INFORMACIJA
o potrebi objavljivanja Sporazuma o međunarodnom prevozu lakokvarljivih namirnica i specijalnim sredstvima za njihov prevoz (ATP)

U Ženevi je 1. septembra 1970. godine usvojen Sporazum o međunarodnom prevozu lakokvarljivih namirnica i specijalnim sredstvima za njihov prevoz (ATP), čija je članica bila Socijalistička Federativna Republika Jugostavija. Sporazum je stupio na snagu 21. novembra 1976.

Crna Gora je notifikacijom o sukcesiji od 23. oktobra 2006. godine obavijestila depozitara navedenog sporazuma, Generalnog sekretara Ujedinjenih nacija, da se obavezuje na primjenu svih sporazuma kojih je bila članica SFRJ, SRJ i SCG, i time postala pravni nasljednik svih sporazuma čiji je depozitar Generalni sekretar Ujedinjenih nacija. Notifikacija o sukcesiji ima pravno dejstvo počev od 3. juna 2006. godine. Tada se Crna Gora obavezala na primjenu i ovog sporazuma, odnosno, da će sprovoditi homologaciju vozila i njihove opreme i djelova u skladu sa pravilnicima koje donosi UNECE, kao i da će priznavati homologacije koje su na osnovu ECE pravilnika izdale ovlašćene laboratorije drugih država.

Sporazum i njegovi prilozi su redovno mijenjani 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 UN. Posljednje izmjene predmetnog Sporazuma su od 13. novembra 2014. godine.

ATP je sporazum između država i ne postoji međunarodni 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 posebne kazne. Strane ugovornice ovog Sporazuma 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 primjenjuje na transportne aktivnosti koje se obavljaju na teritorijama najmanje dvije gore pomenute strane ugovornice. Pored toga, brojne su države koje su prihvatile ATP kao osnovu za njihove nacionalne propise.

Sporazum ima za cilj poboljšanje uslova očuvanja kvaliteta lakokvarljivih namirnica za vrijeme njihovog prevoza, posebno u međunarodnoj razmjeni, a

istovremeno objavljivanjem u Službenom listu, i čineći ga crnogorskoj javnosti dostupnim, može se očekivati povećani razvoj trgovine lakokvarljivih namirnica, na osnovu unificiranih pravila.

Napominjemo da u početnoj fazi primjene ovog Sporazuma, do uspostavljanja laboratorija koje će biti opremljene i obučene za sprovođenje ispitivanja definisanih ovim sporazumom, akcenat primjene istog treba biti na homologaciji vozila, odnosno provjeru zadatih elemenata sistema prilikom uvoza i prve registracije vozila ovog tipa.

Budući da je Sporazum iz 1976. godine, a za Crnu Goru kao članicu je stupio na snagu 3. juna 2006. godine, ali nije objavljen u Službenom listu tadašnje Republike Crne Gore, Ministarstvo saobraćaja i pomorstva, je zbog važnosti istog za oblast prevoza lakokvarljivih prehrambenih proizvoda, kao i unapređenje oblasti homologacije vozila mišljenja da ga treba objavljivanjