer.

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

This method may, alternatively, be used to test reference equipment. In this case, the effective refrigerating capacity is measured by multiplying the mass flow (m) of the refrigerant liquid by the difference in enthalpy between the refrigerant vapour leaving the unit (h_o) and the liquid at the inlet to the unit (h_i).

To obtain the effective refrigerating capacity, the heat generated by the evaporator fans (W_f) is deducted. It is difficult to measure W_f if the evaporator fans are driven by an external motor, in this particular case the enthalpy method is not recommended. When the fans are driven by internal electric motors, the electrical power is measured by appropriate instruments with an accuracy of $\pm 3\%$, with refrigerant flow measurement being accurate to $\pm 3\%$.

The heat balance is given by the formula:

$$W_o = (h_o - h_i) m - W_f.$$

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

4.3.3 Precautions

As the tests for effective refrigerating capacity are carried out with the thermostat of the refrigeration unit disconnected, the following precautions shall be observed:

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

with automatic controls of the refrigeration unit which unload individual cylinders (to tune the capacity of the refrigeration unit to motor output) the test shall be carried out with the number of cylinders appropriate for the temperature.

4.3.4 Checks

The following should be verified and the methods used indicated on the test report:

- (i) the defrosting system and the thermostat are functioning correctly;
- (ii) the rate of air circulation is that specified by the manufacturer.

If the air circulation of a refrigeration unit's evaporator fans is to be measured, methods capable of measuring the total delivery volume shall be used. Use of one of the relevant existing standards, i.e. BS 848, ISO 5801, AMCA 210-85, DIN 24163, NFE 36101, NF X10.102, DIN 4796 is recommended;

- (iii) the refrigerant used for tests is that specified by the manufacturer.

4.4 **Test result**

- 4.4.1 The refrigeration capacity for ATP purposes is that relating to the mean temperature at the inlet(s) of the evaporator. The temperature measuring instruments shall be protected against radiation.

5. **CHECKING THE INSULATING CAPACITY OF EQUIPMENT IN SERVICE**

For the purpose of checking the insulating capacity of each piece of equipment in service as prescribed in appendix 1, paragraphs 1 (b) and 1 (c), to this annex, the competent authorities may:

Apply the methods described in paragraphs 2.1.1 to 2.3.2 of this appendix; or

Appoint experts to assess the fitness of the equipment for retention in one or other of the categories of insulated equipment. These experts shall take the following particulars into account and shall base their conclusions on information as indicated below.

5.1 **General examination of the equipment**

This examination shall take the form of an inspection of the equipment to determine the following:

- (i) the durable manufacturer's plate affixed by the manufacturer;
- (ii) the general design of the insulating sheathing;
- (iii) the method of application of insulation;
- (iv) the nature and condition of the walls;
- (v) the condition of the insulated compartment;
- (vi) the thickness of the walls;

and to make all appropriate observations concerning the effective insulating capacity of the equipment. For this purpose the experts may cause parts of the equipment to be

dismantled and require all documents they may need to consult (plans, test reports, specifications, invoices, etc.) to be placed at their disposal.

5.2 Examination for air-tightness (not applicable to tank equipment)

The inspection shall be made by an observer stationed inside the equipment, which shall be placed in a brightly-illuminated area. Any method yielding more accurate results may be used.

5.3 Decisions

- (i) If the conclusions regarding the general condition of the body are favourable, the equipment may be kept in service as insulated equipment of its initial class for a further period of not more than three years. If the conclusions of the expert or experts are not acceptable, the equipment may be kept in service only following a satisfactory measurement of the K coefficient according to the procedure described in paragraphs 2.1.1 to 2.3.2 of this appendix; it may then be kept in service for a further period of six years.
- (ii) In the case of heavily insulated equipment, if the conclusions of an expert or experts show the body to be unsuitable for keeping in service in its initial class but suitable for continuing in service as normally insulated equipment, then the body may be kept in service in an appropriate class for a further three years. In this case, the distinguishing marks (as in appendix 4 of this annex) shall be changed appropriately.
- (iii) If the equipment consists of units of serially-produced equipment of a particular type satisfying the requirements of appendix I, paragraph 6, to this annex and belonging to one owner, then in addition to an inspection of each unit of equipment, the K coefficient of not less than 1% of the number of units involved, may be measured in conformity with the provisions of sections 2.1, 2.2 and 2.3 of this appendix. If the results of the examinations and measurements are acceptable, all the equipment in question may be kept in service as insulating equipment of its initial class for a further period of six years.

6. VERIFYING THE EFFECTIVENESS OF THERMAL APPLIANCES OF EQUIPMENT IN SERVICE

To verify as prescribed in appendix I, paragraphs I (b) and I (c), to this annex the effectiveness of the thermal appliance of each item of refrigerated, mechanically refrigerated or heated equipment in service, the competent authorities may:

Apply the methods described in sections 3.1, 3.2 and 3.3 of this appendix; or

Appoint experts to apply the particulars described in sections 5.1 and 5.2 of this appendix when applicable as well as the following provisions:

6.1 Refrigerated equipment other than equipment with fixed eutectic accumulators

It shall be verified that the inside temperature of the empty equipment, previously brought to the outside temperature, can be brought to the limit temperature of the class to which the equipment belongs, as prescribed in this annex, and maintained below the said limit temperature for a period t

$$\text{such that } t \geq \frac{12\Delta T}{\Delta T'} \quad \text{in which}$$

ΔT is the difference between + 30 °C and the said limit temperature, and

$\Delta T'$ is the difference between the mean outside temperature during the test and the class limit temperature, the outside temperature being not lower than + 15 °C.

If the results are acceptable, the equipment may be kept in service as refrigerated equipment of its initial class for a further period of not more than three years.

6.2 Mechanically refrigerated equipment

- (i) Equipment constructed one year after the entry into force of these provisions [DD MM YYYY]

It shall be verified that, when the outside temperature is not lower than + 15 °C, the inside temperature of the empty equipment can be brought to the class temperature within a maximum period (in minutes), as prescribed in the table below:

Outside temperature	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	°C
Class C, F	360	350	340	330	320	310	300	290	280	270	260	250	240	230	220	210	min
Class B, E	270	262	253	245	236	228	219	211	202	194	185	177	168	160	151	143	min
Class A, D	180	173	166	159	152	145	138	131	124	117	110	103	96	89	82	75	min

The inside temperature of the empty equipment must have been previously brought to the outside temperature.

If the results are acceptable, the equipment may be kept in service as mechanically refrigerated equipment of its initial class for a further period of not more than three years.

- (ii) Transitional provisions applicable to equipment in service

For equipment constructed prior to the entry into force of these provisions [DD MM YYYY], the following provisions shall apply:

It shall be verified that, when the outside temperature is not lower than +15° C, the inside temperature of the empty equipment, which has been previously brought to the outside temperature, can be brought within a maximum period of six hours:

In the case of equipment in classes A, B or C, to the minimum temperature, as prescribed in this annex;

In the case of equipment in classes D, E or F, to the limit temperature, as prescribed in this annex.

If the results are acceptable, the equipment may be kept in service as mechanically refrigerated equipment of its initial class for a further period of not more than three years.

6.3 Heated equipment

It shall be verified that the difference between the inside temperature of the equipment and the outside temperature which governs the class to which the equipment belongs as prescribed in this annex (a difference of 22 K in the case of class A and of 32 K in the case of class B) can be achieved and be maintained for not less than 12 hours. If the results are acceptable, the equipment may be kept in service as heated equipment of its initial class for a further period of not more than three years.

6.4 Temperature measuring points

Temperature measuring points protected against radiation shall be placed inside the body and outside the body.

For measuring the inside temperature of the body (T_i), at least 2 temperature measuring points shall be placed inside the body at a maximum distance of 50 cm from the front wall, 50 cm from the rear door at a height of a minimum of 15 cm and a maximum of 20 cm above the floor area.

For measuring the outside temperature of the body (T_e), at least 2 temperature measuring points shall be placed at a distance of at least 10 cm from an outer wall of the body and at least 20 cm from the air inlet of the condenser unit.

The final reading should be from the warmest point inside the body and the coldest point outside.

6.5 Provisions common to refrigerated, mechanically refrigerated and heated equipment

- (i) If the results are not acceptable, refrigerated, mechanically refrigerated or heated equipment may be kept in service in its initial class only if it passes at a testing station the tests described in sections 3.1, 3.2 and 3.3 of this appendix; it may then be kept in service in its initial class for a further period of six years.
- (ii) If the equipment consists of units of serially-produced refrigerated, mechanically refrigerated or heated equipment of a particular type satisfying the requirements of appendix I, paragraph 6, to this annex and belonging to one owner, then in addition to an inspection of the thermal appliances to ensure that their general condition appears to be satisfactory, the effectiveness of the cooling or heating appliances of not less than 1% of the number of units may be determined at a testing station in conformity with the provisions of sections 3.1, 3.2 and 3.3 of this appendix. If the results of the examinations and of the determination of effectiveness are acceptable, all the equipment in question may be kept in service in its initial class for a further period of six years.

7. TEST REPORTS

A test report of the type appropriate to the equipment tested shall be drawn up for each test in conformity with one or other of the models 1 to 10 hereunder.

MODEL No. 1 A

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.....

Section 1

Specifications of the equipment (equipment other than tanks for the carriage of liquid
foodstuffs)

Approved testing station/expert: ¹

Name

Address

Type of equipment: ²

Make..... Registration number..... Serial number.....

Date of first entry into service

Tare ³kg Carrying capacity ³ kg

Body:

Make and type Identification number

Built by.....

Owned or operated by

Submitted by

Date of construction

Principal dimensions:

Outside: length m, widthm, height..... m

Inside: length m, widthm, height..... m

Total floor area of bodym²

Usable internal volume of bodym³

MODEL No. 1 A (cont'd)

Total inside surface area S_i of body m^2

Total outside surface area S_e of body m^2

Mean surface area: $S = \sqrt{S_i \cdot S_e}$ m^2

Specifications of the body walls: ⁴

Top

Bottom

Sides

Structural peculiarities of body: ⁵

Number,) of doors

positions) of vents

and dimensions) of ice-loading apertures

Accessories ⁶

.....

K coefficient = $W/m^2.K$

¹ Delete as necessary (experts only in the case of tests carried out under ATP Annex 1, Appendix 2, sections 5 or 6).

² Wagon, lorry, trailer, semi-trailer, container, etc.

³ State source of information.

⁴ Nature and thickness of materials constituting the body walls, from the interior to the exterior, mode of construction, etc.

⁵ If there are surface irregularities, show how S_i and S_e were determined.

⁶ Meat bars, flettner fans, etc.

MODEL No. 1 B

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.

Section 1

Specifications of tanks for the carriage of liquid foodstuffs

Approved testing station/expert: ¹

Name

Address

Type of tank: ²

Make Registration number Serial number

Date of first entry into service

Tare ³ kg Carrying capacity ³ kg

Tank:

Make and type Identification number

Built by

Owned or operated by

Submitted by

Date of construction

Principal dimensions:

Outside: length of cylinderm, major axis m, minor axis m

Inside: length of cylinder m, major axis m, minor axis m

Usable internal volume m³

MODEL No. 1 B (cont'd)

Internal volume of each compartment	m ³
Total inside surface area S _i of tank	m ²
Inside surface area of each compartment S _{i1}, S _{i2},	m ²
Total outside surface area S _e of tank	m ²
Mean surface area of tank: $S = \sqrt{S_i \cdot S_e}$	m ²
Specifications of the tank walls: ⁴	
Structural peculiarities of the tank: ⁵	
Number, dimensions and description of manholes	
Description of manhole covers	
Number, dimensions and description of discharge piping	
Number and description of tank cradles	
Accessories	

¹ Delete as necessary (experts only in the case of tests carried out under ATP Annex 1, Appendix 2, sections 5 or 6).
² Wagon, lorry, trailer, semi-trailer, container, etc.
³ State source of information.
⁴ Nature and thickness of materials constituting the tank walls, from the interior to the exterior, mode of construction, etc.
⁵ If there are surface irregularities, show how S_i and S_e were determined.

MODEL No. 2 A

Section 2

Measurement in accordance with ATP, Annex 1, Appendix 2, sub-section 2.1, of the overall coefficient of heat transfer of equipment other than tanks for liquid foodstuffs

Testing method: inside cooling/inside heating ¹

Date and time of closure of equipment's doors and other openings:

Averages obtained for hours of continuous operation
(from a.m./p.m. to a.m./p.m.):

(a) Mean outside temperature of body: $T_e = \dots\dots\dots^\circ\text{C} \pm \dots\dots\dots\text{K}$

(b) Mean inside temperature of body: $T_i = \dots\dots\dots^\circ\text{C} \pm \dots\dots\dots\text{K}$

(c) Mean temperature difference achieved: $\Delta T = \dots\dots\dots\text{K}$

Maximum temperature spread:

Outside bodyK

Inside bodyK

Mean temperature of walls of body $\frac{T_e + T_i}{2}$ $^\circ\text{C}$

Operating temperature of heat exchanger ² $^\circ\text{C}$

Dew point of atmosphere outside body during continuous operation ²
..... $^\circ\text{C} \pm \dots\dots\dots\text{K}$

Total duration of test h

Duration of continuous operation h

Power consumed in exchangers: W_1 W

Power absorbed by fans: W_2 W

Overall coefficient of heat transfer calculated by the formula:

$$\text{Inside-cooling test } ^1 \quad K = \frac{W_1 - W_2}{S \cdot \Delta T}$$

$$\text{Inside-heating test } ^1 \quad K = \frac{W_1 + W_2}{S \cdot \Delta T}$$

$$K = \dots\dots\dots \text{ W/m}^2\text{.K}$$

MODEL No. 2 A (cont'd)

Maximum error of measurement with test used %

Remarks: ³

(To be completed only if the equipment does not have thermal appliances:)

According to the above test results, the equipment may be recognized by means of a certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than six years, with the distinguishing mark IN/IR.¹

However, this report shall be valid as a certificate of type approval within the meaning of ATP Annex 1, Appendix 1, paragraph 6 (a) only for a period of not more than six years, that is until

Done at:

on

.....

Testing Officer

¹ Delete as necessary.

² For inside-cooling test only.

³ If the body is not parallelepipedic, specify the points at which the outside and inside temperatures were measured.

MODEL No. 2 B

Section 2

Measurement, in accordance with ATP Annex 1, Appendix 2, sub-section 2.2, of the overall coefficient of heat transfer of tanks for liquid foodstuffs

Testing method: inside heating

Date and time of closure of equipment's openings

Mean values obtained forhours of continuous operation

(from a.m./p.m. to a.m./p.m.):

(a) Mean outside temperature of tank: $T_e = \dots\dots\dots ^\circ\text{C} \pm \dots\dots\dots \text{K}$

(b) Mean inside temperature of tank:

$$T_f = \frac{\sum S_{in} . T_{in}}{\sum S_{in}} = \dots\dots\dots ^\circ\text{C} \pm \dots\dots\dots \text{K}$$

(c) Mean temperature difference achieved: $\Delta T \dots\dots\dots \text{K}$

Maximum temperature spread:

Inside tankK

Inside each compartmentK

Outside tankK

Mean temperature of tank walls $^\circ\text{C}$

Total duration of test h

Duration of continuous operation h

Power consumed in exchangers: $W_1 \dots\dots\dots \text{W}$

Power absorbed by fans: $W_2 \dots\dots\dots \text{W}$

Overall coefficient of heat transfer calculated by the formula:

$$K = \frac{W_1 + W_2}{S . \Delta T}$$

$$K = \dots\dots\dots \text{W/m}^2.\text{K}$$

MODEL No. 2 B (cont'd)

Maximum error of measurement with test used %

Remarks: ¹

.....

(To be completed only if the equipment does not have thermal appliances:)

According to the above test results, the equipment may be recognized by means of a certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than six years, with the distinguishing mark IN/IR. ²

However, this report shall be valid as a certificate of type approval within the meaning of ATP Annex 1, Appendix 1, paragraph 6 (a) only for a period of not more than six years, that is until

Done at:.....

.....

on:

Testing Officer

¹ If the tank is not parallelepipedic, specify the points at which the outside and inside temperatures were measured.

² Delete as necessary.

MODEL No. 3

Section 2

Expert field check of the insulating capacity of equipment in service in accordance with
ATP Annex 1, Appendix 2, section 5

The check was based on test report No..... dated
issued by approved testing station expert (name and address)
.....

Condition when checked:

Top

Side walls

End wall

Bottom

Doors and openings

Seals

Cleaning drainholes

Air tightness
.....

K coefficient of the equipment when new (as shown in the previous test report)
..... W/m².K

Remarks:
.....

According to the above test results the equipment may be recognized by means of a
certificate in accordance with ATP Annex 1, Appendix 3, valid for not more than three years,
with the distinguishing mark IN/IR.¹

Done at

on:
.....

Testing Officer

¹ Delete as necessary.

MODEL No. 4 A

Section 3

Determination of the efficiency of cooling appliances of refrigerated equipment using ice or dry ice by an approved testing station in accordance with ATP Annex 1, Appendix 2, sub-section 3.1, except 3.1.3 (b) and 3.1.3 (c)

Cooling appliance:

Description of cooling appliance
Nature of refrigerant
Nominal refrigerant filling capacity specified
by manufacturer kg
Actual filling of refrigerant used for test kg
Drive independent/dependent/mains-operated ¹
Cooling appliance removable/not removable ¹
Manufacturer
Type, serial number
Year of manufacture
Filling device (description, where situated;
attach drawing if necessary)
.....

Inside ventilation appliances:

Description (number of appliances, etc.)
Power of electric fans W
Delivery rate m³/h
Dimensions of ducts: cross-sectionm², lengthm
Air intake screen; description ¹

¹ Delete if not applicable.

MODEL No. 4 A (cont'd)

Automatic devices

Mean temperatures at beginning of test:

Inside °C ±K

Outside °C ±K

Dew point in test chamber °C ±K

Power of internal heating systemW

Date and time of closure of equipment's doors and other openings

Record of mean inside and outside temperatures of body and/or curve showing variation
of these temperatures with time

Remarks:
.....

According to the above test results, the equipment may be recognized by means of a
certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than
six years, with the distinguishing mark

However, this report shall be valid as a certificate of type approval within the meaning of ATP
Annex 1, Appendix 1, paragraph 6 (a) only for a period of not more than six years, that is
until

Done at:

on:

Testing Officer

MODEL No. 4 B

Section 3

Determination of the efficiency of cooling appliances of refrigerated equipment with eutectic plates by an approved testing station in accordance with ATP Annex 1, Appendix 2, sub-section 3.1, except 3.1.3 (a) and 3.1.3 (c)

Cooling appliance:

Description

Nature of eutectic solution

Nominal eutectic solution filling capacity specified
by manufacturer kg

Latent heat at freezing temperature stated by manufacturerkJ/kg at °C

Cooling appliance removable/not removable ¹

Drive independent/dependent/mains-operated ¹

Manufacturer

Type, serial number

Year of manufacture

Eutectic plates: Make Type

Dimensions and number of plates, where situated;
distance from walls (attach drawing)

.....

Total cold reserve stated by manufacturer for freezing
temperature ofkJ to °C

Inside ventilation appliances (if any):

Description

Automatic devices

¹ Delete if not applicable.

MODEL No. 4 B (cont'd)

Mechanical refrigerator (if any):

MakeTypeNo.....

Where situated

Compressor: MakeType

Type of drive

Nature of refrigerant

Condenser

Refrigerating capacity stated by the manufacturer for the specified freezing temperature and an outside temperature of + 30 °CW

Automatic devices:

Make.....Type

Defrosting (if any)

Thermostat

LP pressostat

HP pressostat

Relief valve

Others.....

Accessory devices:

Electrical heating devices of the door joint:

Capacity by linear metre of the resistor W/m

Linear length of the resistor m

Mean temperatures at beginning of test:

Inside °C ±K

Outside °C ±K

Dew point in test chamber°C ±K

MODEL No. 4 B (cont'd)

Power of internal heating system W

Date and time of closure of equipment's
doors and openings

Period of accumulation of cold h

Record of mean inside and outside temperatures of body
and/or curve showing variation of these temperatures
with time
.....

Remarks:
.....
.....

According to the above test results, the equipment may be recognized by means of a
certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than
six years, with the distinguishing mark

However, this report shall be valid as a certificate of type approval within the meaning of ATP
Annex 1, Appendix 1, paragraph 6 (a) only for a period of not more than six years, that is
until

Done at:

on:
.....

Testing Officer

MODEL No. 4 C

Section 3

Determination of the efficiency of cooling appliances of refrigerated equipment using liquefied gases by an approved testing station in accordance with ATP Annex I, Appendix 2, sub-section 3.1, except 3.1.3 (a) and 3.1.3 (b)

Cooling appliance:

Description

Drive independent/dependent/mains-operated ¹

Cooling appliance removable/not removable ¹

Manufacturer

Type, serial number

Year of manufacture

Nature of refrigerant

Nominal refrigerant filling capacity specified
by manufacturer kg

Actual filling of refrigerant used for test kg

Description of tank

Filling device (description, where situated)

Inside ventilation appliances:

Description (number, etc.)

Power of electric fans W

Delivery rate m³/h

Dimensions of ducts: cross-sectionm², lengthm

Automatic devices

¹ Delete if not applicable.

MODEL No. 4 C (cont'd)

Mean temperatures at beginning of test:

Inside°C ±K

Outside°C ±K

Dew point in test chamber°C ±K

Power of internal heating systemW

Date and time of closure of equipment's
doors and openings

Record of mean inside and outside temperatures of body and/or curve showing
variation of these temperatures with time
.....

Remarks:
.....

According to the above test results, the equipment may be recognized by means of a
certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than
six years, with the distinguishing mark

However, this report shall be valid as a certificate of type approval within the meaning of ATP
Annex 1, Appendix 1, paragraph 6 (a), only for a period of not more than six years, that is
until

Done at:

on:
.....

Testing Officer

MODEL No. 5

Section 3

Determination of the efficiency of cooling appliances of mechanically refrigerated equipment by an approved testing station in accordance with ATP Annex 1, Appendix 2, sub-section 3.2

Mechanical refrigerating appliances:

Drive independent/dependent/mains-operated ¹

Mechanical refrigerating appliances removable/not removable ¹

Manufacturer

Type, serial number

Year of manufacture

Nature of refrigerant and filling capacity

Effective refrigerating capacity stated by manufacturer for an outside temperature of + 30 °C and an inside temperature of:

0 °C W

-10 °C W

-20 °C W

Compressor:

Make Type

Drive: electric/thermal/hydraulic ¹

Description

Make Type power kW at rpm

Condenser and evaporator

Motor element of fan(s): make type number

power kW at rpm

¹ Delete if not applicable.

MODEL No. 5 (cont'd)

Inside ventilation appliances:

Description (number of appliances, etc.)
Power of electric fans W
Delivery rate m³/h
Dimensions of ducts: cross-section m², length m

Automatic devices:

Make Type
Defrosting (if any)
Thermostat
LP pressostat
HP pressostat
Relief valve
Others.....

Mean temperatures at beginning of test:

Inside temperature °C ± K
Outside temperature °C ± K
Dew point in test chamber °C ± K

Power of internal heating system W

Date and time of closure of equipment's
doors and other openings

Record of mean inside and outside temperatures of body and/or curve showing variation
of these temperatures with time
.....

MODEL No. 5 (cont'd)

Time between beginning of test and attainment
of prescribed mean inside temperature of body h

Remarks:

.....

According to the above test results, the equipment may be recognized by means of a
certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than
six years, with the distinguishing mark

However, this report shall be valid as a certificate of type approval within the meaning of ATP
Annex 1, Appendix 1, paragraph 6 (a), only for a period of not more than six years, that is
until

Done at:

on:

.....

Testing Officer

MODEL No. 6

Section 3

Determination of the efficiency of heating appliances of heated equipment by an approved testing station in accordance with ATP Annex 1, Appendix 2, sub-section 3.3

Heating appliance:

Description

Drive independent/dependent/mains-operated ¹

Heating appliance removable/not removable ¹

Manufacturer

Type, serial number

Year of manufacture

Where situated

Overall area of heat exchange surfaces m²

Effective power rating as specified by manufacturer kW

Inside ventilation appliances:

Description (number of appliances, etc.)

Power of electric fans..... W

Delivery rate m³/h

Dimensions of ducts: cross-section m², length m

Mean temperatures at beginning of test:

Inside temperature °C ± K

Outside temperature °C ± K

Date and time of closure of equipment's

doors and other openings

¹ Delete if not applicable.

MODEL No. 6 (cont'd)

Record of mean inside and outside temperatures of body and/or
curve showing variation of these temperatures with time

.....

Time between beginning of test and attainment of prescribed
mean inside temperature of body h

Where applicable, mean heating output during test to
maintain prescribed temperature difference ² between
inside and outside of body W

Remarks:

.....

According to the above test results, the equipment may be recognized by means of a
certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than
six years, with the distinguishing mark

However, this report shall be valid as a certificate of type approval within the meaning of ATP
Annex 1, Appendix 1, paragraph 6 (a), only for a period of not more than six years, that is
until

Done at:

on: Testing Officer

² Increased by 35% for new equipment.

MODEL No. 7

Section 3

Expert field check of the efficiency of cooling appliances of refrigerated equipment in service
in accordance with ATP Annex 1, Appendix 2, sub-section 6.1

The check was conducted on the basis of report No
dated, issued by approved
testing station/expert (name, address)
.....

Cooling appliance:

Description
Manufacturer
Type, serial number
Year of manufacture
Nature of refrigerant
Nominal refrigerant filling capacity
specified by manufacturer kg
Actual filling of refrigerant used for test kg
Filling device (description, where situated)

Inside ventilation appliances:

Description (number of appliances, etc.)
Power of electric fans W
Delivery rate m³/h
Dimensions of ducts: cross-section m², length m
Condition of cooling appliance and ventilation appliances
.....
.....
Inside temperature attained °C
At an outside temperature of °C

MODEL No. 7 (cont'd)

Inside temperature of the equipment before the refrigerating appliance is started °C

Total running time of the refrigerating unit h

Time between beginning of test and attainment of prescribed
mean inside temperature of body h

Check on operation of thermostat

For refrigerated equipment with eutectic plates:

Period of operation of the cooling appliance for freezing
of the eutectic solution h

Period during which inside air temperature is maintained
after the appliance is switched off h

Remarks:
.....

According to the above test results, the equipment may be recognized by means of a
certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than
three years, with the distinguishing mark

Done at:

on:

Testing Officer

MODEL No. 8

Section 3

Expert field check of the efficiency of cooling appliances of mechanically refrigerated equipment in service in accordance with ATP Annex 1, Appendix 2, sub-section 6.2

The check was conducted on the basis of report No..... dated
issued by approved testing station/expert (name, address)

Mechanical refrigerating appliances:

Manufacturer

Type, serial number

Year of manufacture

Description

Effective refrigerating capacity specified by manufacturer for an outside temperature of +30 °C and an inside temperature of

0 °C W

-10 °C W

-20 °C W

Nature of refrigerant and filling capacity kg

Inside ventilation appliances:

Description (number of appliances, etc.)

Power of electric fans W

Delivery rate m³/h

Dimensions of ducts: cross-section m², length m

Condition of mechanical refrigerating appliance and inside ventilation appliances

MODEL No. 8 (cont'd)

Inside temperature attained °C
At an outside temperature of °C
and with a relative running time of %
Running time h
Check on operation of thermostat
Remarks:
.....

According to the above test results, the equipment may be recognized by means of a certificate in accordance with ATP Annex 1, Appendix 3 valid for a period of not more than three years, with the distinguishing mark

Done at:

on:

Testing Officer

MODEL No. 9

Section 3

Expert field check of the efficiency of heating appliances of heated equipment in service in
accordance with ATP Annex 1, Appendix 2, sub-section 6.3

The check was conducted on the basis of report No. dated
issued by approved testing station/expert (name, address)
.....

Mode of heating:

Description
Manufacturer
Type, serial number
Year of manufacture
Where situated
Overall area of heat exchange surfaces m²
Effective power rating as specified by manufacturer kW

Inside ventilation appliances:

Description (number of appliances, etc.)
Power of electric fans W
Delivery rate m³/h

Dimensions of ducts: cross-section m², length m

Condition of heating appliance and inside ventilation appliances
.....
.....

Inside temperature attained °C

MODEL No. 9 (cont'd)

At an outside temperature of °C

and with a relative running time of %

Running time h

Check on operation of thermostat

Remarks:

.....

According to the above test results, the equipment may be recognized by means of a certificate in accordance with ATP Annex 1, Appendix 3, valid for a period of not more than three years, with the distinguishing mark

Done at:

on:

.....

Testing Officer

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 section 4 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 No:

Category ¹

Self-contained/not self-contained

Removable/not removable

Single unit/assembled components

Description:

.....

.....

Compressor: Make: Type:

Number of cylinders: Cubic capacity:

Nominal speed of rotation: rpm

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

Compressor drive motor: ^{1, 2}

Electrical: Make: Type:

Power:kW at rpm

Supply voltageV Supply frequencyHz

Automatic device:

MODEL No.10 (cont'd)

Results of measurements and refrigerating performance

(Mean temperature of the air to the inlet(s) of the refrigeration unit °C)

[illegible]

MODEL No. 10 (cont'd)

(b) Test method and results:

Test method ¹: heat balance method/enthalpy difference method

In a calorimeter box of mean surface area = m²
measured value of the U-coefficient of a box fitted with a refrigeration unit: W/°C,
at a mean wall temperature of °C.

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

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:

U-coefficient of the body
refrigerating capacity of the unit

(c) Checks

Temperature regulator: Setting Differential °C

Functioning of the defrosting device ¹: satisfactory/unsatisfactory

Air flow volume leaving the evaporator: value measured m³/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

(d) Remarks

.....
.....
.....

Done at:

On:
.....

Testing Officer

¹ Delete where applicable.

² Value indicated by the manufacturer.

³ Where applicable.

⁴ Enthalpy difference method only.

Annex 1, Appendix 3

- A. **Model form of certificate of compliance of the equipment, as prescribed in Annex 1, Appendix 1, paragraph 3**

**FORM OF CERTIFICATE FOR INSULATED, REFRIGERATED, MECHANICALLY
REFRIGERATED OR HEATED EQUIPMENT USED FOR THE INTERNATIONAL
CARRIAGE OF PERISHABLE FOODSTUFFS BY LAND**

2	XXXXXXXXXX ³	/ EQUIPMENT ¹				
		INSULATED	REFRIGERATED	MECHANICALLY REFRIGERATED	HEATED	MULTI- TEMPERATURE ⁴

/ CERTIFICATE ⁵		ATP XXXXXXXXXX																
/ Issued pursuant to the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP)																		
1.	/ Issuing authority: XX	XX																
2.	/ Equipment ⁶ : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX																	
3.	/ Registration number ⁷ : XXXXXXXXXXXXX	/ Vehicle identification number ⁸ : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX																
	/ allotted by: XXXXXXXXXXXXXXXXXXXXXXX																	
4.	Insulated box serial number: XXXXXXXXXXXXXXXXXXXXXXX	Owner or operated by: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX																
5.	/ Submitted by: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX																	
6.	/ Is approved as: ⁷ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX																	
6.1	/ With one or more thermal appliances which is (are) ¹ :																	
6.1.1	/ Independent; ⁸ MARK, MODEL, FUEL, SERIAL NUMBER/YEAR OF MANUFACTURE (If any)																	
6.1.2	/ Not independent; ⁸ MARK, MODEL, FUEL, SERIAL NUMBER/YEAR OF MANUFACTURE (If any)																	
6.1.3	/ Removable;																	
6.1.4	/ Not removable.																	
7.	/ Basis of issue of certificate:																	
7.1	/ This certificate is issued on the basis of: ¹																	
7.1.1	/ Tests of the equipment;																	
7.1.2	/ conformity with a reference item of equipment;																	
7.1.3	/ A periodic inspection.																	
7.2	/ Specify:																	
7.2.1	/ The testing station: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX																	
7.2.2	/ The nature of the tests: ⁹ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX																	
7.2.3	/ The number(s) of the report(s): XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX																	
7.2.4	NNNNNNNN (TESTING STATION) YYYY/MM/DD and NNNNNNNN (TESTING STATION) YYYY/MM/DD																	
7.2.5	/ The K coefficient: 0.nn W/m ² K																	
	/ The effective refrigerating capacity at an outside temperature of 30 °C and an inside temperature of: ¹⁰																	
	11	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Nominal capacity</td> <td style="width: 15%;">Evap.1</td> <td style="width: 15%;">Evap.2</td> <td style="width: 15%;">Evap.3</td> </tr> <tr> <td>°C</td> <td>xxxxx W</td> <td>xxxxx W</td> <td>xxxxx W</td> </tr> <tr> <td>°C</td> <td>xxxxx W</td> <td>xxxxx W</td> <td>xxxxx W</td> </tr> <tr> <td>°C</td> <td>xxxxx W</td> <td>xxxxx W</td> <td>xxxxx W</td> </tr> </table>	Nominal capacity	Evap.1	Evap.2	Evap.3	°C	xxxxx W	xxxxx W	xxxxx W	°C	xxxxx W	xxxxx W	xxxxx W	°C	xxxxx W	xxxxx W	xxxxx W
Nominal capacity	Evap.1	Evap.2	Evap.3															
°C	xxxxx W	xxxxx W	xxxxx W															
°C	xxxxx W	xxxxx W	xxxxx W															
°C	xxxxx W	xxxxx W	xxxxx W															
7.3	/ Number of openings and special equipment X																	
7.3.1	/ Number of doors: X	/ rear door X / side door(s) X																
7.3.2	/ Number of vents: X																	
7.3.3	/ Hanging meat equipment: X																	
7.4	/ Others																	
8.	/ This certificate is valid until: MONTH & YEAR																	
8.1	/ Provided that:																	
8.1.1	/ The insulated body and,																	
8.1.2	where applicable, the thermal appliance is maintained in good condition; and																	
8.1.2	/ No material alteration is made to the thermal appliances;																	
9.	/ Done by: XXXXXXXXXXXXXXXXXXXXXXX	CERTIFIED DUPLICATE¹² Do not print this stamp on the original Certificate (Officer name) (Competent or authorized authority)																
	XXXXXXXXXXXXXXXXXXXXXXXXXXXX																	
	XXXXXXXXXXXXXXXXXXXXXXXXXXXX																	
10.	/ On: YYYY/MM/DD																	
LOGOTYPE¹³ Security stamp (relief, ultraviolet, etc.) Original document		/ The competent authority XXXXXXXXXXXXXXXXXXXXXXX / Responsible for the ATP (Officer name)																

^a / Not mandatory

These footnotes shall not be printed on the certificate itself

The areas in grey shall be replaced by the translation in the language of the country issuing the ATP Certificate.

¹ *Strike out what does not apply.*

² *Distinguishing sign of the country, as used in international road traffic.*

³ *The number (figures, letters, etc.) indicating the authority issuing the certificate and the approval reference.*

⁴ *The test procedure is not yet determined within the ATP Agreement. Multi-temperature equipment is insulated equipment with two or more compartments for different temperatures in each compartment.*

⁵ *The blank certificate shall be printed in the language of the issuing country and in English, French or Russian; the various items shall be numbered as in the above model.*

⁶ *State type (wagon, lorry, trailer, semi-trailer, container, etc.); in the case of tank equipment for carriage of liquid foodstuffs, add the word "tank".*

⁷ *Enter here one or more of the descriptions listed in Appendix 4 of Annex 1, together with the corresponding distinguishing mark or marks.*

⁸ *Write the mark, model, fuel, serial number and year of manufacture of the equipment.*

⁹ *Measurement of the overall coefficient of heat transfer, determination of the efficiency of cooling appliances, etc.*

¹⁰ *Where determined in conformity with the provisions of Appendix 2, paragraph 3.2.7, of this Annex.*

¹¹ *The effective cooling capacity of each evaporator depends on the number of evaporators fixed at the condensing unit.*

¹² *In case of loss, a new Certificate can be provided or, instead of it, a photocopy of the ATP Certificate bearing a special stamp with "CERTIFIED DUPLICATE" (in red ink) and the name of the certifying officer, his signature, and the name of the competent authority or authorized body.*

¹³ *Security stamp (relief, fluorescent, ultraviolet, or other safety mark that certifies the origin of the certificate).*

¹⁴ *If applicable, mention the way the power for issuing ATP Certificates is delegated.*

B. Certification plate of compliance of the equipment, as provided for in Annex 1, Appendix 1, paragraph 3

1. The certification plate shall be affixed to the equipment permanently and in a clearly visible place adjacent to any other approval plate issued for official purposes. The plate, conforming to the model reproduced below, shall take the form of a rectangular, corrosion-resistant and fire-resistant plate measuring at least 160 mm by 100 mm. The following particulars shall be indicated legibly and indelibly on the plate in at least the English or French or Russian language:
 - (a) The Latin letters "ATP" followed by the words "APPROVED FOR TRANSPORT OF PERISHABLE FOODSTUFFS";
 - (b) "APPROVAL NUMBER" followed by the distinguishing sign (in international road traffic) of the State in which the approval was granted and the number (figures, letters, etc.) of the approval reference;
 - (c) "EQUIPMENT NUMBER" followed by the individual number assigned to identify the particular item of equipment (which may be the manufacturer's number);
 - (d) "ATP MARK" followed by the distinguishing mark prescribed in annex I, appendix 4, corresponding to the class and the category of the equipment;
 - (e) "VALID UNTIL" followed by the date (month and year) when the approval of the unit of equipment expires. If the approval is renewed following a test or inspection, the subsequent date of expiry may be added on the same line.
2. The letters "ATP" and the letters of the distinguishing mark should be approximately 20 mm high. Other letters and figures should not be less than 5 mm high.



Annex I, Appendix 4

DISTINGUISHING MARKS TO BE AFFIXED TO SPECIAL EQUIPMENT

The distinguishing marks prescribed in appendix 1, paragraph 4 to this annex shall consist of capital Latin letters in dark blue on a white ground. The height of the letters shall be at least 100 mm for the classification marks and at least 50 mm for the expiry dates. For special equipment, such as a laden vehicle with maximum mass not exceeding 3.5 t, the height of the classification marks could likewise be 50 mm and at least 25 mm for the expiry dates.

The classification and expiry marks shall at least be affixed externally on both sides in the upper corners near the front.

The marks shall be as follows:

<u>Equipment</u>	<u>Distinguishing mark</u>
Normally insulated equipment	IN
Heavily insulated equipment	IR
Class A refrigerated equipment with normal insulation	RNA
Class A refrigerated equipment with heavy insulation	RRA
Class B refrigerated equipment with heavy insulation	RRB
Class C refrigerated equipment with heavy insulation	RRC
Class D refrigerated equipment with normal insulation	RND
Class D refrigerated equipment with heavy insulation	RRD
Class A mechanically refrigerated equipment with normal insulation	FNA
Class A mechanically refrigerated equipment with heavy insulation	FRA
Class B mechanically refrigerated equipment with heavy insulation	FRB
Class C mechanically refrigerated equipment with heavy insulation	FRC
Class D mechanically refrigerated equipment with normal insulation	FND
Class D mechanically refrigerated equipment with heavy insulation	FRD

<u>Equipment</u>	<u>Distinguishing</u> <u>mark</u>
Class E mechanically refrigerated equipment with heavy insulation	FRE
Class F mechanically refrigerated equipment with heavy insulation	FRF
Class A heated equipment with normal insulation	CNA
Class A heated equipment with heavy insulation	CRA
Class B heated equipment with heavy insulation	CRB

If the equipment is fitted with a removable or non-independent thermal appliance and if special conditions exist for the use of the thermal appliance, the distinguishing mark or marks shall be supplemented by the letter X in the following cases:

1. FOR REFRIGERATED EQUIPMENT:

Where the eutectic plates have to be placed in another chamber for freezing;

2. FOR MECHANICALLY REFRIGERATED EQUIPMENT:

2.1 Where the compressor is powered by the vehicle engine;

2.2 Where the refrigeration unit itself or a part is removable, which would prevent its functioning.

The date (month, year) entered under section A, item 8 in appendix 3 of this annex as the date of expiry of the certificate issued in respect of the equipment shall be quoted under the distinguishing mark or marks aforesaid.

Model:

FRC 02 - 2011

02 = month (February)) of expiry of the
2011= year) certificate

Annex 2

SELECTION OF EQUIPMENT AND TEMPERATURE CONDITIONS TO BE OBSERVED FOR THE CARRIAGE OF QUICK (DEEP)-FROZEN AND FROZEN FOODSTUFFS

1. For the carriage of the following quick (deep)-frozen and frozen foodstuffs, the transport equipment has to be selected and used in such a way that during carriage the highest temperature of the foodstuffs at any point of the load does not exceed the indicated temperature.

By that means the equipment used for the transport of quick-frozen foodstuffs shall be fitted with the device referred to in appendix 1 to this annex. If however one should proceed to the verification of the temperature of the foodstuff, this shall be done according to the procedure laid down in appendix 2 to this annex.

2. Accordingly, the temperature of the foodstuffs at any point in the load must be at or below the indicated value on loading, during carriage and on unloading.
3. Where it is necessary to open the equipment, e.g. to carry out inspections, it is essential to ensure that the foodstuffs are not exposed to procedures or conditions contrary to the objectives of this annex and those of the International Convention on the Harmonization of Frontier Controls of Goods.
4. During certain operations, such as defrosting the evaporator of mechanically refrigerated equipment, a brief rise of the temperature of the surface of the foodstuffs of not more than 3 °C in a part of the load, e.g. near the evaporator, above the appropriate temperature may be permitted.

Ice cream -20 °C

Frozen or quick (deep)-frozen fish, fish products,
molluscs and crustaceans and all other

quick (deep)-frozen foodstuffs -18 °C

All frozen foodstuffs (except butter) -12 °C

Butter -10 °C

Deep-frozen and frozen foodstuffs mentioned below to be
immediately further processed at destination: ¹

Butter

Concentrated fruit juice

¹ The deep-frozen and frozen foodstuffs listed, when intended for immediate further processing at destination, may be permitted gradually to rise in temperature during carriage so as to arrive at their destination at temperatures no higher than those specified by the sender and indicated in the transport contract. This temperature should not be higher than the maximum temperature authorized for the same foodstuff when refrigerated as mentioned in annex 3. The transport document shall state the name of the foodstuff, whether it is deep-frozen or frozen and that it is immediately to be further processed at destination. This carriage shall be undertaken with ATP-approved equipment without use of a thermal appliance to increase the temperature of the foodstuffs.

Annex 2, Appendix 1

**MONITORING OF AIR TEMPERATURES FOR TRANSPORT OF
PERISHABLE FOODSTUFFS QUICK-FROZEN**

The transport equipment must be fitted with a suitable recording instrument to monitor, at frequent and regular intervals, the air temperatures to which quick-frozen foodstuffs intended for human consumption are subjected.

The measuring instrument must be approved by an accredited body and the documentation must be available for the approval of the competent ATP authorities.

The measuring instruments must comply with standards EN 12830 (Temperature recorders for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream - Tests, performance, suitability) and EN 13486 (Temperature recorders and thermometers for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream - Periodic verification).

Temperature recordings obtained in this manner must be dated and stored by the operator for at least one year or longer, according to the nature of the food.

Measuring instruments shall comply with the provisions of this Appendix one year after the date of entry into force of the above provision. Measuring instruments already installed, but which do not conform to the above standard, before this date, can continue to be used until 31 December 2009.

Annex 2, Appendix 2

PROCEDURE FOR THE SAMPLING AND MEASUREMENT OF TEMPERATURE FOR CARRIAGE OF CHILLED, FROZEN AND QUICK-FROZEN PERISHABLE FOODSTUFFS

A. GENERAL CONSIDERATIONS

1. Inspection and measurement of temperatures stipulated in annexes 2 and 3 should be carried out so that the foodstuffs are not exposed to conditions detrimental to the safety or quality of the foodstuffs. Measuring of food temperatures should be carried out in a refrigerated environment, and with the minimum delays and minimum disruption of transport operations.
2. Inspection and measurement procedures, as referred to in paragraph 1, shall preferably be carried out at the point of loading or unloading. These procedures should not normally be carried out during transport, unless serious doubt exists about the conformity of the temperatures of the foodstuffs stipulated in annexes 2 and 3.
3. Where possible, the inspection should take account of information provided by temperature monitoring devices during the journey before selecting those loads of perishable foodstuffs for sampling and measurement procedures. Progression to temperature measurement of the food should only be undertaken where there is reasonable doubt of the temperature control during carriage.
4. Where loads have been selected, a non-destructive measurement (between-case or between-pack) should at first be used. Only where the results of the non-destructive measurement do not conform with the temperatures laid down in annexes 2 or 3 (taking into account allowable tolerances), are destructive measurements to be carried out. Where consignments or cases have been opened for inspection, but no further action has been taken, they should be resealed giving the time, date, place of inspection, and the official stamp of the inspection authority.

B. SAMPLING

5. The types of package selected for temperature measurement shall be such that their temperature is representative of the warmest point of the consignment.
6. Where it is necessary to select samples during transport whilst the consignment is loaded, two samples should be taken from the top and bottom of the consignment adjacent to the opening edge of each door or pair of doors.
7. Where samples are taken during unloading of the consignment, four samples should be chosen from any of the following locations:
 - top and bottom of the consignment adjacent to the opening edge of the doors;
 - top rear corners of the consignment (i.e. furthest away from the refrigeration unit);
 - centre of the consignment;
 - centre of the front surface of the consignment (i.e. closest to the refrigeration unit);

- top or bottom corners of the front surface of the consignment (i.e. closest to the return air intake of the refrigeration unit).
- 8. In the case of chilled foods in annex 3, samples should also be taken from the coldest location to ensure that freezing has not occurred during transportation.

C. TEMPERATURE MEASUREMENT OF PERISHABLE FOODSTUFFS

- 9. The temperature measuring probe should be precooled to as close to the product temperature as possible before measurement.

I. Chilled foods

- 10. Non-destructive measurement. Measurement between-case or between-pack should be made with a probe with a flat head, which gives a good surface contact, low thermal mass, and high thermal conductivity. When placing the probe between the cases or food packs, there should be sufficient pressure to give a good thermal contact, and sufficient length of probe inserted to minimize conductivity errors.
- 11. Destructive measurement. A probe with a rigid, robust stem and sharpened point should be used, made from a material which is easy to clean and disinfect. The probe should be inserted into the centre of the food pack, and the temperature noted when a steady reading is reached.

II. Frozen and quick-frozen foods

- 12. Non-destructive measurement. Same as paragraph 10.
- 13. Destructive measurement. Temperature probes are not designed to penetrate frozen foods. Therefore it is necessary to make a hole in the product in which to insert the probe. The hole is made by a precooled product penetration instrument, which is a sharp pointed metallic instrument such as an ice punch, hand drill or an auger. The diameter of the hole should provide a close fit to that of the probe. The depth to which the probe is inserted will depend on the type of product:
 - (i) Where product dimensions allow, insert the probe to a depth of 2.5 cm from the surface of the product;
 - (ii) Where (i) is not possible because of the size of the product, the probe should be inserted to a minimum depth from the surface of 3 to 4 times the diameter of the probe;
 - (iii) It is not possible or practical to make a hole in certain foods because of their size or composition e.g. diced vegetables. In these cases, the internal temperature of the food package should be determined by insertion of a suitable sharp-stemmed probe to the centre of the pack to measure the temperature in contact with the food.

After inserting the probe, the temperature should be read when it has reached a steady value.

D. GENERAL SPECIFICATIONS FOR THE MEASURING SYSTEM

- 14. The measuring system (probe and read-out) used in determining temperature shall meet the following specifications:
 - (i) the response time should achieve 90% of the difference between the initial and final reading within three minutes;

- (ii) ¹ the system must have an accuracy of ± 0.5 °C within the measurement range - 20 °C to + 30 °C;
- (iii) ¹ the measuring accuracy must not change by more than 0.3 °C during operation in the ambient temperature range – 20 °C to + 30 °C;
- (iv) the display resolution of the instrument should be 0.1 °C;
- (v) ¹ the accuracy of the system should be checked at regular intervals;
- (vi) the system should have a current certificate of calibration from an approved institution;
- (vii) the electrical components of the system should be protected against undesirable effects due to condensation of moisture;
- (viii) the system should be robust and shock proof.

E. ALLOWABLE TOLERANCES IN THE MEASUREMENT OF TEMPERATURE

15. Certain tolerances should be allowed in the interpretation of temperature measurements:

- (i) operational - in the case of frozen and quick-frozen foods, a brief rise of up to 3 °C on the temperature permitted in annex 2 is allowed for the surface temperature of the food;
- (ii) methodology - non-destructive measurement can give up to a maximum of 2 °C difference in the reading compared to the true product temperature measurement, especially with the thickness of cardboard in case packaging. This tolerance does not apply to the destructive measurement of temperature.

¹ *The procedure will be defined.*

Annex 3

**SELECTION OF EQUIPMENT AND TEMPERATURE
CONDITIONS TO BE OBSERVED FOR THE CARRIAGE
OF CHILLED FOODSTUFFS**

1. For the carriage of the following chilled foodstuffs, the transport equipment has to be selected and used in such a way that during carriage the highest temperature of the foodstuffs at any point of the load does not exceed the indicated temperature. If, however the verification of the temperature of the foodstuff is carried out, it shall be done according to the procedure laid down in Appendix 2 to Annex 2 to this Agreement.
2. Accordingly, the temperature of the foodstuffs at any point in the load must not exceed the temperature as indicated below on loading, during carriage and on unloading.
3. Where it is necessary to open the equipment, e.g. to carry out inspections, it is essential to ensure that the foodstuffs are not exposed to procedures or conditions contrary to the objectives of this Annex and those of the International Convention on the Harmonization of Frontier Controls of Goods.
4. The temperature control of foodstuffs specified in this Annex should be such as not to cause freezing at any point of the load.

	<u>Maximum temperature</u>
I. Raw milk ¹	+ 6 °C
II. Red meat ² and large game (other than red offal)	+ 7 °C
III. Meat products, ³ pasteurized milk, fresh dairy products (yoghurt, kefir, cream and fresh cheese ⁴), ready cooked foodstuffs (meat, fish, vegetables), ready to eat prepared raw vegetables and vegetable products ⁵ and fish products ³ not listed below	either at + 6 °C or at temperature indicated on the label and/or on the transport documents
IV. Game (other than large game), poultry ² and rabbits	+ 4 °C
V. Red offal ²	+ 3 °C
VI. Minced meat ²	either at +2 °C or at temperature indicated on the label and/or on the transport documents
VII. Untreated fish, molluscs and crustaceans ⁶	on melting ice or at temperature of melting ice

¹ When milk is collected from the farm for immediate processing, the temperature may rise during carriage to +10 °C.

² Any preparations thereof.

³ Except for products fully treated by salting, smoking, drying or sterilization.

⁴ "Fresh cheese" means a non-ripened (non-matured) cheese which is ready for consumption shortly after manufacturing and which has a limited conservation period

⁵ Raw vegetables which have been diced, sliced or otherwise size reduced, but excluding those which have only been washed, peeled or simply cut in half.

⁶ Except for live fish, live molluscs and live crustaceans.

EKONOMSKA KOMISIJA ZA EVROPU
Komitet za unutrašnji transport

ATP

sa izmenama koje važe od 2. januara 2011.

Sporazum o međunarodnom prevozu lakokvarljivih
namirnica i specijalnim sredstvima za njihov prevoz (ATP)

ORGANIZACIJA UJEDINJENIH NACIJA
Njujork i Ženeva, 2010.

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PUBLIKACIJA ORGANIZACIJE UJEDINJENIH NACIJA

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PREDGOVOR

Sporazum o međunarodnom prevozu lakokvarljivih namirnica i specijalnim sredstvima za njihov prevoz, sačinjen u Ženevi 1. septembra 1970. godine, stupio je na snagu 21. novembra 1976. godine.

Sporazum i njegovi prilozi su redovno menjani i osavremenjivani od kada su stupili na snagu od strane Radne grupe za transport lakokvarljivih namirnica (WP.11) Komiteta za unutrašnji transport Ekonomske komisije za Evropu.

Teritorijalna primenljivost

ATP je sporazum između država i ne postoji globalni organ zadužen za sprovođenje sporazuma. U praksi, kontrole na putevima obavljaju strane ugovornice, a neslaganje tada može dovesti do zakonskih postupaka nacionalnih vlasti protiv prekršilaca u skladu sa njihovim domaćim zakonskim propisima. Sam ATP ne propisuje nikakve kazne. U vreme publikovanja, te strane ugovornice su Azerbejdžan, Albanija, Andora, Austrija, Belgija, Belorusija, Bivša Jugoslovenska Republika Makedonija, Bosna i Hercegovina, Bugarska, Gruzija, Grčka, Danska, Estonija, Irska, Italija, Kazahstan, Letonija, Litvanija, Luksemburg, Mađarska, Maroko, Moldavija, Monako, Nemačka, Norveška, Poljska, Portugal, Rumunija, Ruska Federacija, Sjedinjene Američke Države, Slovačka, Slovenija, Srbija, Tunis, Uzbekistan, Ujedinjeno Kraljevstvo, Ukrajina, Finska, Francuska, Holandija, Hrvatska, Crna Gora, Češka Republika, Švedska i Španija.

ATP se primenjuje na transportne aktivnosti koje se obavljaju na teritorijama najmanje dve gorepomenute strane ugovornice. Pored toga, brojne su države koje su prihvatile ATP kao osnovu za njihove nacionalne propise.

Dodatne praktične informacije

U slučaju bilo kakve nedoumice u vezi sa primenom ATP-a potrebno je obratiti se relevantnoj kompetentnoj organizaciji. Dodatne informacije mogu se takođe naći na internet prezentaciji Transportnog sektora UNECE, i to na sledećoj vezi:

http://www.unece.org/trans/main/wp11/atp.html

Te informacije, koje se stalno dopunjuju, odnose se na:

- Status ATP-a;
- Preliminarne odredbe (npr. nove strane ugovornice, amandmani ili ispravke zvaničnog teksta);
- Publikovane detalje (ispravke, publikacije novih amandmana);
- Spisak i detaljne informacije o kompetentnim organizacijama i ATP ispitnim stanicama.

Sledeći tekst sadrži sam Sporazum i njegove priloge sa poslednjim izmenama koje stupaju na snagu 2. januara 2011. godine.

SADRŽAJ

SPORAZUM O MEĐUNARODNOM PREVOZU LAKOKVARLJIVIH NAMIRNICA I SPECIJALNIM SREDSTVIMA ZA NJIHOV PREVOZ	83
---	-----------

Prilog br. 1

DEFINICIJE I NORME SPECIJALNIH SREDSTAVA ZA PREVOZ LAKOKVARLJIVIH NAMIRNICA	90
1. Izotermičko transportno sredstvo	90
2. Rashladno transportno sredstvo	90
3. Transportno sredstvo-hladnjača	90
4. Transportno sredstvo za zagrevanje	91

Prilog br. 1, Dodatak br. 1

Odredbe o kontroli saobraznosti normama za izotermička, rashladna, transportna sredstva-hladnjače i transportna sredstva za zagrevanje	92
---	----

Prilog br. 1, Dodatak br. 2

Metode i postupci za merenje i kontrolu izotermije i efikasnosti rashladnih ili grejnih uređaja specijalnih sredstava za prevoz lakovarljivih namirnica	95
1. Definicije i opšte odredbe	95
2. Izotermija transportnog sredstva	96
3. Efektivnost toplotnih uređaja transportnih sredstava	98
4. Postupak za merenje efektivne rashladne snage W_o uređaja kada u isparivaču nema smrzavanja	101
5. Provera izotermije transportnog sredstva u upotrebi	104
6. Provera efektivnosti toplotnih uređaja transportnih sredstava u upotrebi	105
7. Izveštaji o ispitivanju	107

Modeli izveštaja o ispitivanju

MODEL Br. 1 A	108
MODEL Br. 1 B	110
MODEL Br. 2 A	112
MODEL Br. 2 B	114
MODEL Br. 3	116
MODEL Br. 4 A	117
MODEL Br. 4 B	119
MODEL Br. 4 V	121
MODEL Br. 5	123
MODEL Br. 6	125

MODEL Br. 7	127
MODEL Br. 8	129
MODEL Br. 9	130
MODEL Br. 10	131

Prilog br. 1, Dodatak br. 3

A. Model obrasca certifikata o saobraznosti transportnog sredstva propisanog u tački 3. Dodatka br. 1 Priloga br. 1	135
B. Certifikaciona pločica o saobraznosti transportnog sredstva, propisana u tački 3. Dodatka br. 1 Priloga br. 1	138

Prilog br. 1, Dodatak br. 4

Oznake za raspoznavanje koje treba staviti na specijalna transportna sredstva	139
---	-----

Prilog br. 2

IZBOR TRANSPORTNIH SREDSTAVA I TEMPERATURNIH USLOVA ZA PREVOZ DUBOKO SMRZNUTIH I SMRZNUTIH NAMIRNICA	141
--	-----

Prilog br. 2, Dodatak br. 1

Praćenje temperature vazduha kod transporta duboko smrznutih lakokvarljivih namirnica	142
---	-----

Prilog br. 2, Dodatak br. 2

Postupak za uzorkovanje i merenje temperature kod prevoza rashlađenih, smrznutih i duboko smrznutih lakokvarljivih namirnica	143
--	-----

Prilog br. 3

IZBOR TRANSPORTNIH SREDSTAVA I TEMPERATURNIH USLOVA ZA PREVOZ RASHLAĐENIH NAMIRNICA	146
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SPORAZUM O MEĐUNARODNOM PREVOZU LAKOKVARLJIVIH NAMIRNICA I SPECIJALNIM SREDSTVIMA ZA NJIHOV PREVOZ

STRANE UGOVORNICE

U ŽELJI da poboljšaju uslove očuvanja kvaliteta lakokvarljivih namirnica za vreme njihovog prevoza, posebno u međunarodnoj razmeni,

SMATRAJUĆI da poboljšanje ovih uslova očuvanja može doprineti razvoju trgovine lakokvarljivih namirnica,

DOGOVORILE su se o sledećem:

Glava I

SPECIJALNA TRANSPORTNA SREDSTVA

Član 1.

U međunarodnom prevozu lakokvarljivih namirnica „izotermička transportna sredstva“, „rashladna transportna sredstva“, „transportna sredstva-hladnjače“ ili „transportna sredstva za zagrevanje“ su samo ona transportna sredstva koja odgovaraju definicijama i normama iznetim u Prilogu br. 1 ovog sporazuma.

Član 2.

Strane ugovornice preduzimaju potrebne mere da obezbede da transportna sredstva pomenuta u članu 1. ovog sporazuma budu kontrolisana i ispitana prema odredbama Dodataka br. 1, 2, 3 i 4 Priloga br. 1 ovog sporazuma. Svaka strana ugovornica, u skladu sa tačkom 4. Dodatka br. 1 Priloga br. 1 priznaje sertifikat o saobraznosti koje izdaju nadležni organi neke druge strane ugovornice. Svaka strana ugovornica može priznati važnost sertifikata o saobraznosti koje, poštujući uslove predviđene u Dodacima br. 1 i 2 Priloga br. 1 ovog sporazuma, izdaju nadležni organi države koja nije strana ugovornica.

Glava II

UPOTREBA SPECIJALNIH SREDSTAVA ZA MEĐUNARODNI PREVOZ IZVESNIH LAKOKVARLJIVIH NAMIRNICA

Član 3.

1. Odredbe navedene u članu 4. ovog sporazuma primenjuju se na svaki prevoz, za račun drugoga ili za sopstveni račun, koji se isključivo obavlja, sa izuzetkom odredaba iz tačke 2. ovog člana, železnicom ili drumom ili u kombinaciji jednog i drugog:

- duboko smrznutih ili smrznutih namirnica, i
- namirnica navedenih u Prilogu br. 3 ovog sporazuma, čak iako nisu ni duboko smrznute ni smrznute,

ukoliko se mesto na kojem se roba ili transportno sredstvo koje sadrži ovu robu utovaruje u železničko ili drumsko vozilo i mesto na kojem se roba ili transportno sredstvo koje sadrži ovu robu istovaruje, nalaze u dve različite države, a ukoliko se mesto istovara robe nalazi na teritoriji jedne strane ugovornice.

U slučaju prevoza koji obuhvata jednu ili više pomorskih linija, osim onih koje se spominju u tački 2. ovog člana, svaka kopnena linija treba da se posmatra posebno.

2. Odredbe iz tačke 1. ovog člana primenjuju se i na pomorske linije kraće od 150 km, pod uslovom da je roba otpremljena transportnim sredstvima koja se upotrebljavaju za jedan ili više transporta kopnom bez pretovara i da ove pomorske linije dolaze pre ili posle jednog ili više transporta kopnom spomenutim u tački 1. ovog člana ili se obavljaju između dva takva transporta.

3. Bez obzira na odredbe iz tačaka 1. i 2. ovog člana, strane ugovornice odredbe člana 4. ovog sporazuma ne moraju da primenjuju na prevoz namirnica koje nisu namenjene za ljudsku upotrebu.

Član 4.

1. Za prevoz lakokvarljivih namirnica navedenih u Prilozima br. 2 i 3 ovog sporazuma, treba da se koriste transportna sredstva pomenuta u članu 1. ovog sporazuma, osim ako temperature koje se predviđaju za svo vreme trajanja prevoza čine ovu obavezu očigledno nepotrebnom za održavanje uslova u pogledu temperatura utvrđenih u Prilozima br. 2 i 3 ovog sporazuma. Izbor i korišćenje tih transportnih sredstava treba da omoguće da se poštuju temperaturni uslovi utvrđeni u ovim prilozima za vreme čitavog prevoza. Osim toga, treba preduzeti sve potrebne mere, naročito u pogledu temperature namirnica u trenutku utovara i smrzavanja, ponovnog smrzavanja za vreme puta ili drugih potrebnih radnji. Međutim, odredbe iz ove tačke primenjuju se samo ako nisu u suprotnosti sa međunarodnim obavezama u pogledu međunarodnog prevoza, koje proističu za strane ugovornice iz konvencija koje su na snazi u vreme stupanja na snagu ovog sporazuma ili iz konvencija kojima one budu zamenjene.

2. Ako za vreme prevoza koji podleže odredbama ovog sporazuma nisu bile poštovane odredbe iz tačke 1. ovog člana:

a) niko na teritoriji jedne strane ugovornice ne može raspolagati namirnicama posle izvršenog prevoza ukoliko nadležni organ te strane ugovornice u skladu sa zahtevima javne higijene ne izda odgovarajuće odobrenje i ukoliko se pri tome ne budu poštovali uslovi koje je eventualno postavio taj organ prilikom davanja odobrenja;

b) svaka strana ugovornica može, iz razloga javne higijene ili profilakse životinja i ako to nije nespojivo sa drugim međunarodnim obavezama o kojima je reč u poslednjoj rečenici tačke 1. ovog člana, zabraniti uvoz prehrambenih proizvoda na svoju teritoriju ili ga podvrgnuti uslovima koje ona utvrdi.

3. Prevoznici za račun drugog dužni su da poštuju odredbe iz tačke 1. ovog člana samo ukoliko budu pristali da obezbede ili pruže usluge pod uslovom da se te odredbe poštuju i ako je to poštovanje vezano za izvršenje tih usluga. Ako su druga lica, fizička ili pravna, prihvatila da obezbede ili pruže usluge pod uslovom da se poštuju odredbe ovog sporazuma, ona su dužna da obezbede to poštovanje ako je ono vezano za izvršenje usluga koje su ona prihvatila da obezbede ili pruže.

4. Za vreme prevoza koji podleže zahtevima ovog sporazuma, a čije se mesto utovara nalazi na teritoriji jedne strane ugovornice, o poštovanju odredaba iz tačke 1. ovog člana, pod rezervom odredaba tačke 3. ovog člana stara se:

- kada se radi o transportu za račun drugog, fizičko ili pravno lice, koje je prema ispravi o prevozu pošiljalac ili, ako isprava o prevozu ne postoji, fizičko ili pravno lice, koje je sa prevoznikom zaključilo ugovor o prevozu;
- u drugim slučajevima, fizičko ili pravno lice, koje vrši prevoz.

Glava III

RAZNE ODREDBE

Član 5.

Odredbe ovog sporazuma ne primenjuju se na prevoz kopnom koji se obavlja putem izotermičkih pomorskih kontejnera bez pretovara robe, pod uslovom da ovim prevozima prethodi ili se posle njih obavlja drugi prevoz morem, osim onih koji su spomenuti u članu 3. tačka 2. ovog sporazuma.

Član 6.

1. Svaka strana ugovornica preduzima sve što je potrebno da bi obezbedila poštovanje odredaba ovog sporazuma. Nadležni organi strana ugovornica redovno se obaveštavaju o opštim merama preduzetim u tu svrhu.
2. Ako neka strana ugovornica utvrdi prekršaj koji počinu neko lice koje boravi na teritoriji neke druge strane ugovornice, ili mu izrekne kaznu, uprava prve strane obaveštava upravu druge strane o prekršaju koji je konstatovan, kao i o kazni koja je izrečena.

Član 7.

Strane ugovornice zadržavaju pravo da se putem dvostranih ili višestranih sporazuma dogovore o tome da odredbe koje se primenjuju, kako na specijalna transportna sredstva, tako i na temperature na kojima neke namirnice moraju da se drže prilikom prevoza, treba da budu strože od odredaba predviđenih u ovom sporazumu, naročito zbog posebnih klimatskih uslova. Ove odredbe se primenjuju samo na međunarodni prevoz koji se vrši između strana ugovornica koje budu zaključile dvostrane ili višestranne sporazume spomenute u ovom članu. Ovi sporazumi se dostavljaju generalnom sekretaru Organizacije ujedinjenih nacija koji ih dostavlja stranama ugovornicama u ovom sporazumu koje nisu potpisale te sporazume.

Član 8.

Nepoštovanje odredaba ovog sporazuma ne ide na štetu niti postojanja niti važnosti ugovora zaključenih u cilju izvršenja prevoza.

Glava IV

ZAVRŠNE ODREDBE

Član 9.

1. Države članice Ekonomske komisije za Evropu i zemlje primljene u Komisiju kao savetodavni članovi prema tački 8. mandata ove Komisije mogu postati strane ugovornice ovog sporazuma:
 - a) ako ga potpišu;
 - b) ako ga ratifikuju pošto su ga potpisale pod rezervom ratifikacije; ili
 - c) ako mu pristupe.
2. Države koje mogu učestvovati u nekim poslovima Ekonomske komisije za Evropu u primeni tačke 11. mandata ove Komisije, mogu postati strane ugovornice ovog sporazuma ako mu pristupe posle njegovog stupanja na snagu.
3. Ovaj sporazum je otvoren za potpisivanje do 31. maja 1971. zaključno. Posle ovog datuma sporazum je otvoren za pristupanje.
4. Ratifikovanje ili pristupanje vrši se deponovanjem instrumenata kod generalnog sekretara Organizacije ujedinjenih nacija.

Član 10.

1. Svaka država može, prilikom potpisivanja ovog sporazuma bez rezerve o ratifikaciji ili prilikom deponovanja svog instrumenta o ratifikovanju ili pristupanju ili u svakom kasnijem trenutku, izjaviti putem saopštenja upućenog generalnom sekretaru Organizacije ujedinjenih nacija da se ovaj sporazum ne primenjuje na prevoze koji se vrše na svim njenim teritorijama van Evrope ili na nekoj od njih. Ako se ovo saopštenje učini posle stupanja na snagu Sporazuma za državu koja je uputila saopštenje, Sporazum prestaje da se primenjuje na teritoriju ili na teritorije navedene u saopštenju devedeset dana od dana kada generalni sekretar primi ovo saopštenje. Nove strane ugovornice koje pristupaju ATP-u od 30. aprila 1999. i primenjuju tačku 1. ovog člana

neće biti pozvane da razmatraju amandmane u skladu sa procedurom navedenom u članu 18. tačka 2.

2. Svaka država koja dâ izjavu prema tački 1. ovog člana može, u svako doba, kasnije, izjaviti, putem saopštenja upućenog generalnom sekretaru, da se Sporazum primenjuje na prevoze na teritoriji označenoj u saopštenju shodno tački 1. ovog člana, a Sporazum se primenjuje na prevoze na ovoj teritoriji sto osamdeset dana od dana kada generalni sekretar primi ovo saopštenje.

Član 11.

1. Ovaj sporazum stupa na snagu godinu dana pošto ga pet država pomenutih u tački 1. člana 9. potpišu bez rezerve o ratifikovanju ili deponuju svoj instrument o ratifikovanju ili pristupanju.

2. Za svaku državu koja ratifikuje ovaj sporazum ili mu pristupi pošto ga pet zemalja bude potpisalo bez rezerve o ratifikovanju ili bude deponovalo svoj instrument o ratifikovanju ili pristupanju, Sporazum stupa na snagu godinu dana posle deponovanja instrumenata o ratifikovanju ili pristupanju ove države.

Član 12.

1. Svaka strana ugovornica može otkazati ovaj sporazum putem saopštenja upućenog generalnom sekretaru Organizacije ujedinjenih nacija.

2. Otkazivanje ima dejstvo po isteku petnaest meseci od dana kada generalni sekretar o tome primi saopštenje.

Član 13.

Ovaj sporazum prestaje da proizvodi dejstvo ako je, posle njegovog stupanja na snagu, u bilo kojem periodu od dvanaest uzastopnih meseci broj strana ugovornica manji od pet.

Član 14.

1. Svaka država može, prilikom potpisivanja ovog sporazuma bez rezerve o ratifikovanju ili deponovanju svog instrumenta o ratifikovanju ili pristupanju, ili u svako doba, kasnije, izjaviti, putem saopštenja upućenog generalnom sekretaru Organizacije ujedinjenih nacija, da se ovaj sporazum primenjuje na sve ili neke teritorije koje ona predstavlja na međunarodnom planu. Ovaj sporazum se primenjuje na teritoriju ili na teritorije navedene u saopštenju počev od devedesetog dana od dana kada generalni sekretar primi ovo saopštenje ili, ako tog dana Sporazum još nije stupio na snagu, počev od njegovog stupanja na snagu.

2. Svaka država koja, shodno tački 1. ovog člana, dâ izjavu o primenljivosti ovog sporazuma na neku teritoriju koju ona predstavlja na međunarodnom planu, može, shodno članu 12, otkazati ovaj sporazum u pogledu te teritorije.

Član 15.

1. Svaki spor između dve ili više strana ugovornica koji se odnosi na tumačenje ili primenu ovog sporazuma rešava se, ukoliko je to moguće, putem pregovora između strana u sporu.

2. Svaki spor koji nije rešen putem pregovora podnosi se na arbitražu ako bilo koja strana ugovornica u sporu to zatraži i iznosi se, shodno tome, pred jednog ili više arbitara koje zajednički biraju strane u sporu. Ako u roku od tri meseca od dana zahteva za arbitražu strane u sporu ne mogu da se sporazumeju u pogledu izbora jednog ili više arbitara, svaka strana može tražiti od generalnog sekretara Organizacije ujedinjenih nacija da imenuje arbitra pojedinca pred koga iznosi spor na rešavanje.

3. Odluka arbitra ili arbitara imenovanih shodno prethodnom stavu, obavezna je za strane ugovornice u sporu.

Član 16.

1. Svaka država može, prilikom potpisivanja ili ratifikovanja ovog sporazuma ili prilikom pristupanja, izjaviti da smatra da je ne obavezuju tačke 2. i 3. člana 15. ovog sporazuma. Na osnovu ovih tačaka i ostale strane ugovornice nisu u obavezi prema svakoj strani ugovornici koja stavi ovakvu rezervu.
2. Svaka strana ugovornica koja stavi rezervu, shodno tački 1. ovog člana, može u svako vreme povući ovu rezervu putem saopštenja upućenog generalnom sekretaru Organizacije ujedinjenih nacija.
3. Osim rezerve predviđene u tački 1. ovog člana, nikakva druga rezerva na ovaj sporazum nije dozvoljena.

Član 17.

1. Po isteku tri godine od dana stupanja na snagu ovog sporazuma, svaka strana ugovornica može, putem saopštenja upućenog generalnom sekretaru Organizacije ujedinjenih nacija, zatražiti sazivanje konferencije radi revizije ovog sporazuma. Generalni sekretar obaveštava o tom zahtevu sve strane ugovornice i saziva konferenciju za reviziju ako mu, u roku od četiri meseca od dana kada uputi ovo saopštenje, najmanje jedna trećina strana ugovornica dostavi svoju saglasnost sa ovim zahtevom.
2. Ako se sazove konferencija u skladu sa tačkom 1. ovog člana, generalni sekretar o tome obaveštava sve strane ugovornice i poziva ih da u roku od tri meseca podnesu predloge koje žele da se na konferenciji razmotre. Generalni sekretar dostavlja svim stranama ugovornicama privremeni dnevni red konferencije, kao i tekst ovih predloga, najkasnije tri meseca pre otvaranja konferencije.
3. Generalni sekretar poziva na svaku konferenciju, koja je sazvana prema ovom članu, sve države o kojima je reč u članu 9. tačka 1. ovog sporazuma, kao i zemlje koje su postale strane ugovornice na osnovu tačke 2. ovog člana.

Član 18.

1. Svaka strana ugovornica može predložiti jednu ili više izmena ovog sporazuma. Tekst svakog predloga izmene dostavlja se generalnom sekretaru Organizacije ujedinjenih nacija koji ga upućuje svim stranama ugovornicama i o njemu obaveštava druge države o kojima je reč u tački 1. člana 9. ovog sporazuma.

Generalni sekretar takođe može predložiti amandmane na ovaj Sporazum ili njegove priloge koje mu dostavi Radna grupa za transport lakokvarljivih namirnica Komiteta za unutrašnji transport Ekonomske komisije za Evropu.

2. U roku od šest meseci, računajući od dana kada generalni sekretar dostavi predlog izmene, svaka strana ugovornica može obavestiti generalnog sekretara:
 - a) bilo da ima primedbu na predloženu izmenu,
 - b) bilo da, iako ima nameru da prihvati predlog, uslovi potrebni za to prihvatanje nisu još ispunjeni u njenoj zemlji.
3. Sve dok strana ugovornica koja je uputila obaveštenje predviđeno u gornjoj tački 2. pod b) ovog člana, ne saopšti generalnom sekretaru da usvaja izmenu, ona može, tokom devet meseci od dana isteka šestomesečnog roka predviđenog za obaveštenje, staviti primedbu na predloženu izmenu.
4. Ukoliko je neka primedba stavljena na predlog izmene pod uslovima predviđenim u tačkama 2. i 3. ovog člana, izmena se smatra neprihvaćenom i ostaje bez dejstva.

5. Ukoliko nije bilo nikakvih primedbi na predlog izmene pod uslovima predviđenim u tačkama 2. i 3. ovog člana, smatra se da je izmena prihvaćena:

a) ako nijedna strana ugovornica nije dostavila obaveštenje prema tački 2. pod b) ovog člana, po isteku šestomesečnog roka predviđenog u tački 2;

b) ako je makar jedna strana ugovornica uputila obaveštenje prema tački 2. pod b) ovog člana, onog datuma koji je bliži jednom od dva sledeća:

- datumu kada sve strane ugovornice koje su uputile takvo obaveštenje saopšte generalnom sekretaru da prihvataju predlog, s tim da se taj datum odloži do isteka šestomesečnog roka predviđenog u tački 2. ovog člana, ako su sva prihvatanja saopštena pre tog isteka;
- datumu isteka devetomesečnog roka o kome je reč u tački 3. ovog člana.

6. Svaka izmena koja se smatra prihvaćenom stupa na snagu šest meseci od dana kada se smatra prihvaćenom.

7. Generalni sekretar upućuje što je moguće pre svim stranama ugovornicama saopštenje da li je neka primedba stavljena na neki predlog izmena shodno tački 2. pod a) ovog člana i da li su mu jedna ili više strana ugovornica dostavile saopštenje u skladu sa tačkom 2. pod b) ovog člana. U slučaju da su jedna ili više strana ugovornica dostavile takvo saopštenje, on posle toga obaveštava sve strane ugovornice da li strana ili strane ugovornice koje su dostavile takvo saopštenje stavljaju primedbu na predlog izmene ili ga prihvataju.

8. Nezavisno od postupka u vezi sa izmenom, predviđenog u tačkama 1. do 6. ovog člana, prilozi i dodaci uz ovaj sporazum mogu se izmeniti na osnovu sporazuma između nadležnih organa svih strana ugovornica. Ako organ neke strane ugovornice izjavi da ga njeno nacionalno zakonodavstvo obavezuje da pre davanja svoje saglasnosti pribavi posebnu dozvolu ili odobrenje zakonodavnog tela, smatra se da je saglasnost te strane ugovornice za izmenu priloga data tek kad ta strana ugovornica izjavi generalnom sekretaru da je dobila traženu dozvolu ili odobrenje. Sporazumom između nadležnih organa može se predvideti da za vreme prelaznog perioda stari prilozi, potpuno ili delimično, ostanu na snazi uporedo sa novim priložima. Generalni sekretar određuje dan stupanja na snagu novih tekstova nastalih kao rezultat takvih izmena.

Član 19.

Osim obaveštenja predviđenih u članovima 17. i 18. ovog sporazuma, generalni sekretar Organizacije ujedinjenih nacija obaveštava zemlje o kojima je reč u tački 1. člana 9. ovog sporazuma, kao i zemlje koje su postale strane ugovornice na osnovu tačke 2. člana 9. ovog sporazuma o:

- a) potpisivanjima, ratifikovanju i pristupanju na osnovu člana 9,
- b) datumima stupanja ovog sporazuma na snagu shodno članu 11,
- v) otkazima na osnovu člana 12,
- g) ukidanju ovog sporazuma shodno članu 13,
- d) saopštenjima primljenim shodno članovima 10. i 14,
- đ) izjavama i saopštenjima primljenim shodno tačkama 1. i 2. člana 16,
- e) stupanju na snagu svake izmene shodno članu 18.

Član 20.

Posle 31. maja 1971. godine original ovog sporazuma se deponuje kod generalnog sekretara Organizacije ujedinjenih nacija, koji će overene kopije dostaviti svim državama o kojima je reč u tačkama 1. i 2. člana 9. ovog sporazuma.

U POTVRDU ČEGA SU, dole potpisani, propisno ovlašćeni u tom smislu, potpisali ovaj sporazum.

SAČINJENO prvog septembra hiljadu devetstotina sedamdesete godine u Ženevi, u po jednom primerku na engleskom, francuskom i ruskom jeziku, s tim što su sva tri teksta podjednako verodostojna.

Prilog br. 1

**DEFINICIJE I NORME SPECIJALNIH SREDSTAVA¹ ZA PREVOZ LAKOKVARLJIVIH
NAMIRNICA**

1. **Izotermičko transportno sredstvo.** Transportno sredstvo čija je zatvorena komora² sastavljena od izolacionih zidova, uključujući vrata, pod i krov, koji omogućavaju da se ograniči razmena toplote između unutrašnjosti i spoljašnjosti zatvorene komore, tako da se po ukupnom koeficijentu prenosa toplote (koeficijent K) transportno sredstvo može svrstati u jednu od dve sledeće kategorije:

I_N = Obično izotermičko transportno sredstvo – čija je karakteristika u tome što mu je koeficijent K jednak ili niži od $0,7 \text{ W/m}^2\text{K}$,

I_R = Pojačano izotermičko transportno sredstvo – čija je karakteristika u tome što mu je koeficijent K jednak ili niži od $0,4 \text{ W/m}^2\text{K}$, i čija najmanja debljina zida, ukoliko je transportno sredstvo šire od 2,5 m, iznosi 45 mm.

Definicija koeficijenta K i metod koji se primenjuje za njegovo merenje dati su u Dodatku br. 2 ovog priloga.

2. **Rashladno transportno sredstvo.** Izotermičko transportno sredstvo koje, pomoću nekog izvora hladnoće (vodení led, sa dodatkom soli ili bez nje; eutektičke ploče; suvi led, sa regulacijom sublimiranja ili bez nje; tečni gas sa regulacijom isparavanja ili bez nje, itd.), osim mehaničkog ili apsorpcionog uređaja, omogućuje da se temperatura unutar prazne komore smanji i da se potom takva održi pri srednjoj spoljnoj temperaturi od $+ 30 \text{ }^\circ\text{C}$,

na najviše	$+ 7 \text{ }^\circ\text{C}$	za klasu A,
na najviše	$- 10 \text{ }^\circ\text{C}$	za klasu B,
na najviše	$- 20 \text{ }^\circ\text{C}$	za klasu C,
na najviše	$0 \text{ }^\circ\text{C}$	za klasu D,

Ukoliko takvo transportno sredstvo ima jedan ili više odeljaka, spremnika ili rezervoara, namenjenih rashladnom agensu, ti odeljci, spremnici ili rezervoari treba da:

- budu takvi da se mogu puniti ili dopunjavati sa spoljne strane transportnog sredstva,
- imaju kapacitet u skladu sa zahtevima tačke 3.1.3 Dodatka br. 2 Priloga br. 1.

Koeficijent K rashladnog transportnog sredstva klase B i C mora obavezno biti jednak ili manji od $0,4 \text{ W/m}^2\text{K}$.

3. **Transportno sredstvo-hladnjača.** Izotermičko transportno sredstvo sa zasebnim ili za više transportnih sredstava zajedničkim rashladnim uređajem (mehanička kompresorska grupa, apsorpciona mašina, itd.) koji omogućava da se pri srednjoj spoljnoj temperaturi od $+ 30 \text{ }^\circ\text{C}$, temperatura u unutrašnjosti prazne zatvorene komore spusti i da se zatim stalno održava na sledeći način:

Za klase A, B i C na svaku praktično stalnu željenu vrednost T_i , shodno dolenavedenim normama za tri klase:

Klasa A. Transportno sredstvo-hladnjača sa takvim rashladnim uređajem da T_i može da se izabere između $+ 12 \text{ }^\circ\text{C}$ i $0 \text{ }^\circ\text{C}$ zaključno;

Klasa B. Transportno sredstvo-hladnjača sa takvim rashladnim uređajem da T_i može da se izabere između $+ 12 \text{ }^\circ\text{C}$ i $- 10 \text{ }^\circ\text{C}$ zaključno;

¹ Vagoni, kamioni, prikolice, kontejneri i druga slična transportna sredstva.

² Kad se radi o transportnom sredstvu-cisterni, izraz „komora“ u ovoj definiciji označava samu cisternu.

Klasa C. Transportno sredstvo-hladnjača sa takvim rashladnim uređajem da T_i može da se izabere između $+ 12\text{ }^{\circ}\text{C}$ i $- 20\text{ }^{\circ}\text{C}$ zaključno.

Za klase D, E i F na praktično stalnu utvrđenu vrednost shodno niže određenim normama za tri klase:

Klasa D. Transportno sredstvo-hladnjača sa takvim rashladnim uređajem da T_i bude jednako ili niže od $0\text{ }^{\circ}\text{C}$;

Klasa E. Transportno sredstvo-hladnjača sa takvim rashladnim uređajem da je T_i jednako ili niže od $- 10\text{ }^{\circ}\text{C}$;

Klasa F. Transportno sredstvo-hladnjača sa takvim rashladnim uređajem da je T_i jednako ili niže od $- 20\text{ }^{\circ}\text{C}$. Koeficijent K sredstava klasa B, C, E i F treba obavezno da bude jednak ili niži od $0,4\text{ W/m}^2\text{K}$.

4. **Transportno sredstvo za zagrevanje.** Izotermičko transportno sredstvo koje je sposobno da temperaturu unutar prazne zatvorene komore poveća i zatim stalno održava najmanje 12 časova bez dodatnog snabdevanja, na praktično stalnom nivou koji nije niži od $+ 12\text{ }^{\circ}\text{C}$, pri sledećim srednjim spoljnim temperaturama:

- Klasa A. Transportno sredstvo za zagrevanje pri srednjoj spoljnoj temperaturi od $- 10\text{ }^{\circ}\text{C}$.
- Klasa B. Transportno sredstvo za zagrevanje pri srednjoj spoljnoj temperaturi od $- 20\text{ }^{\circ}\text{C}$.

Uređaj za proizvodnju toplote treba da ima snagu u skladu sa zahtevima tačaka 3.3.1. do 3.3.5. Dodatka br. 2 Priloga br. 1.

Koeficijent K sredstava klase B treba obavezno da bude jednak ili niži od $0,4\text{ W/m}^2\text{K}$.

Prilog br. 1, Dodatak br. 1

ODREDBE O KONTROLI SAOBRAZNOSTI NORMAMA ZA IZOTERMIČKA, RASHLADNA, TRANSPORTNA SREDSTVA-HLADNJAČE I TRANSPORTNA SREDSTVA ZA ZAGREVANJE

1. Kontrola saobraznosti normama, propisanim u ovom prilogu, vrši se:

- a) pre puštanja transportnog sredstva u upotrebu,
- b) periodično – najmanje svake šeste godine,
- v) svaki put kad to zatraži nadležni organ.

Osim u slučajevima navedenim u odeljcima 5. i 6. Dodatka br. 2 ovog priloga, kontrolu treba obaviti u ispitnoj stanici koju je imenovao ili ovlastio nadležni organ zemlje u kojoj je transportno sredstvo upisano ili registrovano, osim ako je, u slučaju kontrole gorenavedene pod a), kontrola već izvršena na samom transportnom sredstvu ili njegovom prototipu u ispitnoj stanici koju je imenovao ili ovlastio nadležni organ zemlje u kojoj je transportno sredstvo proizvedeno.

2. Metode i postupci koje treba koristiti za kontrolu saobraznosti normama dati su u Dodatku br. 2 ovog priloga.

3. Certifikat o saobraznosti normama izdaje nadležni organ zemlje u kojoj transportno sredstvo treba da bude registrovano ili upisano na formularu shodno obrascu navedenom u Dodatku br. 3 ovog priloga.

Uz transportno sredstvo koje se isporučuje drugoj strani ugovornici potrebno je priložiti sledeće isprave kako bi nadležni organ države u kojoj transportno sredstvo treba da se registruje ili upiše mogao izdati ATP certifikat:

- a) u svim slučajevima, izveštaj o ispitivanju izvršenom na datom transportnom sredstvu, odnosno na reprezentu tipa u slučaju serijske proizvodnje;
- b) u svim slučajevima, ATP certifikat izdat od nadležnog organa zemlje u kojoj je transportno sredstvo proizvedeno, odnosno zemlje u kojoj je transportno sredstvo registrovano u slučaju transportnog sredstva u upotrebi. Ovakav certifikat se smatra privremenim i njegov rok važenja je najviše tri meseca;
- v) u slučaju serijski proizvedenog transportnog sredstva, tehnički opis transportnog sredstva za koje je potrebno izdati certifikat, a koji je izdao proizvođač transportnog sredstva ili njegov ovlašćeni predstavnik (ovaj opis treba da sadrži iste stavke koje sadrži i odeljak izveštaja o ispitivanju koji se odnosi na opis transportnog sredstva i treba biti napisan na najmanje jednom od tri zvanična jezika).

U slučaju kada se isporučuje upotrebljavano, transportno sredstvo se može podvrgnuti vizuelnoj proverbi radi identifikacije pre nego što nadležni organ države u kojoj transportno sredstvo treba da bude registrovano ili upisano izda certifikat o saobraznosti. Certifikat ili njegova overena fotokopija stoga mora biti uz transportno sredstvo za sve vreme njegovog prevoza i pokazana na zahtev kontrolnog organa. Međutim, ako je na transportno sredstvo pričvršćena ATP sertifikaciona pločica, prikazana u Dodatku br. 3 ovog priloga, ona će se smatrati ekvivalentom ATP certifikata. ATP sertifikacione pločice se uklanjaju sa transportnog sredstva čim ona prestanu da zadovoljavaju norme navedene u ovom prilogu.

4. Oznake za raspoznavanje postavljaju se na transportno sredstvo shodno odredbama Dodatka br. 4 ovog priloga. One se uklanjaju čim transportno sredstvo prestane da bude saobrazno normama utvrđenim u ovom prilogu.

5. Izotermičke komore izotermičkih, rashladnih, transportnih sredstava-hladnjača i transportnih sredstava za zagrevanje i njihovi rashladni, odnosno grejni uređaji moraju na

sebi imati trajne proizvođačke pločice koje proizvođač pričvršćuje na vidljivom i lako dostupnom mestu na delu koji nije zamenljiv. Mora biti omogućena laka provera pločice bez upotrebe bilo kakvog alata. Kod izotermičkih komora pločica se mora nalaziti na spoljnoj strani komore. Proizvođačka pločica treba da jasno i neizbrisivo prikazuje makar sledeće pojedinosti:³

Zemlju proizvodnje ili njenu slovnu oznaku koja se koristi u međunarodnom drumskom saobraćaju;

Naziv proizvođača ili kompanije;

Tip (brojčana ili slovna oznaka);

Serijski broj;

Mesec i godinu proizvodnje.

6. a) Novo serijski proizvedeno transportno sredstvo određenog tipa može biti odobreno ispitivanjem jednog uzorka tog tipa. Ukoliko ispitivano transportno sredstvo zadovolji zahteve predviđene za klasu kojoj pripada, rezultujući izveštaj o ispitivanju treba smatrati certifikatom o odobrenju tipa. Rok važnosti takvog certifikata je šest godina od dana završetka ispitivanja.

Datum prestanka važnosti izveštaja o ispitivanju biće definisan mesecima i godinama.

- b) Nadležni organ preduzima potrebne korake kako bi proverio saobraznost proizvodnje transportnih sredstava sa odobrenim reprezentom tipa. U tu svrhu se transportno sredstvo, slučajno izabrano iz proizvodne serije, može podvrgnuti ispitivanju.

- v) Transportno sredstvo se ne može smatrati transportnim sredstvom istog tipa kao odobreno transportno sredstvo ukoliko ne zadovoljava sledeće minimalne zahteve:

- I) U slučaju izotermičkog transportnog sredstva, kada reprezent tipa može biti izotermičko, rashladno, transportno sredstvo- hladnjača ili transportno sredstvo za zagrevanje,

konstrukcija treba da je uporediva i izolacioni materijal i metod izolacije treba da budu identični;

debljina izolacionog materijala ne sme da bude manja od one kod reprezentata tipa;

unutrašnja oprema treba da bude identična ili jednostavnija;

broj vrata, poklopaca i drugih otvora treba da bude isti ili manji; i

unutrašnja površina komore ne sme da bude za više od 20% veća ili manja;

- II) U slučaju rashladnog transportnog sredstva, kada reprezent tipa može biti rashladno transportno sredstvo,

zahtevi navedeni pod I) treba da su zadovoljeni;

unutrašnji ventilatori za cirkulaciju vazduha treba da su uporedivi;

izvor hladnoće treba da je identičan; i

rezerva hladnoće po jedinici unutrašnje površine treba da je veća ili ista;

³ Ovaj zahtev se odnosi samo na nove pločice. Dozvoljava se prelazni period od tri meseca od datuma stupanja na snagu ovog zahteva.

III) U slučaju transportnog sredstva hladnjače, kada reprezent tipa može biti:

- a) transportno sredstvo - hladnjača;
 - zahtevi navedeni pod I) treba da budu zadovoljeni; i
 - efektivna rashladna snaga mehaničkog rashladnog uređaja po jedinici unutrašnje površine u istim temperaturnim uslovima treba da bude veća ili jednaka; ili
- b) izotermičko transportno sredstvo, potpuno kompletirano, ali bez rashladnog uređaja, koji će se naknadno montirati.

Otvor na mestu nedostajućeg rashladnog uređaja treba popuniti oblogama iste debljine i izolacionih svojstava kao obloge koje se nalaze na prednjem zidu, pri čemu:

- zahtevi navedeni pod I) treba da budu zadovoljeni; i
- efektivna rashladna snaga mehaničkog rashladnog uređaja ugrađenog u ovakav reprezent treba da odgovara tački 3.2.6. Dodatka br. 2 Priloga br. 1.

IV) U slučaju transportnog sredstva za zagrevanje, kada reprezent tipa može biti izotermičko transportno sredstvo ili transportno sredstvo za zagrevanje,

- zahtevi navedeni pod I) treba da budu zadovoljeni;
- izvor toplote treba da bude identičan; i
- snaga grejnog uređaja po jedinici unutrašnje površine treba da bude veća ili jednaka.

g) Ukoliko, u toku perioda od šest godina, proizvodna serija prevaziđe 100 transportnih sredstava, nadležni organ treba da utvrdi procenat transportnih sredstava koji će biti podvrgnut ispitivanju.

Prilog br. 1, Dodatak br. 2

**METODE I POSTUPCI ZA MERENJE I KONTROLU IZOTERMIJE I EFIKASNOSTI
RASHLADNIH ILI GREJNIH UREĐAJA SPECIJALNIH SREDSTAVA ZA PREVOZ
LAKOVARLJIVIH NAMIRNICA**

1. DEFINICIJE I OPŠTE ODREDBE

- 1.1 Koeficijent K . Ukupan koeficijent prenosa toplote (koeficijent K) transportnog sredstva određen je sledećom formulom:

$$K = \frac{W}{S \cdot \Delta T}$$

gde je W toplotna snaga koja je potrebna da se u komori srednje površine S održi, pri stalnom režimu, apsolutna razlika ΔT između srednje unutrašnje temperature T_i i srednje spoljne temperature T_e pri stalnoj srednjoj spoljnoj temperaturi T_e .

- 1.2 Srednja površina S komore je geometrijska sredina unutrašnje površine S_i i spoljne površine S_e komore:

$$S = \sqrt{S_i \cdot S_e}$$

Prilikom određivanja dve površine S_i i S_e uzimaju se u obzir osobenosti konstrukcije komore ili nepravilnosti površine, kao što su zaobljenost, lukovi točkova, itd. i upisuju se u odgovarajuću rubriku predviđenog izveštaja o ispitivanju; međutim, ako je zatvorena komora obložena talasastim limom, u obzir se uzima ravna površina koju zauzima lim, a ne njegova razvijena površina.

Tačke na kojima se mere temperature

- 1.3 U slučaju komore oblika paralelopipeda, srednja unutrašnja temperatura komore (T_i) je aritmetička sredina temperatura merenih na odstojanju 10 cm od zidova na 12 sledećih tačaka:

- a) na 8 unutrašnjih temena komore,
- b) u središtu 4 najveće unutrašnje površine komore.

Ako komora nema oblik paralelopipeda, tih 12 mernih tačaka raspoređuju se što je moguće bolje, vodeći računa o njenom obliku.

- 1.4 Kad se radi o komorama oblika paralelopipeda, srednja spoljna temperatura komore (T_e) je aritmetička sredina temperatura merenih na odstojanju 10 cm od zidova na sledećih 12 tačaka:

- a) na 8 spoljnih temena komore,
- b) u središtu 4 najveće spoljne površine komore.

Ako komora nema oblik paralelopipeda, tih 12 mernih tačaka raspoređuju se što je moguće bolje, vodeći računa o njenom obliku.

- 1.5 Srednja temperatura zidova komore je aritmetička sredina srednje spoljne i srednje unutrašnje temperature komore:

$$\frac{T_e + T_i}{2}$$

- 1.6 Instrumenti za merenje temperature, zaštićeni od zračenja, treba da budu postavljeni unutar i sa spoljne strane komore na tačkama definisanim u tačkama 1.3 i 1.4 ovog priloga.

Period stalnog režima i trajanje testa

- 1.7 Kolebanje srednje spoljne i srednje unutrašnje temperature komore, u toku najmanje 12-točasovnog perioda stalnog režima ne treba da prelazi $\pm 0,3$ K, odnosno $\pm 1,0$ K u toku prethodnog 6-točasovnog perioda.

Razlika između grejne ili rashladne snage merene u toku dva perioda ne kraćih od 3 časa na početku i na kraju stalnog režima, a odvojenih najmanje 6 časova, ne treba da bude veća od 3%.

Za proračun koeficijenta K koristiće se srednje vrednosti temperatura i grejne ili rashladne snage u toku najmanje 6 poslednjih časova stalnog režima.

Srednje unutrašnje i spoljne temperature na početku i na kraju računskog perioda od najmanje 6 časova ne treba da se razlikuju za više od 0,2 K.

2. IZOTERMIJA TRANSPORTNOG SREDSTVA

Postupci merenja koeficijenta K

2.1 Transportna sredstva osim cisterni namenjenih za prevoz tečnih namirnica

- 2.1.1 Merenje koeficijenta K vrši se pri stalnom režimu bilo metodom unutrašnjeg hlađenja, bilo putem metoda unutrašnjeg zagrevanja. U oba slučaja se u ispitnu komoru stavlja potpuno prazno transportno sredstvo.

Metod ispitivanja

- 2.1.2 Kada se koristi metod unutrašnjeg hlađenja, jedan ili više razmenjivača toplote se postavlja u unutrašnjost ispitne komore. Površina tih razmenjivača treba da bude takva da omogući da se, ako kroz njih prolazi fluid temperature ne niže od $0\text{ }^{\circ}\text{C}^4$, srednja unutrašnja temperatura komore održava ispod $+10\text{ }^{\circ}\text{C}$ u stalnom režimu. Kod metoda unutrašnjeg zagrevanja koriste se električni grejni uređaji. Razmenjivači toplote ili električni grejni uređaji treba da budu opremljeni ventilatorima čija je propusna moć dovoljna da obezbedi 40 do 70 izmena vazduha na čas pri praznoj zapremini ispitivane komore, a da raspodela vazduha po unutrašnjoj površini ispitivane komore bude takva da obezbedi da maksimalna razlika između temperatura u bilo koje 2 od 12 tačaka naznačenih u tački 1.3 ovog dodatka ne pređe 2 K u stalnom režimu.
- 2.1.3 Količina toplote: Toplotni fluks koji se rasipa otpornim električnim grejnim uređajem sa ventilatorom ne treba da pređe vrednost od 1 W/cm^2 , a grejna tela treba da budu zaštićena kućištem niske vrednosti emisivnosti. Potrošnja električne energije treba da bude određena sa tačnošću od $\pm 0,5\%$.

Postupak ispitivanja

- 2.1.4 Bez obzira na to koji se metod koristi, u ispitnoj komori za sve vreme trajanja ispitivanja, srednja temperatura treba da bude ujednačena i stalna u skladu sa tačkom 1.7 ovog dodatka, sa odstupanjem od $\pm 0,5$ K i na takvom nivou da razlika temperature između unutrašnjosti transportnog sredstva i ispitne komore bude $25\text{ }^{\circ}\text{C} \pm 2$ K, a da se srednja temperatura zidova komore transportnog sredstva održava na $+20\text{ }^{\circ}\text{C} \pm 0,5$ K.
- 2.1.5 Za vreme ispitivanja, kako metodom unutrašnjeg hlađenja, tako i metodom unutrašnjeg zagrevanja, treba obezbediti neprekidnu cirkulaciju vazduha u ispitnoj komori i to tako da brzina strujanja vazduha na odstojanju od 10 cm od zidova komore transportnog sredstva iznosi između 1 i 2 m/s.

⁴ Kako bi se sprečilo smrzavanje.

- 2.1.6 U pogon se stavljaju uređaji za stvaranje i raspoređivanje hladnoće ili toplote, uređaji za merenje razmenjene rashladne ili grejne snage i kaloričnog ekvivalenta ventilatora. Gubici u električnom kابلu između instrumenta za merenje uvedene toplote i ispitivane komore se određuju merenjem ili proračunom i oduzimaju od ukupno izmerene toplote.
- 2.1.7 Pri stalnom režimu, maksimalna razlika između temperatura na najtoplijoj i najhladnijoj tački izvan komore transportnog sredstva ne sme preći 2 K.
- 2.1.8 Srednja spoljna i srednja unutrašnja temperatura komore transportnog sredstva treba da se meri najmanje 4 puta na čas.

2.2 Transportna sredstva-cisterne namenjena za prevoz tečnih namirnica

- 2.2.1 Niže izneti metod primenjuje se samo na transportna sredstva-cisterne sa jednim ili više odeljaka, koja su namenjena jedino za prevoz tečnih namirnica, kao što je, na primer, mleko. Svaki odeljak tih cisterni ima najmanje jedan revizioni otvor i jedan priključak za pražnjenje; ako postoji više odeljaka, oni su međusobno odvojeni neizolovanim vertikalnim pregradama.
- 2.2.2 Merenje se vrši pri stalnom režimu metodom unutrašnjeg zagrevanja cisterne koja se, bez ikakvog tereta, stavlja u ispitnu komoru.

Metod ispitivanja

- 2.2.3 Jedan električni razmenjivač toplote stavlja se unutar cisterne. Ako cisterna ima više odeljaka, u svaki odeljak se stavlja po jedan električni razmenjivač. Ti razmenjivači treba da budu opremljeni ventilatorima čija je propusna moć dovoljna da obezbedi da razlika između maksimalne i minimalne temperature unutar svakog odeljka ne prelazi 3 K pri stalnom režimu. Ako cisterna ima više odeljaka, razlika između srednje temperature merene u najhladnijem odeljku i srednje temperature merene u najtoplijem odeljku ne treba da iznosi više od 2 K, s tim da se merenje temperature vrši na način koji je označen u tački 2.2.4 ovog dodatka.
- 2.2.4 Uređaji za merenje temperature, zaštićeni od zračenja, smeštaju se unutar i izvan cisterne na odstojanju od 10 cm od zidova na sledeći način:
 - a) ako cisterna ima samo jedan odeljak, merenje treba obaviti na najmanje sledećih 12 tačaka:
 - 4 krajnje tačke dva prečnika pod pravim uglom, jedan horizontalan, a drugi vertikalni, u blizini svakog od dva dela,
 - 4 krajnje tačke dva prečnika, s nagibom od 45° nad horizontalom, u aksijalnoj ravni cisterne;
 - b) Ako cisterna ima više odeljaka, raspodela je sledeća:
za svaki od dva krajnja odeljka, najmanje sledeće:
 - krajnje tačke horizontalnog prečnika u blizini dela i krajnje tačke vertikalnog prečnika u blizini pregrade;a za svaki drugi odeljak najmanje:
 - krajnje tačke prečnika sa nagibom od 45° nad horizontalom u blizini jedne od pregrada i krajnje tačke prečnika koji u odnosu na prethodni stoji upravno u blizini druge pregrade.

Srednja unutrašnja i srednja spoljna temperatura cisterne predstavljaju aritmetičku sredinu svih merenja izvršenih unutar, odnosno spolja. Za cisterne sa više odeljaka, srednja

unutrašnja temperatura svakog odeljka predstavlja aritmetičku sredinu ne manje od četiri merenja koja se odnose na dati odeljak.

Postupak ispitivanja

- 2.2.5 Tokom ispitivanja, u ispitnoj komori za sve vreme trajanja ispitivanja, srednja temperatura treba da bude ujednačena i stalna u skladu sa tačkom 1.7 ovog dodatka, na takvom nivou da razlika temperature između unutrašnjosti cisterne i ispitne komore bude $25\text{ }^{\circ}\text{C} \pm 2\text{ K}$, a da se srednja temperatura zidova cisterne održava na $+20\text{ }^{\circ}\text{C} \pm 0,5\text{ K}$.
- 2.2.6 Treba obezbediti neprekidnu cirkulaciju vazduha u ispitnoj komori i to tako da brzina strujanja vazduha na odstojanju od 10 cm od zidova cisterne iznosi između 1 i 2 m/s.
- 2.2.7 U pogon se stavljaju uređaji za stvaranje toplote, uređaji za merenje razmenjene grejne snage i kaloričnog ekvivalenta ventilatora.
- 2.2.8 Pri stalnom režimu, maksimalna razlika između temperatura na najtoplijoj i najhladnijoj tački izvan komore cisterne ne sme preći 2 K.
- 2.2.9 Srednja spoljna i srednja unutrašnja temperatura komore transportnog sredstva treba da se meri najmanje 4 puta na čas.

2.3 Zajedničke odredbe za sve tipove izotermičkih transportnih sredstava

2.3.1 Provera koeficijenta K

Kada cilj ispitivanja nije određivanje koeficijenta K već samo provera da li je taj koeficijent ispod izvesne granice, ispitivanja izvršena u uslovima koji su izneti u tačkama 2.1.1 do 2.2.9 ovog dodatka, mogu da se obustave u momentu kada izvršena merenja pokažu da koeficijent K odgovara postavljenim uslovima.

2.3.2 Tačnost merenja koeficijenta K

Ispitne stanice treba da budu snabdevene potrebnom opremom i instrumentima kako bi koeficijent K bio određen sa najvećom greškom od $\pm 10\%$ kada se koristi metod unutrašnjeg hlađenja, odnosno $\pm 5\%$ kada se koristi metod unutrašnjeg zagrevanja.

3. EFEKTIVNOST TOPLOTNIH UREĐAJA TRANSPORTNIH SREDSTAVA

Postupci određivanja efikasnosti toplotnih uređaja transportnih sredstava

3.1 Rashladna transportna sredstva

- 3.1.1 Prazno transportno sredstvo stavlja se u ispitnu komoru čija se srednja temperatura održava ujednačenom i stalnom na $+30\text{ }^{\circ}\text{C}$, sa odstupanjem $\pm 0,5\text{ K}$. Vazduh u ispitnoj komori treba da cirkuliše na način opisan u tački 2.1.5 ovog dodatka.
- 3.1.2 Uređaji za merenje temperature, zaštićeni od zračenja, stavljaju se unutar i izvan komore transportnog sredstva na mestima označenim u tačkama 1.3 i 1.4 ovog dodatka.

Postupak ispitivanja

- 3.1.3 a) Za **transportna sredstva, osim transportnih sredstava sa fiksnim eutektičkim pločama, i transportnih sredstava opremljenih sistemima sa tečnim gasom** maksimalna masa rashlađivača koju je označio proizvođač ili koja se može normalno rasporediti, stavlja se na predviđena mesta kada srednja unutrašnja temperatura komore dostigne srednju spoljnu temperaturu komore ($+30\text{ }^{\circ}\text{C}$). Vrata, kapci i drugi otvori se zatvaraju, a uređaji za unutrašnje provetrevanje transportnog sredstva (ako ih ima) stavljaju se u pogon do svog maksimalnog opterećenja. Pored toga, u slučaju novog transportnog sredstva, kada se postigne temperatura predviđena za datu klasu transportnog sredstva, u komori transportnog sredstva se pušta u rad grejni uređaj čija snaga iznosi 35% od toplote koja se pri stalnom

režimu razmenjuje kroz zidove. Za vreme ispitivanja nije dopušteno dodatno snabdevanje rashlađivača.

- b) Za **transportna sredstva sa fiksnim eutektičkim pločama**, ispitivanju prethodi faza zaleđivanja eutektičkog rastvora. U tom cilju, kada srednja unutrašnja temperatura komore transportnog sredstva i temperatura ploča dostignu srednju spoljnu temperaturu (+ 30 °C), vrata i otvori se zatvaraju i pušta se u rad rashladni uređaj ploča u toku perioda od 18 uzastopnih časova. Ako rashladni uređaj ploča ima ciklični mehanizam rada, ukupno vreme rada uređaja biće 24 časa. Ako je transportno sredstvo novo, posle prestanka rada rashladnih uređaja, a kada je postignuta temperatura predviđena za tu klasu transportnog sredstva, u komori transportnog sredstva se pušta u rad grejni uređaj snage 35% od toplote razmenjene kroz zidove pri stalnom režimu. Za vreme ispitivanja ne vrši se ponovo zaleđivanje rastvora.
- v) Za **transportna sredstva opremljena sistemima sa tečnim gasom** koristi se sledeći postupak ispitivanja: kada srednja unutrašnja temperatura komore transportnog sredstva dostigne srednju spoljnu temperaturu (+ 30 °C), spremnici za tečni gas se pune do nivoa propisanog od strane proizvođača. Vrata, priključci i drugi otvori se zatvaraju kao u normalnom radu, a uređaji za unutrašnje provetravanje (ukoliko postoje) se stavljaju u pogon do svog najvećeg opterećenja. Termostat treba podesiti na temperaturu najmanje 2 K manju od granične temperature za klasu kojoj transportno sredstvo pripada. Tada se započinje sa hlađenjem. Za vreme hlađenja komore transportnog sredstva potrebno je menjati utrošeno rashladno sredstvo. Zamena se vrši posle kraćeg od dva perioda:
- period od početka hlađenja do trenutka u kojem je po prvi put dostignuta temperatura propisana za klasu za koju se smatra da joj transportno sredstvo pripada
 - period od tri sata od početka hlađenja.

Po isteku tog perioda ne treba dodavati rashladno sredstvo za vreme ispitivanja.

U slučaju novog transportnog sredstva, u trenutku kada se dostigne temperatura propisana za klasu za koju se smatra da joj transportno sredstvo pripada, unutar komore transportnog sredstva se stavlja u rad grejni uređaj snage jednake 35% od razmenjene toplote kroz zidove u stalnom režimu.

Zajedničke odredbe za sve tipove rashladnih transportnih sredstava

- 3.1.4 Merenje srednje spoljne i srednje unutrašnje temperature komore transportnog sredstva vrši se najmanje svakih trideset minuta.
- 3.1.5 Ispitivanje se obavlja u toku 12 časova od trenutka kada srednja unutrašnja temperatura komore transportnog sredstva dostigne donju granicu propisanu za klasu za koju se smatra da joj pripada transportno sredstvo (A = + 7 °C; B = - 10 °C; C = - 20 °C; D = 0 °C) ili za transportna sredstva sa eutektičkim fiksnim pločama pošto rashladni uređaj prestane sa radom.

Kriterijum zadovoljenja

- 3.1.6 Ispitivanje će biti zadovoljavajuće ako tokom gorenavedenog perioda od 12 časova srednja unutrašnja temperatura komore transportnog sredstva ne pređe gorenavedenu donju granicu.

3.2 Transportna sredstva-hladnjače

Metod ispitivanja

- 3.2.1 Ispitivanje će se vršiti pod uslovima opisanim u tačkama 3.1.1 i 3.1.2 ovog dodatka.

Postupak ispitivanja

- 3.2.2 Kada srednja unutrašnja temperatura komore dostigne spoljnu temperaturu (+30 °C), vrata, kapci i razni otvori se zatvaraju i rashladni uređaj kao i uređaji za unutrašnje provetravanje (ako postoje), stavljaju se u pogon do njihovog najvećeg opterećenja. Osim toga, za nova transportna sredstva, u trenutku kada se dostigne temperatura propisana za klasu za koju se smatra da joj transportno sredstvo pripada, unutar komore transportnog sredstva se stavlja u rad grejni uređaj snage jednake 35% od razmenjene toplote kroz zidove u stalnom režimu.
- 3.2.3 Srednja spoljna i srednja unutrašnja temperatura komore transportnog sredstva mere se najmanje svakih 30 minuta.
- 3.2.4 Ispitivanje se nastavlja tokom 12 časova od trenutka kada srednja unutrašnja temperatura komore transportnog sredstva dostigne:
- bilo donju granicu propisanu za klasu kojoj, kako se pretpostavlja, pripada transportno sredstvo ako se radi o klasama A, B ili C (A = 0 °C; B = – 10 °C; C = – 20 °C)
 - bilo najmanje gornju granicu propisanu za klasu kojoj, kako se pretpostavlja, pripada transportno sredstvo ako se radi o klasama D, E ili F (D = 0 °C; E = – 10 °C; F = – 20 °C).

Kriterijum zadovoljenja

- 3.2.5 Ispitivanje će biti zadovoljavajuće ako je rashladni uređaj u stanju da održi za vreme ovih 12 časova režim predviđene temperature, pri čemu se ne uzimaju u obzir periodi automatskog odmrzavanja rashladnog uređaja.
- 3.2.6 Ako je rashladni uređaj, sa svim svojim pomoćnim uređajima, već nezavisno ispitan u smislu određivanja njegove korisne rashladne snage na propisanim referentnim temperaturama i pozitivno ocenjen od strane nadležnog organa, transportno sredstvo se može prihvatiti kao transportno sredstvo-hladnjača, bez ispitivanja efikasnosti ako je rashladna snaga uređaja za datu klasu veća od toplotnih gubitaka pri stalnom režimu kroz zidove komore pomnoženih faktorom 1,75.
- 3.2.7 Ako se rashladni uređaj zameni uređajem drugog tipa, nadležni organ može:
- a) da zahteva da se transportno sredstvo podvrgne merenjima i proverama predviđenim u tačkama 3.2.1 do 3.2.4;
 - b) da se uveri da je korisna rashladna snaga novog uređaja, na temperaturi predviđenoj za tu klasu transportnih sredstava, ista ili veća od snage zamenjenog uređaja;
 - v) da se uveri da korisna rashladna snaga novog uređaja zadovoljava odredbe tačke 3.2.6.

3.3 Transportna sredstva za zagrevanje

Metod ispitivanja

- 3.3.1 Prazno transportno sredstvo stavlja se u ispitnu komoru čija se temperatura ujednačeno i stalno održava na što je moguće nižem nivou. Vazduh u ispitnoj komori treba da cirkuliše na način opisan u tački 2.1.5 ovog dodatka.

- 3.3.2 Uređaji za merenje temperature, zaštićeni od zračenja, stavljaju se unutar i izvan komore transportnog sredstva na mestima označenim u tačkama 1.3 i 1.4 ovog dodatka.

Postupak ispitivanja

- 3.3.3 Vrata, kapci i razni otvori se zatvaraju, a grejni uređaj, kao i uređaji za unutrašnje provetravanje (ukoliko postoje), stavljaju se u pogon do njihovog najvećeg opterećenja.
- 3.3.4 Srednja spoljna i srednja unutrašnja temperatura komore transportnog sredstva mere se najmanje svakih 30 minuta.
- 3.3.5 Ispitivanje se nastavlja u toku 12 časova od trenutka kada razlika između srednje unutrašnje temperature komore transportnog sredstva i srednje spoljne temperature dostigne vrednost koja odgovara uslovima propisanim za klasu kojoj, kako se pretpostavlja, pripada transportno sredstvo pri čemu se ta temperaturna razlika za nova transportna sredstva povećava za 35%.

Kriterijum zadovoljenja

- 3.3.6 Ispitivanje je zadovoljavajuće ako je grejni uređaj u stanju da u toku tih 12 časova održi propisanu razliku u temperaturi.

4. POSTUPAK ZA MERENJE EFEKTIVNE RASHLADNE SNAGE W_o UREĐAJA KADA U ISPARIVAČU NEMA SMRZAVANJA

4.1 Opšti principi

- 4.1.1 Kada se odnosi na kalorimetrijsku kutiju ili izotermičku komoru transportnog sredstva u neprekidnom radu, ova snaga se izražava formulom:

$$W_o = W_j + U \cdot \Delta T$$

gde je U gubitak toplote kalorimetrijske kutije ili izotermičke komore transportnog sredstva izražen u $W/^\circ C$.

ΔT je razlika između srednje unutrašnje temperature T_i i srednje spoljne temperature T_e kalorimetra ili izolovane komore transportnog sredstva (K),

W_j je odavana toplota koju utroši grejni uređaj sa ventilatorom kako bi održao sve temperaturne razlike u ravnoteži.

4.2 Metod ispitivanja

- 4.2.1 Rashladni uređaj se smešta u kalorimetrijsku kutiju ili izotermičku komoru transportnog sredstva.

U oba slučaja, toplotni gubici se mere preko srednje temperature zida pre merenja snage. Za vreme određivanja efektivne rashladne snage uvodi se aritmetički korekcionni faktor, baziran na iskustvu ispitne stanice, koji uzima u obzir prosečnu temperaturu zidova pri svakoj termičkoj ravnoteži.

Poželjno je koristiti kalibrisanu kalorimetrijsku kutiju kako bi se obezbedila maksimalna tačnost.

Postupak merenja je opisan gore u tačkama 1.1 do 2.1.8; međutim, dovoljno je meriti samo gubitak toplote U , čija je vrednost definisana sledećim izrazom:

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

gde je:

W – grejna snaga (merena u W) odavana unutrašnjim grejačem i ventilatorima;

ΔT_m – razlika između srednje unutrašnje temperature T_i i srednje spoljne temperature T_e ;

U predstavlja protok toplote po stepenu razlike između temperature vazduha unutar i izvan kalorimetrijske kutije ili transportnog sredstva mereno sa ugrađenim rashladnim uređajem.

Kalorimetrijska kutija ili transportno sredstvo se smešta u ispitnu komoru. Ako se koristi kalorimetrijska kutija, $U \cdot \Delta T$ ne treba da bude veće od 35% od ukupnog toplotnog protoka W_o .

Kalorimetrijska kutija ili transportno treba da budu pojačano izolovani.

4.2.2 Merna oprema

Ispitne stanice treba da budu opremljene mernom opremom koja obezbeđuje merenje vrednosti U sa tačnošću od $\pm 5\%$. Gubici toplote kroz curenja vazduha usled nezaptivenosti ne treba da pređu 5% od ukupnog prenosa toplote kroz kalorimetrijsku kutiju ili kroz izotermičku komoru transportnog sredstva. Rashladna snaga treba da bude određena sa tačnošću od $\pm 5\%$.

Merna oprema kalorimetrijske kutije ili transportnog sredstva treba da odgovara tačkama 1.3 i 1.4 ovog dodatka. Potrebno je merenje sledećih veličina:

- a) *Temperature vazduha*: Najmanje četiri termometra ravnomerno raspoređenih na uvodnom otvoru isparivača;
Najmanje četiri termometra ravnomerno raspoređenih na ispusnim otvorima iz isparivača;
Najmanje četiri termometra ravnomerno raspoređenih na uvodnom otvoru (uvodnim otvorima) rashladnog uređaja;
Termometri treba da budu zaštićeni od zračenja.
Tačnost sistema za merenje temperature treba da bude $\pm 0,2$ K;
- b) *Potrošnja energije*: Potrebno je obezbediti opremu za merenje potrošnje električne energije ili goriva rashladnog uređaja.
Potrošnju električne energije i goriva potrebno je odrediti sa tačnošću od $\pm 0,5\%$;
- v) *Brzina obrtanja*: Potrebno je obezbediti opremu za merenje brzine obrtanja kompresora i ventilatora ili način da se brzina obrtanja proračuna ukoliko je samo merenje nepraktično.
Brzinu obrtanja potrebno je odrediti sa tačnošću od $\pm 1\%$;
- g) *Pritisak*: Davače pritiska visoke rezolucije (tačnosti do $\pm 1\%$) potrebno je postaviti na hladnjak i isparivač i na uvodni otvor kompresora ako je isparivač opremljen sa regulatorom pritiska.

4.2.3 Uslovi ispitivanja

- I) Prosečna temperatura vazduha na uvodnom otvoru (uvodnim otvorima) u sklop rashladnog uređaja treba da bude održavana na $30\text{ }^{\circ}\text{C} \pm 0,5\text{ K}$.
Maksimalna razlika između temperatura na najtoplijoj i najhladnijoj tački ne treba da pređe 2 K.
- II) Unutar kalorimetrijske kutije ili izotermičke komore transportnog sredstva (na uvodnom otvoru u isparivač): treba da postoje tri nivoa temperatura između $-25\text{ }^{\circ}\text{C}$ i $+12\text{ }^{\circ}\text{C}$ zavisno od karakteristike uređaja, od kojih jedan nivo temperature treba da

bude na najmanjoj propisanoj temperaturi za klasu koju zahteva proizvođač sa dozvoljenim odstupanjem od ± 1 K.

Srednja unutrašnja temperatura treba da bude održavana sa odstupanjem od $\pm 0,5$ K. Za vreme merenja rashladne snage, toplotni gubici u kalorimetrijskoj kutiji ili izotermičkoj komori transportnog sredstva biće održavani na stalnom nivou sa odstupanjem od $\pm 1\%$.

Kada predaje rashladni uređaj na testiranje, proizvođač treba da priloži:

- Dokumentaciju koja opisuje ispitivani uređaj;
- Tehnički dokument koji sadrži parametre koji su najvažniji za funkcionisanje uređaja i koji definiše njihove dozvoljene opsege;
- Karakteristike serije ispitivanog uređaja; i
- Izjavu o tome koje će se pogonsko sredstvo (pogonska sredstva) koristiti za vreme ispitivanja.

4.3 Postupak ispitivanja

4.3.1 Ispitivanje se sastoji iz dve glavne faze - faze hlađenja i faze merenja efektivne rashladne snage na tri rastuća temperaturna nivoa.

- a) Faza hlađenja - početna temperatura kalorimetrijske kutije ili transportnog sredstva treba da iznosi $30\text{ }^{\circ}\text{C} \pm 3\text{ K}$. Ona se potom smanjuje do sledećih vrednosti: $-25\text{ }^{\circ}\text{C}$ za klasu $-20\text{ }^{\circ}\text{C}$, $-13\text{ }^{\circ}\text{C}$ za klasu $-10\text{ }^{\circ}\text{C}$ ili $-2\text{ }^{\circ}\text{C}$ za klasu $0\text{ }^{\circ}\text{C}$;
- b) Merenje efektivne rashladne snage na svakom nivou unutrašnje temperature.

Prvo ispitivanje se obavlja u trajanju od najmanje četiri časa za svaki temperaturni nivo, uz korišćenje termostata (u sklopu rashladnog uređaja) da bi se stabilizovao prenos toplote između unutrašnjosti i spoljašnjosti kalorimetrijske kutije ili transportnog sredstva.

Drugo ispitivanje obavlja se bez korišćenja termostata u cilju određivanja maksimalne rashladne snage, sa grejnom snagom unutrašnjeg grejača koja obezbeđuje uslove ravnoteže pri svakom nivou temperature, kao što je propisano u tački 4.2.3.

Drugo ispitivanje se izvodi u trajanju od najmanje četiri časa.

Pre prelaska sa jednog na drugi temperaturni nivo, kalorimetrijsku kutiju ili uređaj je potrebo ručno odmrznuti.

Ukoliko rashladni uređaj može biti pogonjen sa više oblika energije, potrebno je obaviti ispitivanje sa svakim od tih oblika.

Ako je kompresor pogonjen motorom vozila, ispitivanje se obavlja na minimalnom i na nominalnom broju obrtaja kompresora koje je propisao proizvođač.

Ako je kompresor pogonjen kretanjem vozila, ispitivanje se obavlja na nominalnom broju obrtaja kompresora koji je propisao proizvođač.

4.3.2 Isti postupak se primenjuje i kod dole opisanog metoda razlike entalpija, sa tom specifičnošću što je potrebno meriti rasipanje toplotne snage na ventilatorima isparivača pri svakom temperaturnom nivou.

Taj metod se može, alternativno, koristiti i za ispitivanje reprezentativnog tipa transportnog sredstva. U tom slučaju efektivna rashladna snaga se dobija množenjem masenog protoka (m) rashladne tečnosti sa razlikom entalpije rashladne pare na izlazu iz uređaja (h_o) i entalpije tečnosti na ulaznom otvoru uređaja (h_i).

Da bi se dobila efektivna rashladna snaga, potrebno je oduzeti toplotu koju generišu ventilatori isparivača (W_f). Merenje W_f je otežano u slučaju kad su ventilatori isparivača pogonjeni spoljnim motorom i u tom slučaju korišćenje metoda entalpije nije preporučljivo. Ako su ventilatori pogonjeni unutrašnjim električnim motorima, električna snaga se meri odgovarajućim instrumentima sa tačnošću od $\pm 3\%$, uz merenje protoka rashlađivača sa tačnošću od $\pm 3\%$.

Toplotni bilans dat je izrazom:

$$W_o = (h_o - h_i)m - W_f.$$

Odgovarajuće metode su opisane u standardima ISO 971, BS 3122, DIN, NEN, itd. Električni grejač se postavlja unutar transportnog sredstva kako bi se postigla termička ravnoteža.

4.3.3 Mere predostrožnosti

Pošto se ispitivanja efektivne rashladne snage obavljaju sa isključenim termostatom rashladnog uređaja, treba preduzeti sledeće mere predostrožnosti:

Potrebno je isključiti sistem za ubrizgavanje toplog gasa, ukoliko ga transportno sredstvo poseduje;

Ukoliko postoji automatska kontrola koja isključuje pojedinačne cilindre (radi podešavanja snage u zavisnosti od izlazne snage motora) ispitivanje je potrebno obaviti sa brojem cilindara koji odgovara datoj temperaturi.

4.3.4 Provere

Potrebno je proveriti sledeće stavke i u izveštaju o ispitivanju navesti korišćene metode:

- I) sistem za odmrzavanje i termostat ispravno funkcionišu;
- II) brzina strujanja vazduha je ona koju je propisao proizvođač.

Ako se meri cirkulacija vazduha ventilatora isparivača rashladnog uređaja, koristiće se metode koje omogućavaju merenje ukupne izlazne zapremine. Preporučuje se korišćenje jednog od relevantnih standarda, na primer BS 848, ISO 5801, AMCA 210-85, DIN 24163, NFE 36101, NF X10.102 i DIN 4796.

- III) pri ispitivanju se koristi rashladno sredstvo koje je odredio proizvođač.

4.4 **Rezultat ispitivanja**

- 4.4.1 Rashladna snaga prema zahtevima ATP-a je ona koja odgovara srednjoj temperaturi na ulaznom otvoru (ulaznim otvorima) isparivača. Instrumenti za merenje temperature treba da budu zaštićeni od zračenja.

5. **PROVERA IZOTERMIJE TRANSPORTNOG SREDSTVA U UPOTREBI**

U svrhu provere izotermije svakog pojedinačnog transportnog sredstva u upotrebi, kao što je propisano u tački 1. pod b) i v) Dodatka br. 1 ovog priloga, nadležni organ može:

Primeniti metode opisane u tačkama 2.1.1 do 2.3.2 ovog dodatka; ili

Odrediti stručnjake čiji je zadatak da procene podesnost transportnog sredstva da se zadrži u datoj klasi ili pređe u neku drugu klasu. Ti stručnjaci treba da uzmu u obzir dolenavedene pojedinosti i zasnuju svoje zaključke na informacijama kao što je dole naznačeno.

5.1 **Opšti pregled transportnog sredstva**

Pregled treba da ima formu inspekcije transportnog sredstva u cilju utvrđivanja sledećih stavki:

- I) postojanje trajne proizvođačke pločice koju postavlja proizvođač;
- II) opštu konstrukciju izolacione obloge;
- III) metod postavljanja izolacije;
- IV) prirodu i stanje zidova;
- V) stanje izolovanog odeljka;
- VI) debljinu zidova;

i vršenja svih potrebnih osmatranja vezanih za izotermiju transportnog sredstva. Da bi se to obavilo, stručnjaci mogu zatražiti da se deo transportnog sredstva demontira i zahtevati da im se na uvid stavi sva dokumentacija koja im je potrebna (crteži, izveštaji o ispitivanju, specifikacije, fakture, itd.).

5.2 Pregled zaptivenosti vazduha (nije primenljivo na cisterne)

Ovaj pregled obavlja pregledač smešten u transportno sredstvo, koje se nalazi u jako osvetljenom prostoru. Može se, takođe, koristiti bilo koji drugi metod koji obezbeđuje tačnije rezultate.

5.3 Odluke

- I) Ako su zaključci u pogledu opšteg stanja komore povoljni, transportno sredstvo se može zadržati u upotrebi kao izotermičko transportno sredstvo njegove početne klase za dalji period ne duži od tri godine. Ako zaključci stručnjaka nisu prihvatljivi, transportno sredstvo se može zadržati u upotrebi samo nakon zadovoljavajućeg merenja koeficijenta K shodno postupku opisanom u tačkama 2.1.1 do 2.3.2 ovog dodatka; tada može biti zadržano u upotrebi u toku narednih šest godina.
- II) U slučaju pojačanog izotermičkog transportnog sredstva, ako zaključci stručnjaka pokazuju da nije pogodno za zadržavanje u upotrebi u njegovoj početnoj klasi, ali jeste pogodno za upotrebu kao obično izotermičko transportno sredstvo, onda se komora može zadržati u upotrebi u odgovarajućoj klasi u toku naredne tri godine. U tom slučaju postojeće oznake za raspoznavanje (prikazane u Dodatku br. 4 ovog priloga) biće zamenjene odgovarajućim.
- III) Ako se transportno sredstvo sastoji od sklopova serijski proizvedenih transportnih sredstava određenog tipa koji zadovoljavaju zahteve tačke 6. Dodatka br. 1 ovog priloga i pripadaju jednom sopstveniku, tada pored pregleda svakog pojedinačnog transportnog sredstva, koeficijent K može biti meren na ne manje od 1% broja razmatranih transportnih sredstava, u skladu sa odredbama tačaka 2.1, 2.2. i 2.3. ovog dodatka. Ako su rezultati provere i merenja prihvatljivi, sva razmatrana transportna sredstva mogu biti zadržana u upotrebi kao izotermička transportna sredstva njihove početne klase u toku narednih šest godina.

6. PROVERA EFEKTIVNOSTI TOPLOTNIH UREĐAJA TRANSPORTNIH SREDSTAVA U UPOTREBI

U pogledu provere efektivnosti toplotnog uređaja svakog rashladnog transportnog sredstva, transportnog sredstva-hladnjače ili transportnog sredstva za zagrevanje u upotrebi, propisane u tački 1. pod b) i v) Dodatka br. 1 ovog priloga, nadležni organ može:

- bilo primeniti metode opisane u tačkama 3.1. do 3.3. ovog dodatka;
- bilo ovlastiti stručnjake da primenjuju metode opisane u tačkama 5.1 i 5.2 ovog dodatka, kao i sledeće odredbe:

6.1 Rashladna transportna sredstva osim transportnih sredstava sa fiksnim eutektičkim akumulatorima

Proveriće se da li unutrašnja temperatura praznog transportnog sredstva, koja je prethodno dovedena do spoljne temperature, može da se dovede na graničnu temperaturu za klasu transportnih sredstava propisanu u ovom prilogu i da se održava ispod ove temperature, u trajanju t kada je

$$t \geq \frac{12 \cdot \Delta T}{\Delta T'}$$

pri čemu je

ΔT razlika između + 30 °C i ove granične temperature, i

$\Delta T'$ razlika između srednje spoljne temperature za vreme ispitivanja i spomenute granične temperature, pod uslovom da spoljna temperatura nije manja od + 15 °C.

Ako su rezultati povoljni, transportna sredstva se mogu zadržati u upotrebi kao rashladna u svojoj prvobitnoj klasi, za novi period u trajanju od najviše 3 godine.

6.2 Transportna sredstva-hladnjače

- I) Transportno sredstvo konstruisano jednu godinu posle stupanja na snagu ovih odredbi /DD.MM.GGGG./

Proverava se da li, kada spoljna temperatura nije niža od +15 °C, unutrašnja temperatura praznog transportnog sredstva može biti dovedena na temperaturu klase u okviru maksimalnog perioda (u minutima), kao što je propisano u donjoj tabeli:

Spoljna temperatura	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	°C
Klasa C,F	360	350	340	330	320	310	300	290	280	270	260	250	240	230	220	210	min
Klasa B,E	270	262	253	245	236	228	219	211	202	194	185	177	168	160	151	143	min
Klasa A,D	180	173	166	159	152	145	138	131	124	117	110	103	96	89	82	75	min

Unutrašnja temperatura praznog transportnog sredstva mora prethodno biti dovedena na spoljnu temperaturu.

Ako su rezultati povoljni, transportno sredstvo se može zadržati u upotrebi kao transportno sredstvo-hladnjača u svojoj prvobitnoj klasi, za novi period u trajanju od najviše 3 godine.

- II) Prelazne odredbe koje se primenjuju na transportna sredstva u upotrebi

Za transportna sredstva konstruisana pre stupanja na snagu ovih odredbi /DD.MM.GGGG./ primenjuju se sledeće odredbe:

Proveriće se da li se unutrašnja temperatura praznog transportnog sredstva, prethodno dovedena na spoljašnju temperaturu ne manju od + 15 °C, može dovesti, za najviše 6 časova:

- za klase A, B ili C, do minimalne temperature klase transportnog sredstva propisane u ovom prilogu;
- za klase D, E ili F, do granične temperature klase transportnog sredstva propisane u ovom prilogu.

Ako su rezultati povoljni, transportno sredstvo se može zadržati u upotrebi kao transportno sredstvo-hladnjača u svojoj prvobitnoj klasi, za novi period u trajanju od najviše 3 godine.

6.3 Transportna sredstva za zagrevanje

Proveriće se da li razlika između unutrašnje temperature transportnog sredstva i spoljne temperature merodavne za klasu kojoj transportno sredstvo pripada, predviđena u ovom prilogu (22 K za klasu A i 32 K za klasu B) može biti dostignuta i održana najmanje 12 časova. Ako su rezultati povoljni, transportna sredstva se mogu zadržati u radu kao transportna sredstva za zagrevanje, u svojoj prvobitnoj klasi, za novi period u trajanju od najviše 3 godine.

6.4 Tačke na kojima se meri temperatura

Tačke na kojima se meri temperatura, zaštićene od zračenja, nalaze se unutar i sa spoljne strane komore transportnog sredstva.

Merenje unutrašnje temperature komore transportnog sredstva (T_i) se obavlja u najmanje 2 tačke koje se nalaze unutar komore transportnog sredstva na rastojanju od najviše 50 cm od prednjeg zida, 50 cm od zadnjih vrata na visini od najmanje 15 cm i najviše 20 cm iznad površine poda.

Merenje spoljne temperature komore transportnog sredstva (T_e) se obavlja u najmanje 2 tačke koje se nalaze na rastojanju od najmanje 10 cm od spoljnog zida tela i najmanje 20 cm od uvodnog otvora u kondenzator.

Kao konačna se uzimaju očitavanja u najtoplijoj unutrašnjoj i najhladnijoj spoljnoj tački.

6.5 Zajedničke odredbe za rashladna transportna sredstva, transportna sredstva-hladnjače i transportna sredstva za zagrevanje

- I) Ako su rezultati neprihvatljivi, rashladna transportna sredstva, transportna sredstva-hladnjače ili transportna sredstva za zagrevanje mogu se zadržati u upotrebi u svojoj prvobitnoj klasi samo ako u ispitnim stanicama uspešno prođu ispitivanja opisana u tačkama 3.1 do 3.3 ovog dodatka; ona se tada mogu zadržati u upotrebi, u svojoj prvobitnoj klasi, za novi period od 6 godina.
- II) Ako se transportno sredstvo sastoji od sklopova serijski proizvedenih rashladnih transportnih sredstava, transportnih sredstava-hladnjača ili transportnih sredstava za zagrevanje određenog tipa koji zadovoljavaju zahteve tačke 6. Dodatka br. 1 ovog priloga i pripadaju jednom sopstveniku, tada pored pregleda toplotnih uređaja, u cilju da se utvrdi da li je njihovo opšte stanje zadovoljavajuće, određivanje efektivnosti rashladnog ili grejnog uređaja može da se izvrši u ispitnoj stanici prema odredbama tačaka 3.1 do 3.3 ovog dodatka na najmanje 1% od broja ovih transportnih sredstava. Ako su rezultati provere i merenja prihvatljivi, sva razmatrana transportna sredstva mogu biti zadržana u upotrebi kao transportna sredstva njihove početne klase u toku narednih šest godina.

7. IZVEŠTAJI O ISPITIVANJU

Izveštaj o ispitivanju koji odgovara tipu ispitivanog transportnog treba sastaviti za svako ispitivanje u skladu sa nekim od dole navedenih 10 modela.

MODEL IZVEŠTAJA O ISPITIVANJU BR. 1 A

Izveštaj o ispitivanju

sačinjen shodno odredbama Sporazuma o međunarodnom prevozu lakokvarljivih namirnica i
specijalnim sredstvima za njihov prevoz (ATP)

Izveštaj o ispitivanju br. _____

Odeljak 1

Specifikacije transportnog sredstva, izuzev cisterne namenjene za prevoz tečnih namirnica

Ovlašćena ispitna stanica/stručnjak:¹

Naziv/ime

Adresa

Tip transportnog sredstva:²

Marka Registarski broj Serijski broj

Datum početka upotrebe

Masa praznog transportnog sredstva³ kg Korisna nosivost³ kg

Komora:

Marka i tip Identifikacioni broj

Proizvođač

Vlasnik ili korisnik

Podnosilac zahteva

Datum izrade

Osnovne dimenzije:

Spolja: dužina m, širina m, visina m

Unutra: dužina m, širina m, visina m

Ukupna površina poda komore m²

Korisna unutrašnja zapremina komore m³

1 Obrisati ukoliko je nepotrebno (stručnjaci samo u slučaju ispitivanja obavljenih prema tačkama 5. i 6. Dodatka br. 2 Priloga br. 1 ATP sporazuma).

2 Vagon, kamion, prikolica, poluprikolica, kontejner, itd.

3 Navesti izvor ovih informacija.

Ukupna unutrašnja površina zidova komore S_i m²

Ukupna spoljna površina zidova komore S_e m²

Srednja površina: $S = \sqrt{S_i \cdot S_e}$ m²

Specifikacija zidova komore:⁴

Krov

Pod

Bočni zidovi

Specifičnosti konstrukcije komore:⁵

Broj,	}	vrata
mesto i		otvora za provetravanje
dimenzije		otvora za utovar leda

Pomoćni uređaji⁶

$K =$ W/m²K

⁴ Priroda i debljina materijala koji sačinjavaju zidove od unutrašnjosti ka spoljašnosti, način konstrukcije itd.

⁵ Ako je površina nepravilna prikazati usvojeni način određivanja S_i i S_e .

⁶ Poluge za meso, fletner ventilatori, itd.

MODEL IZVEŠTAJA O ISPITIVANJU BR. 1 B

Izveštaj o ispitivanju

sačinjen shodno odredbama Sporazuma o međunarodnom prevozu lakokvarljivih namirnica i
specijalnim sredstvima za njihov prevoz (ATP)

Izveštaj o ispitivanju br. _____

Odeljak 1

Specifikacije transportnog sredstva-cisterne namenjene za prevoz tečnih namirnica

Ovlašćena ispitna stanica/stručnjak:¹

Naziv/ime

Adresa

Tip cisterne:²

Marka Registarski broj Serijski broj

Datum početka upotrebe

Masa prazne cisterne³ kg Korisna nosivost³ kg

Cisterna:

Marka i tip Identifikacioni broj

Proizvođač

Vlasnik ili korisnik

Podnosilac zahteva

Datum izrade

Osnovne dimenzije:

Spolja: dužina m, velika osa m, mala osa m

Unutra: dužina m, velika osa m, mala osa m

Korisna unutrašnja zapremina cisterne m³

Unutrašnja zapremina svakog odeljka m³

Ukupna unutrašnja površina zidova S_i m²

1 Obrisati ukoliko je nepotrebno (stručnjaci samo u slučaju ispitivanja obavljenih prema tačkama 5. i 6. Dodatka br. 2 Priloga br. 1 ATP sporazuma).

2 Vagon, kamion, prikolica, poluprikolica, kontejner, itd.

3 Navesti izvor ovih informacija.

Unutrašnja površina svakog odeljka $S_{i1} \dots, S_{i2} \dots, \dots \text{ m}^2$

Ukupna spoljna površina zidova $S_e \dots \text{ m}^2$

Srednja površina: $S = \sqrt{S_i \cdot S_e} \dots \text{ m}^2$

Specifikacija zidova:⁴

Specifičnosti konstrukcije cisterne:⁵

Broj, dimenzije i opis revizionih otvora

Opis poklopaca revizionih otvora

Broj, dimenzije i opis odvodnih cevi

Broj i opis oslonaca cisterne

Pomoćni uređaji

$K = \dots \text{ W/m}^2\text{K}$

4 Priroda i debljina materijala koji sačinjavaju zidove od unutrašnjosti ka spoljašnosti, način konstrukcije itd.

5 Ako je površina nepravilna prikazati usvojeni način određivanja S_i i S_e .

MODEL IZVEŠTAJA O ISPITIVANJU BR. 2 A

Odeljak 2

Merenje ukupnog koeficijenta prenosa toplote transportnih sredstava izuzev cisterni namenjenih za prevoz tečnih namirnica u skladu sa tačkom 2.1. Dodatka br. 2 Priloga br. 1 ATP sporazuma

Metod ispitivanja: unutrašnje hlađenje/unutrašnje zagrevanje¹

Datum i vreme zatvaranja vrata i drugih otvora transportnog sredstva

Srednje vrednosti postignute za časova rada pri stalnom režimu

(od do časova):

a) Srednja spoljna temperatura komore: $T_e = \dots\dots\dots$ °C \pm K

b) Srednja unutrašnja temperatura komore: $T_i = \dots\dots\dots$ °C \pm K

v) Ostvarena srednja razlika u temperaturi: $\Delta T = \dots\dots\dots$ K

Maksimalna razlika u temperaturi:

izvan komore K

unutar komore K

Srednja temperatura zidova komore $\frac{T_e + T_i}{2}$ °C

Temperatura rada razmenjivača toplote² °C

Temperatura stvaranja rose vazduha izvan komore za vreme trajanja stalnog režima² °C \pm K

Ukupno trajanje ispitivanja h

Trajanje stalnog režima h

Utrošena snaga u razmenjivačima: W_1 W

Snaga koju apsorbuju ventilatori: W_2 W

Ukupni koeficijent prenosa toplote obračunat prema formuli:

Ispitivanje putem unutrašnjeg hlađenja¹ $K = \frac{W_1 - W_2}{S \cdot \Delta T}$

Ispitivanje putem unutrašnjeg zagrevanja¹ $K = \frac{W_1 + W_2}{S \cdot \Delta T}$

¹ Obrisati ukoliko je nepotrebno.

² Samo za ispitivanje putem unutrašnjeg hlađenja.

$K = \dots\dots\dots \text{ W/m}^2\text{K}$

Maksimalna greška merenja koje odgovara izvršenom ispitivanju %

Primedbe³

(Popunjava se samo u slučaju da transportno sredstvo nije opremljeno toplotnim uređajem:)

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu certifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od šest godina, sa oznakom IN/IR.¹

Međutim, ovaj izveštaj će biti važeći kao certifikat o odobrenju tipa u skladu sa tačkom 6. pod a) Dodatka br. 1 Priloga br. 1 ATP sporazuma samo za period od ne više od šest godina, to znači do

Sačinjeno u

na dan

.....
Lice odgovorno za ispitivanje

³ Ako komora nije oblika paralelopipeda, potrebno je naznačiti tačke na kojima su merene spoljne i unutrašnje temperature.

MODEL IZVEŠTAJA O ISPITIVANJU BR. 2 B

Odeljak 2

Merenje ukupnog koeficijenta prenosa toplote cisterne namenjenih za prevoz tečnih namirnica u skladu sa tačkom 2.2. Dodatka br. 2 Priloga br. 1 ATP sporazuma

Metod ispitivanja: unutrašnje zagrevanje

Datum i vreme zatvaranja otvora cisterne

Srednje vrednosti postignute za časova rada pri stalnom režimu

(od do časova):

a) Srednja spoljašnja temperatura cisterne: $T_e = \dots\dots\dots ^\circ\text{C} \pm \dots\dots\dots \text{K}$

b) Srednja unutrašnja temperatura cisterne

$$T_i = \frac{\sum S_{in} \cdot T_{in}}{\sum S_{in}} = \dots\dots\dots ^\circ\text{C} \pm \dots\dots\dots \text{K}$$

v) Ostvarena srednja razlika u temperaturi: $\Delta T = \dots\dots\dots \text{K}$

Maksimalna razlika u temperaturi:

Unutar cisterne K

Unutar svakog odeljka K

Izvan cisterne K

Srednja temperatura zidova cisterne $^\circ\text{C}$

Ukupno trajanje ispitivanja h

Trajanje stalnog režima h

Utrošena snaga u razmenjivačima: W_1 W

Snaga koju apsorbuju ventilatori: W_2 W

Ukupan koeficijent prenosa toplote obračunat prema formuli:

$$K = \frac{W_1 + W_2}{S \cdot \Delta T}$$

$K = \dots\dots\dots \text{W/m}^2\text{K}$

Maksimalna greška merenja koje odgovara izvršenom ispitivanju %

Primedbe:¹

¹ Ako cisterna nije oblika paralelopipeda, potrebno je naznačiti tačke na kojima su merene spoljne i unutrašnje temperature.

(Popunjava se samo u slučaju da cisterna nije opremljena toplotnim uređajem:)

Prema gornjim rezultatima ispitivanja cisterna se može, u smislu certifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od šest godina, sa oznakom IN/IR.²

Međutim, ovaj izveštaj će biti važeći kao certifikat o odobrenju tipa u skladu sa tačkom 6. pod a) Dodatka br. 1 Priloga br. 1 ATP sporazuma samo za period od ne više od šest godina, to znači do

Sačinjeno u

na dan

.....
Lice odgovorno za ispitivanje

² Obrisati ukoliko je nepotrebno.

MODEL IZVEŠTAJA O ISPITIVANJU BR. 3

Odeljak 2

Terenska provera izotermije transportnih sredstava u upotrebi koju vrši stručnjak u skladu sa tačkom 5. Dodatka br. 2 Priloga br. 1 ATP sporazuma

Provera je zasnovana na izveštaju o ispitivanju br. od dana
izdatog od strane stručnjaka ovlašćene ispitne stanice (ime i adresa)

Stanje pri proveri:

Krov

Bočni zidovi

Zadnji zid

Pod

Vrata i otvori

Zaptivke

Odvodni otvori za čišćenje

Zaptivenost vazduha

Koeficijent K transportnog sredstva kada je bilo novo (kao što je prikazano u prethodnom izveštaju o ispitivanju) W/m^2K

Primedbe:

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od tri godina, sa oznakom IN/IR.¹

Sačinjeno u

na dan

.....
Lice odgovorno za ispitivanje

¹ Obrisati ukoliko je nepotrebno.

MODEL IZVEŠTAJA O ISPITIVANJU BR. 4 A

Odeljak 3

Određivanje efikasnosti rashladnih uređaja rashladnih transportnih sredstava koji koriste led ili suvi led od strane ovlašćene ispitne stanice u skladu sa tačkom 3.1. izuzev 3.1.3. pod b) i pod v)

Dodatka br. 2 Priloga br. 1 ATP sporazuma

Rashladni uređaj:

Opis

Vrsta rashlađivača

Nominalni kapacitet punjenja rashlađivača naznačen od strane proizvođača

Stvorno punjenje rashlađivača korišćenog za ispitivanje

Pogon nezavisan/zavisan/glavnim pogonom¹

Rashladni uređaj nestacionaran/stacionaran¹

Proizvođač

Tip, serijski broj

Godina proizvodnje

Uređaj za punjenje (opis, položaj; priložiti crtež ako je potrebno)

Uređaji za unutrašnje provetravanje:

Opis (broj uređaja, itd.)

Snaga električnih ventilatora W

Propusna moć m³/h

Dimenzije vodova: poprečni presek m², dužina m

Zaslon na uvodnom otvoru za vazduh; opis¹

Automatski uređaji.....

Srednje temperature na početku ispitivanja

Unutrašnja °C ± K

Spoljna °C ± K

Temperatura stvaranje rose u ispitnoj komori °C ± K

Snaga unutrašnjeg grejnog sistema W

Datum i vreme zatvaranja vrata i drugih otvora

¹ Obrisati ukoliko je nepotrebno.

Zapis srednje unutrašnje i spoljne temperature komore transportnog sredstva i/ili kriva koja pokazuje promenu tih temperatura u toku vremena

Primedbe:

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od šest godina, sa oznakom

Međutim, ovaj izveštaj će biti važeći kao sertifikat o odobrenju tipa u skladu sa tačkom 6. pod a) Dodatka br. 1 Priloga br. 1 ATP sporazuma samo za period od ne više od šest godina, to znači do

Sačinjeno u

na dan

.....

Lice odgovorno za ispitivanje

MODEL IZVEŠTAJA O ISPITIVANJU BR. 4 B

Odeljak 3

Određivanje efikasnosti rashladnih uređaja rashladnih transportnih sredstava sa eutektičkim pločama od strane ovlašćene ispitne stanice u skladu sa tačkom 3.1. izuzev 3.1.3. pod a) i pod v) Dodatka br. 2 Priloga br. 1 ATP sporazuma

Rashladni uređaj:

Opis

Vrsta eutektičkog rastvora

Nominalni kapacitet punjenja eutektičkog rastvora naznačen od strane proizvođača kg

Latentna toplota pri temperaturi smrzavanja koju je utvrdio proizvođač kJ/kg pri °C

Rashladni uređaj nestacionaran/stacionaran¹

Pogon nezavisan/zavisan/glavnim pogonom¹

Proizvođač

Tip, serijski broj

Godina proizvodnje

Eutektičke ploče: Marka Tip

Dimenzije i broj ploča, položaj; rastojanje od zidova (priložiti crtež)

Ukupna rezerva hladnoće za temperaturu mržnjenja koju je naveo proizvođač od kJ do temperature °C

Uređaji za unutrašnje provetravanje (ukoliko postoje):

Opis

Automatski uređaji

Mehanički rashladni uređaj (ukoliko postoji):

Marka Tip Broj

Položaj

Kompresor: Marka Tip

Vrsta pogona

Vrsta rashlađivača

Kondenzator

Rashladna snaga navedena od strane proizvođača za naznačenu temperaturu mržnjenja i spoljnu temperaturu od + 30°C W

Automatski uređaji:

Marka Tip

Odmrzivač (ako postoji)

¹ Obrisati ukoliko je nepotrebno.

Termostat
Presostat NP
Presostat VP
Sigurnosni ventil
Ostalo

Pomoćni uređaji:
Električni grejači na spoju vrata:
Snaga po dužnom metru otpornika W/m
Dužina otpornika m

Srednja temperatura na početku ispitivanja:
Unutrašnja °C ± K
Spoljna °C ± K
Temperatura stvaranja rose u ispitnoj komori °C K

Snaga unutrašnjeg grejnog sistema W

Datum i vreme zatvaranja vrata i drugih otvora

Period akumuliranja hladnoće h

Zapis srednje unutrašnje i spoljne temperature komore transportnog sredstva i/ili kriva koja pokazuje promenu tih temperatura u toku vremena

Primedbe

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od šest godina, sa oznakom

Međutim, ovaj izveštaj će biti važeći kao sertifikat o odobrenju tipa u skladu sa tačkom 6. pod a) Dodatka br. 1 Priloga br. 1 ATP sporazuma samo za period od ne više od šest godina, to znači do

Sačinjeno u
na dan
Lice odgovorno za ispitivanje

MODEL IZVEŠTAJA O ISPITIVANJU BR. 4 V

Odeljak 3

Određivanje efikasnosti rashladnih uređaja rashladnih transportnih sredstava koja koriste tečne gasove od strane ovlašćene ispitne stanice u skladu sa tačkom 3.1. izuzev 3.1.3. pod a) i pod b) Dodatka br. 2 Priloga br. 1 ATP sporazuma

Rashladni uređaj:

Opis
Pogon nezavisan/zavisan/glavnim pogonom¹
Rashladni uređaj nestacionaran/stacionaran¹
Proizvođač
Tip, serijski broj
Godina proizvodnje
Vrsta rashlađivača
Nominalni kapacitet punjenja rashlađivača naveden od strane proizvođača
Stvorno punjenje rashlađivača korišćenog za ispitivanje kg
Opis rezervoara
Uređaj za punjenje (opis, položaj)

Uređaji za unutrašnje provetravanje:

Opis (broj, itd.)
Snaga električnih ventilatora W
Propusna moć m³/h
Dimenzije vodova: poprečni presek m², dužina..... m

Automatski uređaji

Srednje temperature na početku ispitivanja:

Unutrašnja °C ± K
Spoljna °C ± K
Temperatura stvaranja rose u ispitnoj komori °C ± K

Snaga unutrašnjeg grejnog sistema W

Datum i vreme zatvaranja vrata i drugih otvora

¹ Obrisati ukoliko je nepotrebno.

Zapis srednje unutrašnje i spoljne temperature komore transportnog sredstva i/ili kriva koja pokazuje promenu tih temperatura u toku vremena

Primedbe:

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od šest godina, sa oznakom

Međutim, ovaj izveštaj će biti važeći kao sertifikat o odobrenju tipa u skladu sa tačkom 6. pod a) Dodatka br. 1 Priloga br. 1 ATP sporazuma samo za period od ne više od šest godina, to znači do

Sačinjeno u

na dan

.....

Lice odgovorno za ispitivanje

MODEL IZVEŠTAJA O ISPITIVANJU BR. 5

Odeljak 3

Određivanje efikasnosti rashladnih uređaja transportnih sredstava-hladnjača od strane ovlašćene ispitne stanice u skladu sa tačkom 3.2. Dodatka br. 2 Priloga br. 1 ATP sporazuma

Mehanički rashladni uređaji:

Pogon nezavisan/zavisan/glavnim pogonom¹

Mehanički rashladni uređaji nestacionarni/stacionarni¹

Proizvođač

Tip, serijski broj

Godina proizvodnje

Vrsta rashlađivača i kapacitet punjenja

Efektivna rashladna snaga utvrđena od strane proizvođača za spoljnu temperaturu od + 30 °C i unutrašnju temperaturu od:

0 °CW

– 10 °CW

– 20 °CW

Kompresor:

Marka Tip

Pogon: električni, toplotni, hidraulički¹

Opis

Marka Tip Snaga kW pri o/min

Kondenzator i isparivač

Motor ventilatora: marka tip broj

snaga kW pri o/min

Uređaji za unutrašnje provetravanje:

Opis (broj uređaja, itd.)

Snaga električnih ventilatoraW

¹ Obrisati ukoliko je nepotrebno.

Propusna moć m³/h
Dimenzije vodova: poprečni presek m², dužina m

Automatski uređaji:

Marka Tip

Odmrzivač (ako postoji)

Termostat

Presostat NP

Presostat VP

Sigurnosni ventil

Drugo

Srednje temperature na početku ispitivanja:

Unutrašnja °C ± K

Spoljna °C ± K

Temperatura stvaranja rose u ispitnoj komori °C ± K

Snaga unutrašnjeg grejnog sistema W

Datum i vreme zatvaranja vrata i drugih otvora

Zapis srednje unutrašnje i spoljne temperature komore transportnog sredstva i/ili kriva koja pokazuje promenu tih temperatura u toku vremena

Vreme od početka ispitivanja do dostizanja propisane srednje unutrašnje temperature komore transportnog sredstva h

Primedbe

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od šest godina, sa oznakom

Međutim, ovaj izveštaj će biti važeći kao sertifikat o odobrenju tipa u skladu sa tačkom 6. pod a) Dodatka br. 1 Priloga br. 1 ATP sporazuma samo za period od ne više od šest godina, to znači do

Sačinjeno u

na dan

.....
Lice odgovorno za ispitivanje

MODEL IZVEŠTAJA O ISPITIVANJU BR. 6

Odeljak 3

Određivanje efikasnosti grejnih uređaja transportnih sredstava za zagrevanje od strane ovlašćene ispitne stanice u skladu sa tačkom 3.3. Dodatka br. 2 Priloga br. 1 ATP sporazuma

Grejni uređaj:

Opis

Pogon zavisan/nezavisan/glavnim pogonom¹

Grejni uređaj nestacionaran/stacionaran¹

Proizvođač

Tip, serijski broj

Godina proizvodnje

Položaj

Ukupna površina razmenjivača toplote m²

Efektivna snaga navedena od strane proizvođača kW

Uređaji za unutrašnje provetravanje:

Opis (broj uređaja itd.)

Snaga električnih ventilatora W

Propusna moć m³/h

Dimenzije vodova: poprečni presek m², dužina m

Srednje temperature na početku ispitivanja:

Unutrašnja °C ± K

Spoljna °C ± K

Datum i vreme zatvaranja vrata i drugih otvora

Zapis srednje unutrašnje i spoljne temperature komore transportnog sredstva i/ili kriva koja pokazuje promenu tih temperatura u toku vremena

Vreme od početka ispitivanja do dostizanja propisane srednje unutrašnje temperature komore transportnog sredstva h

¹ Obrisati ukoliko je nepotrebno.

² Povećana za 35% u slučaju novog transportnog sredstva.

Tamo gde je primenljivo, srednja grejna snaga korišćena za vreme ispitivanja da bi se održala propisana razlika² temperatura između unutrašnje i spoljne strane tela W

Primedbe

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od šest godina, sa oznakom

Međutim, ovaj izveštaj će biti važeći kao sertifikat o odobrenju tipa u skladu sa tačkom 6. pod a) Dodatka br. 1 Priloga br. 1 ATP sporazuma samo za period od ne više od šest godina, to znači do

Sačinjeno u

na dan

.....
Lice odgovorno za ispitivanje

MODEL IZVEŠTAJA O ISPITIVANJU BR. 7

Odeljak 3

Terenska provera efikasnosti rashladnih uređaja rashladnog transportnog sredstva u upotrebi koju vrši stručnjak u skladu sa tačkom 6.1 Dodatka br. 2 Priloga br. 1 ATP sporazuma

Provera je zasnovana na izveštaju o ispitivanju br. od dana izdatog od strane ovlašćene ispitne stanice/stručnjaka (naziv/ime i adresa)

Rashladni uređaj:

Opis

Proizvođač

Tip, serijski broj

Godina proizvodnje

Vrsta rashlađivača

Nominalni kapacitet punjenja rashlađivača naveden od strane proizvođača

Stvarno punjenje rashlađivača korišćenog za ispitivanje kg

Uređaj za punjenje (opis, položaj)

Uređaji za unutrašnje provetravanje:

Opis (broj uređaja itd.)

Snaga električnih ventilatora W

Propusna moć m³/h

Dimenzije vodova: poprečni presek m², dužina m

Stanje rashladnih i uređaja za ventilaciju

Ostvarena unutrašnja temperatura °C

Pri spoljnoj temperaturi °C

Unutrašnja temperatura transportnog sredstva pre pokretanja rashladnog uređaja °C

Ukupno vreme rada rashladnog uređaja h

Vreme od početka ispitivanja do dostizanja propisane srednje unutrašnje temperature komore transportnog sredstva h

Funkcionalna provera termostata

Za rashladni uređaj sa eutektičkim pločama:

Vreme rada rashladnog uređaja za smrzavanje eutektičkog rastvora h

Vreme za koje se unutrašnja temperatura vazduha održava posle isključivanja uređaja h

Primedbe

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od tri godine, sa oznakom

Sačinjeno u

na dan

.....

Lice odgovorno za ispitivanje

MODEL IZVEŠTAJA O ISPITIVANJU BR. 8

Odeljak 3

Terenska provera efikasnosti rashladnih uređaja transportnih sredstava-hladnjača u upotrebi koju vrši stručnjak u skladu sa tačkom 6.2 Dodatka br. 2 Priloga br. 1 ATP sporazuma

Provera je zasnovana na izveštaju o ispitivanju br. od dana izdatog od strane ovlašćene ispitne stanice/stručnjaka (naziv/ime i adresa)

Mehanički rashladni uređaj:

Proizvođač

Tip, serijski broj

Godina proizvodnje

Opis

Efektivna rashladna snaga navedena od strane proizvođača za spoljnu temperaturu od + 30 °C i unutrašnju temperaturu od:

0 °CW

- 10 °CW

- 20 °CW

Vrsta rashlađivača i kapacitet punjenja kg

Uređaji za unutrašnje provetravanje:

Opis (broj uređaja itd.)

Snaga električnih ventilatora W

Propusna moć m³/h

Dimenzije vodova: poprečni presek m², dužina m

Stanje mehaničkih rashladnih i uređaja za unutrašnje provetravanje

Dostignuta unutrašnja temperatura °C

Pri spoljnoj temperaturi od °C

i sa relativnim vremenom rada od %

Vreme rada h

Funkcionalna provera termostata

Primedbe

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od tri godine, sa oznakom

Sačinjeno u

na dan

.....
Lice odgovorno za ispitivanje

MODEL IZVEŠTAJA O ISPITIVANJU BR. 9

Odeljak 3

Terenska provera efikasnosti grejnih uređaja transportnih sredstava za zagrevanje u upotrebi koju vrši stručnjak u skladu sa tačkom 6.3 Dodatka br. 2 Priloga br. 1 ATP sporazuma

Provera je zasnovana na izveštaju o ispitivanju br. od dana izdatog od strane ovlašćene ispitne stanice/stručnjaka (naziv/ime i adresa)

Grejni uređaj:

Opis.....
Proizvođač
Tip, serijski broj
Godina proizvodnje
Položaj
Ukupna površina razmenjivača toplote m²
Efektivna snaga navedena od strane proizvođača kW

Uređaji za unutrašnje provetravanje:

Opis (broj uređaja, itd.)
Snaga električnih ventilatora W
Propusna moć m³/h

Dimenzije vodova: poprečni presek m², dužina m

Stanje grejnog i uređaja za unutrašnje provetravanje

Postignuta unutrašnja temperatura °C

Pri spoljnoj temperaturi od °C

i sa relativnim vremenom rada od %

Vreme rada h

Funkcionalna provera termostata

Primedbe

Prema gornjim rezultatima ispitivanja transportno sredstvo se može, u smislu sertifikata u skladu sa Dodatkom br. 3 Priloga br. 1 ATP sporazuma, smatrati važećim za period od ne više od tri godine, sa oznakom

Sačinjeno u

na dan

.....
Lice odgovorno za ispitivanje

MODEL IZVEŠTAJA O ISPITIVANJU BR. 10

IZVEŠTAJ O ISPITIVANJU

Pripremljen u skladu sa odredbama Sporazuma o međunarodnom prevozu lakokvarljivih namirnica i specijalnim sredstvima za njihov prevoz (ATP)

Izveštaj o ispitivanju broj

Određivanje efektivne snage rashladnog uređaja u skladu sa tačkom 4. Dodatka br. 2 Priloga br. 1 ATP sporazuma

Ovlašćena ispitna stanica

Naziv:

Adresa:

Rashladni uređaj dostavljen od:

a) Tehnička specifikacija uređaja

Datum proizvodnje: Marka:

Tip: Serijski broj:

Kategorija¹

Samostalan/nesamostalan

Nestacionaran/stacionaran

Jedinstven sklop/sastavljene komponente

Opis:

Kompresor: Marka: Tip:

Broj cilindara: Radna zapremina:

Nominalni broj obrtaja: o/min

Vrsta pogona^{1,2}: elektromotor, poseban motor sa unutrašnjim sagorevanjem, motor vozila, kretanje vozila

Motor za pogon kompresora^{1,2}:

Električni: Marka: Tip:

Snaga: kW pri: o/min

Napon napajanja: V Frekvencija napajanja: Hz

Motor sa unutrašnjim sagorevanjem: Marka: Tip:

Broj cilindara: Radna zapremina:

Snaga: kW pri: o/min

Vrsta goriva:

Hidraulični motor: Marka: Tip:

¹ Obrisati ukoliko je nepotrebno.

² Vrednost koju daje proizvođač.

Vrsta pogona:
 Alternator: Marka: Tip:
 Vrsta pogona:
 Broj obrtaja: { nominalni broj obrtaja dat od proizvođača: o/min
 minimalni broj obrtaja: o/min

Rashladna tečnost:

Razmenjivači toplote		Kondenzator	Isparivač
Marka-tip			
Broj cevi			
Korak lopatica (mm) ²			
Cev: materijal i prečnik (mm ²)			
Površina na kojoj se vrši razmena (m ²) ²			
Čeona površina (m ²)			
Ventilatorska kola	Broj		
	Broj lopatica po kolu		
	Prečnik (mm)		
	Nominalna snaga (W) ^{2,3}		
	Ukupna propusna moć pri pritisku od Pa (m ³ /h) ²		
	Vrsta pogona		

Ekspanzioni ventil: Marka: Tip:
 Podesiv:¹ Nepodesiv:¹

Odmrzivač:

Automatski uređaj:

³ Gde je primenljivo.

Rezultati merenja i rashladne performanse
(Crednja temperatura vazduha na ulaznom otvoru (uvodnim otvorima) rashladnog uređaja °C)

Efektivna rashladna snaga		W	...............	...............
Unutrašnja temperatura	Na ulasku u isparivač	°C	...............	...............
	Srednja	°C	...............	...............
Srednja spoljna temperatura		°C	...............	...............
Potrošnja goriva ili električne energije		W ili l/h	...............	...............
Snaga koju utroši ventilator hladnjaka		W	...............	...............
Snaga ventilatora unutrašnjeg grejača ⁴		W	...............	...............
Brzina obrtanja	Kompresora ³	o/min	...............	...............
	Alternatora ³	o/min	...............	...............
	Ventilatora ³	o/min	...............	...............
			Nominalna	Minimalna

⁴ Samo za metod razlike entalpija.

b) Metod ispitivanja i rezultati:

Metod ispitivanja¹: metod ravnoteže toplote/metod razlike entalpija

U kalorimetrijskoj kutiji srednje površine = m²

izmerena vrednost koeficijenta U kutije sa postavljenim rashladnim uređajem:
..... W/ °C

pri srednjoj temperaturi zida °C.

U transportnom sredstvu:

izmerena vrednost koeficijenta U dela transportnog sredstva sa postavljenim
rashladnim uređajem W/ °C

pri srednjoj temperaturi zida °C.

Primenjeni metod za korekciju koeficijenta U komore u zavisnosti od srednje temperature
zida komore:

Maksimalna greška pri određivanju:

koeficijenta U komore.....

snage rashladnog uređaja

v) Provere

Regulator temperature: Podešavanje Razlika °C

Funkcionisanje odmrzivača¹: zadovoljavajuće / nezadovoljavajuće

Zapreminski protok vazduha na izlasku iz isparivača: izmerena vrednost m³/h
..... pri pritisku od Pa

Postojanje načina snabdevanja toplotom isparivača radi podešavanja termostata između 0 i 12 °C:
da/ne

g) Primedbe

.....

Sačinjeno u

na dan

.....
Lice odgovorno za ispitivanje

Prilog br. 1, Dodatak br. 3

**A. Model obrasca certifikata o saobraznosti transportnog sredstva propisanog u tački
3. Dodatka br. 1 Priloga br. 1**

**OBRAZAC CERTIFIKATA ZA IZOTERMIČKA, RASHLADNA, TRANSPORTNA SREDSTVA-
HLADNJAČE ILI TRANSPORTNA SREDSTVA ZA ZAGREVANJE NAMENJENA ZA SUVOZEMNI
MEĐUNARODNI PREVOZ LAKOKVARLjIVIH NAMIRNICA**

[illegible]

Ove beleške se ne štampaju na certifikatu

- ¹ *Precrtati ono što se ne primenjuje.*
- ² *Znak zemlje koji se koristi u međunarodnom drumskom saobraćaju.*
- ³ *Broj (cifre, slova, itd.) koji označava organ koji izdaje certifikat i saopštenje o odobrenju.*
- ⁴ *Postupak ispitivanja još nije određen u okviru ATP sporazuma. Višetermperaturno transportno sredstvo je izotermičko transportno sredstvo sa dva ili više odeljaka sa različitim temperaturama u svakom odeljku.*
- ⁵ *Certifikat se štampa na jeziku zemlje u kojoj se izdaje i na Engleskom, Francuskom ili Ruskom; različite stavke se numerišu kao u gornjem modelu.*
- ⁶ *Navesti tip (vagon, kamion, prikolica, poluprikolica, kontejner, itd.); u slučaju transportnog sredstva-cisterne za prevoz tečnih namirnica, dodati reč „cisterna“.*
- ⁷ *Ovde uneti jedan ili više opisa navedenih u Dodatku br. 4 Priloga br. 1, zajedno sa odgovarajućom oznakom ili oznakama.*
- ⁸ *Navesti marku, tip, gorivo, serijski broj i godinu proizvodnje uređaja.*
- ⁹ *Merenje ukupnog koeficijenta prenosa toplote, određivanje efikasnosti rashladnih uređaja, itd.*
- ¹⁰ *Ukoliko je određen u saglasnosti sa odredbama tačke 3.2.7 Dodatka br. 2 ovog priloga.*
- ¹¹ *Efektivna rashladna snaga svakog isparivača zavisi od broja isparivača fiksiranih na sklopu kondenzatora.*
- ¹² *U slučaju gubitka, može se dobiti novi certifikat ili, umesto njega, fotokopija ATP certifikata koja ima specijalni pečat sa natpisom „DUPLIKAT“ (u crvenoj boji), ime odgovornog lica, njegov potpis i ime nadležnog ili ovlašćenog organa.*
- ¹³ *Sigurnosni pečat (reljefni, fluorescentni, ultraljubičasti ili druga sigurnosna oznaka koja potvrđuje verodostojnost certifikata).*
- ¹⁴ *Ukoliko je primenljivo, navesti način na koji je delegiran organ koji izdaje ATP certifikat.*

**B. Certifikaciona pločica o saobraznosti transportnog sredstva , propisana u tački
3. Dodatka br. 1 Priloga br. 1**

1. Certifikaciona pločica treba da bude stalno učvršćena na transportnom sredstvu na jasno vidljivom mestu uz bilo koju drugu pločicu odobrenja izdatu u službene svrhe. Pločica, u skladu sa dole prikazanim modelom, treba da ima oblik pravougaonika, da bude otporna na koroziju i vatru, širine najmanje 160 mm i visine najmanje 100 mm. Na pločici treba budu ispisane čitko i neizbrisivo, najmanje na Engleskom, Francuskom ili Ruskom jeziku, sledeće stavke:
 - a) Latinična slova „ATP“ iza kojih slede reči „ODOBRENO ZA PREVOZ LAKOKVARLJIVIH NAMIRNICA“;
 - b) „BROJ ODOBRENJA“ praćeno karakterističnom oznakom (u međunarodnom drumskom saobraćaju) države u kojoj je dato odobrenje i brojem (cifre, slova, itd.) odobrenja;
 - v) „SERIJSKI BROJ“ praćeno zasebnim brojem dodeljenim za identifikaciju pojedinih delova transportnog sredstva (može biti proizvođačev broj);
 - g) „ATP OZNAKA“ praćeno karakterističnom oznakom propisanom u Dodatku br. 4 Priloga br. 1, koja odgovara klasi i kategoriji transportnog sredstva;
 - d) „VAŽI DO“ praćeno datumom (mesec i godina) kada ističe odobrenje transportnog sredstva. Ako je odobrenje obnovljeno posle ispitivanja ili provere, odgovarajući datum se može dodati u istom redu.
2. Slova „ATP“ i slova karakteristične oznake države treba da budu visoka približno 20 mm. Druga slova i cifre treba da budu visine ne manje od 5 mm.

a	АТР ОДОБРЕНО ЗА ПРЕВОЗ ЛАКОКВАРЉИВИХ НАМИРНИЦА APPROVED FOR TRANSPORT OF PERISHABLE FOODSTUFFS	100 mm
б	БРОЈ ОДОБРЕЊА / APPROVAL NUMBER: [SRB-MF-456789]* *	
в	СЕРИЈСКИ БРОЈ / EQUIPMENT NUMBER: [AB12C987]*	
г	АТП ОЗНАКА / ATP MARK: [FRC]*	
д	ВАЖИ ДО / VALID UNTIL: [02-2011]*	

← ————— ≥ 160 mm ————— →

Prilog br. 1, Dodatak br. 4

**OZNAKE ZA RASPOZNAVANJE KOJE TREBA STAVITI NA SPECIJALNA
TRANSPORTNA SREDSTVA**

Oznake za raspoznavanje propisane u tački 4. Dodatka br. 1 ovog priloga, pišu se velikim slovima, latinicom, tamno plave boje na beloj osnovi; visina slova treba da bude najmanje 100 mm za oznake klase i najmanje 50 mm za datum isteka. U posebnim slučajevima, kao što je vozilo čija najveća dozvoljena masa ne prelazi 3,5 t, visina oznake klase može biti najmanje 50 mm, odnosno 25 mm za datum isteka.

Oznaka klase i datum isteka treba da se postave najmanje na bočnim stranama u gornjem uglu blizu prednjeg kraja.

Oznake su sledeće:

<u>Transportno sredstvo</u>	<u>Oznaka za raspoznavanje</u>
Obično izotermičko transportno sredstvo	IN
Pojačano izotermičko transportno sredstvo	IR
Obično rashladno transportno sredstvo klase A	RNA
Pojačano rashladno transportno sredstvo klase A	RRA
Pojačano rashladno transportno sredstvo klase B	RRB
Pojačano rashladno transportno sredstvo klase C	RRC
Obično rashladno transportno sredstvo klase D	RND
Pojačano rashladno transportno sredstvo klase D	RRD
Obično transportno sredstvo-hladnjača klase A	FNA
Pojačano transportno sredstvo-hladnjača klase A	FRA
Pojačano transportno sredstvo-hladnjača klase B	FRB
Pojačano transportno sredstvo-hladnjača klase C	FRC
Obično transportno sredstvo-hladnjača klase D	FND
Pojačano transportno sredstvo-hladnjača klase D	FRD
Pojačano transportno sredstvo-hladnjača klase E	FRE
Pojačano transportno sredstvo-hladnjača klase F	FRF
Obično transportno sredstvo za zagrevanje klase A	CNA
Pojačano transportno sredstvo za zagrevanje klase A	CRA
Pojačano transportno sredstvo za zagrevanje klase B	CRB

Ako je transportno sredstvo snabdeveno nestacionarnim ili zavisnim toplotnim uređajem i ako postoje posebni uslovi za upotrebu toplotnog uređaja, slovne oznake za raspoznavanje biće dopunjene latiničnim slovom X u sledećim slučajevima:

1. U SLUČAJU RASHLADNOG TRANSPORTNOG SREDSTVA:

Ukoliko eutektičke ploče treba postaviti u drugu komoru radi zaleđivanja;

2. U SLUČAJU TRANSPORTNOG SREDSTVA -HLADNJAČE:

2.1 Ukoliko je kompresor pogonjen motorom vozila;

2.2 Ukoliko je rashladni uređaj ili njegov deo nestacionaran, što bi sprečilo njegovo funkcionisanje.

Datum (mesec, godina) naveden u odeljku A, stavka 8 u Dodatku br. 3 ovog priloga kao datum prestanka važnosti certifikata izdatog za transportno sredstvo treba da bude naznačen ispod gorepomenutih oznaka za raspoznavanje.

Model:

FRC
02-2011

02 = mesec

2011 = godina



prestanka važnosti

certifikata

Prilog br. 2

**IZBOR TRANSPORTNIH SREDSTAVA I TEMPERATURNIH USLOVA ZA PREVOZ
DUBOKO SMRZNUTIH I SMRZNUTIH NAMIRNICA**

1. Za prevoz sledećih duboko smrznutih i smrznutih namirnica, transportno sredstvo treba izabrati i koristiti na taj način da za vreme prevoza najviša temperatura namirnica u bilo kojoj tački tereta ne pređe naznačenu temperaturu.

Zbog toga transportno sredstvo koje se koristi za transport duboko smrznutih namirnica treba da bude opremljeno uređajem navedenim u Dodatku br. 1 ovog priloga. Međutim, ukoliko se pristupi proveriti temperature namirnica, to se mora učiniti u skladu sa postupkom navedenim u Dodatku br. 2 ovom priloga.

2. Prema tome, temperatura namirnica u bilo kojoj tački tereta mora da bude na ili ispod navedene vrednosti pri utovaru, za vreme prevoza i pri istovaru.
3. Kada je potrebno otvoriti transportno sredstvo, na primer zbog inspekcije, nužno je obezbediti da namirnice ne budu izložene postupcima ili uslovima koji su u suprotnosti sa ciljevima ovog priloga i onima iz Međunarodne konvencije o harmonizaciji kontrole dobara na granici.
4. Za vreme određenih operacija, kao što je odmrzavanje isparivača transportnih sredstava-hladnjača, dozvoljava se kratkotrajno povećanje temperature površine namirnica za ne više od 3 °C u delu tovara, na primer blizu isparivača, iznad odgovarajuće temperature.

Sladoled –20 °C

Smrznuta ili duboko smrznuta riba, riblji proizvodi, mekušci, ljuskari i sve druge duboko smrznute namirnice –18 °C

Sve smrznute namirnice (osim maslaca) –12 °C

Maslac –10 °C

Dolenavedene duboko smrznute i smrznute namirnice koje se moraju dalje obraditi neposredno po dolasku na odredište:¹

Maslac

Koncentrisani voćni sok

¹ Za navedene duboko smrznute i smrznute namirnice namenjene za dalju obradu neposredno po dolasku na odredište, može se dozvoliti postepeno povećanje temperature za vreme prevoza tako da po dolasku na odredište temperature ne budu veće od onih koje je odredio pošiljalac i koje su navedene u ugovoru o prevozu. Ta temperatura ne treba da bude veća od najveće temperature odobrene za istu namirnicu kada se hladi kako je opisano u Prilogu br. 3. Isprave o ovakvom prevozu treba da sadrže ime namirnice, da li je duboko smrznuta ili smrznuta i da će neposredno po dolasku na odredište biti dalje obrađena. Ovaj prevoz biće obavljen ATP odobrenim transportnim sredstvom bez korišćenja toplotnih uređaja za povećanje temperatura namirnica.

Prilog br. 2, Dodatak br. 1

**PRAĆENJE TEMPERATURE VAZDUHA KOD TRANSPORTA DUBOKO
SMRZNUTIH LAKOKVARLJIVIH NAMIRNICA**

Transportno sredstvo mora biti opremljeno odgovarajućim instrumentom za snimanje kako bi se pratilo, u kratkim i ravnomernim intervalima, temperature vazduha kojem su izložene duboko smrznute namirnice namenjene za ljudsku upotrebu.

Merni instrument mora biti odobren od akreditovanog tela i dokumentacija mora biti na raspolaganju za odobrenje nadležnih ATP organa.

Merni instrumenti moraju biti u saglasnosti sa Standardom EN 12830 (Uređaji za snimanje temperature za prevoz, skladištenje i distribuciju rashlađene, smrznute, duboko/brzo smrznute hrane i sladoleda – Ispitivanje, učinak, podesnost) i EN 13486 (Uređaji za snimanje temperature i termometri za prevoz, skladištenje i distribuciju rashlađene, smrznute, duboko/brzo smrznute hrane i sladoleda – Periodična verifikacija).

Zapisi temperatura dobijeni na ovaj način moraju biti datirani i korisnik ih mora čuvati najmanje godinu dana ili duže, u zavisnosti od vrste hrane.

Merni instrumenti treba da budu u skladu sa odredbama ovog dodatka jednu godinu posle stupanja na snagu gornjih odredbi. Merni instrumenti ugrađeni pre tog datuma koji ne odgovaraju gornjim standardima mogu da se koriste do 31. decembra 2009.

Prilog br. 2, Dodatak br. 2

**POSTUPAK ZA UZORKOVANJE I MERENJE TEMPERATURE KOD
PREVOZA RASHLAĐENIH, SMRZNUTIH I DUBOKO SMRZNUTIH
LAKOKVARLJIVIH NAMIRNICA**

A. OPŠTA RAZMATRANJA

1. Kontrola i merenje temperatura utvrđeni u Prilozima br. 2 i 3 treba da budu obavljeni tako da namirnice ne budu izložene uslovima štetnim za bezbednost ili kvalitet namirnica. Merenje temperature hrane treba da bude obavljeno u rashlađenoj okolini, i sa minimum kašnjenja i minimum ometanja operacija prevoza.
2. Postupci kontrole i merenja, kao što je navedeno u tački 1, će prvenstveno biti obavljeni na mestima utovara ili istovara. Ti postupci obično neće biti sprovedeni u toku prevoza, sve dok ne postoji ozbiljna sumnja u saobraznost temperatura namirnica utvrđenih u Prilozima br. 2 i 3.
3. Kada je to moguće, kontrola treba da uzme u obzir informacije dobijene od uređaja za praćenje temperature u toku putovanja pre nego što izabere te toware lakokvarljivih namirnica za uzorkovanje i postupke merenja. Prelazak na merenje temperature hrane treba izvršiti samo ako postoji ozbiljna sumnja u upravljanje temperaturom za vreme prevoza.
4. Kada se izabere tovar, prvo treba primeniti merenje bez razaranja (između kutija ili između pakovanja). Samo ako rezultati merenja bez razaranja nisu saglasni sa temperaturama navedenim u Prilozima br. 2 ili 3 (uzimajući u obzir dozvoljena odstupanja), primeniće se merenje sa razaranjem. Kada su pošiljke ili kutije otvorene zbog kontrole, ali nisu preduzeta nikakva druga dejstva, one će biti zatvorene i zapečaćene sa podacima o danu, času i mestu kontrole, i overene zvaničnim pečatom kontrolnog organa.

B. UZORKOVANJE

5. Tipovi izabrane ambalaže za merenje temperature treba da budu takvi da je njihova temperatura predstavnik najtoplije tačke pošiljke.
6. Kada je potrebno da se izaberu uzorci za vreme prevoza dok je pošiljka utovarena, dva uzorka treba da budu uzeta sa vrha i dna pošiljke blizu ivice otvaranja svakih vrata ili para vrata.
7. Kada se uzorci uzimaju za vreme istovara pošiljke, po četiri uzorka treba da budu izabrana na sledećim mestima:
 - vrh i dno pošiljke blizu ivice otvaranja vrata;
 - gornji zadnji uglovi pošiljke (tj. najudaljeniji od rashladnog uređaja);
 - centar pošiljke;
 - centar prednje površine pošiljke (tj. najbliže rashladnom uređaju);
 - gornji ili donji uglovi prednje površine pošiljke (tj. najbliže ulasku povratnog vazduha iz rashladnog uređaja).

8. U slučaju rashlađene hrane o kojoj je reč u Prilogu br. 3, uzorci se uzimaju i sa najhladnijeg mesta kako bi se osiguralo da nije došlo do smrzavanja za vreme transporta.

V. MERENJE TEMPERATURE LAKOKVARLJIVIH NAMIRNICA

9. Sondu za merenje temperature pre merenja treba ohladiti na temperaturu što bližu temperaturi proizvoda.

I. Rashlađena hrana

10. Merenje bez razaranja. Merenje između kutija ili između pakovanja treba da se obavi pljosnatom sondom, koja obezbeđuje dobar površinski kontakt, ima malu toplotnu masu i visoku toplotnu provodljivost. Kada se sonda postavlja između kutija ili pakovanja hrane, treba postojati dovoljan pritisak kako bi se dobio dobar toplotni kontakt, i dovoljna dužina sonde da bi se smanjile greške provodljivosti.
11. Merenje sa razaranjem. Treba koristiti sondu sa krutim robusnim telom i oštrim vrhom, izrađenu od materijala koji se može lako čistiti i dezinfikovati. Sondu treba uvući u središte pakovanja hrane, i zabeležiti temperaturu kada se ustali.

II. Smrznuta i duboko smrznuta hrana

12. Merenje bez razaranja. Isto kao u tački 10.
13. Merenje sa razaranjem. Temperaturne sonde nisu konstruisane za prodiranje u smrznutu hranu. Zbog toga je potrebno napraviti rupu u proizvodu u koju će se uvući sonda. Rupa se buši prethodno ohlađenim probojnim instrumentom - metalni instrument sa oštrim vrhom kao što je probojac za led, ručna bušilica ili svrdlo. Prečnik rupe treba da omogući blizak kontakt sa sondom. Dubina rupe u koju se uvlači sonda zavisi od tipa proizvoda:
 - i) Kada dimenzije proizvoda dozvoljavaju, sondu uvući do dubine od 2,5 cm od površine proizvoda;
 - ii) Kada veličina proizvoda ne dozvoljava postupak opisan pod i), sondu treba uvući najmanje do dubine koja je 3 do 4 puta veća od prečnika sonde;
 - iii) Nije moguće ili praktično napraviti rupu u nekim vrstama hrane zbog njihove veličine ili oblika (povrće isečeno na kocke npr.). U tim slučajevima unutrašnja temperatura pakovanja hrane se određuje umetanjem pogodne sonde sa oštrim vrhom u centar pakovanja kako bi se izmerila temperatura u dodiru sa hranom.

Posle umetanja sonde, temperatura se očitava nakon njenog ustaljenja.

G. OPŠTI KRITERIJUMI ZA MERNI SISTEM

14. Merni sistem (sonda i pokazivač) koji se koristi za određivanje temperature treba da zadovolji sledeće kriterijume:
 - I) vreme odziva treba da bude takvo da omogući registrovanje 90% od razlike između početnog i konačnog očitavanja u periodu od tri minuta;
 - II) ¹sistem treba da ima tačnost od $\pm 0,5$ °C u mernom opsegu od – 20 °C do + 30 °C;
 - III) ¹tačnost merenja ne sme da se promeni za više od 0,3 °C za vreme rada u temperaturnom opsegu okoline od – 20 °C do + 30 °C;
 - IV) rezolucija očitavanja instrumenta treba da bude 0,1 °C;
 - V) ¹tačnost sistema treba redovno proveravati;
 - VI) sistem treba da poseduje važeći sertifikat o kalibraciji izdat od ovlašćene institucije;

¹ Postupak će biti određen.

VII) električne komponente sistema treba da budu zaštićene od neželjenih efekata usled kondenzacije vlage;

VIII) sistem treba da bude robustan i otporan na udar.

D. DOZVOLJENA Odstupanja pri merenju temperature

Određena odstupanja treba da budu dozvoljena u tumačenju temperaturnih merenja:

- i) operaciona – u slučaju smrznute i duboko smrznute hrane, kratki porast od 3 °C u odnosu na temperaturu dozvoljenu u Prilogu br. 2 je dozvoljen za površinsku temperaturu hrane;
- ii) metodološka – merenje bez razaranja može da dà najviše do 2 °C razlike u očitavanju u poređenju sa stvarnom temperaturom, naročito zbog debljine kartona za pakovanje. Ova odstupanja se ne odnose na metode merenja temperature sa razaranjem.

Prilog br. 3

**IZBOR TRANSPORTNIH SREDSTAVA I TEMPERATURNIH USLOVA ZA
PREVOZ RASHLAĐENIH NAMIRNICA**

1. Za prevoz sledećih rashlađenih namirnica, transportno sredstvo treba izabrati i koristiti na taj način da za vreme prevoza najviša temperatura u bilo kojoj tački tereta ne pređe naznačenu temperaturu. Međutim, ukoliko se pristupi proveriti temperature namirnica, to se mora učiniti u skladu sa postupkom navedenim u Dodatku br. 2 ovog priloga.
2. Prema tome, temperatura namirnica u bilo kojoj tački tereta mora da bude na ili ispod navedene vrednosti pri utovaru, za vreme prevoza i pri istovaru.
3. Kada je potrebno otvoriti transportno sredstvo, na primer zbog inspekcije, nužno je obezbediti da namirnice ne budu izložene postupcima ili uslovima koji su u suprotnosti sa ciljevima ovog priloga i onima iz Međunarodne konvencije o harmonizaciji kontrole dobara na granici.
4. Kontrola temperature namirnica naznačenih u ovom prilogu treba da bude takva da ne izazove smrzavanje u bilo kojoj tački tereta.

	<u>Maksimalna temperatura</u>
I. Sirovo mleko ¹	+ 6 °C
II. Crveno meso ² i krupna divljač (osim crvenih iznutrica)	+ 7 °C
III. Proizvodi od mesa ³ , pasterizovano mleko, sveži mlečni proizvodi (jogurt, kefir, pavlaka i svež sir ⁴), gotova jela (meso, riba, povrće), sirovo povrće spremno za jelo, proizvodi od povrća ⁵ i riblji proizvodi ³ koji nisu navedeni dole	ili na +6 °C ili na temperaturi naznačenoj na etiketi i/ili u ispravi o prevozu
IV. Divljač (osim krupne divljači), živina ² i zečevi	+ 4 °C
V. Crvene iznutrice ²	+ 3 °C
VI. Mleveno meso ²	ili na +2 °C ili na temperaturi naznačenoj na etiketi i/ili u ispravi o prevozu
VII. Sirova riba, mekušci i ljuskari ⁶	na ledu koji se topi ili na temperaturi topljenja leda

1 Kada se mleko skuplja sa farmi za neposrednu preradu, za vreme prevoza temperatura može da poraste do +10 °C.

2 Pripremljeno na bilo koji način.

3 Izuzev za proizvode potpuno obrađene soljenjem, dimljenjem, sušenjem ili sterilizacijom.

4 Pod „svežim sirom“ se podrazumeva nezreo sir koji je spreman za konzumiranje ubrzo posle proizvodnje i koji ima ograničen period konzervacije.

5 Sirovo povrće koje je iseckano na kocke ili kriške ili mu je na drugi način smanjena veličina, ali izuzev onog koje je samo oprano, oljušteno ili isečeno na polovine.

6 Izuzev za živu ribu, žive mekušce i žive ljuskare.

Član 3.

Ovaj zakon stupa na snagu osmog dana od dana objavljivanja u „Službenom glasniku Republike Srbije – Međunarodni ugovori“.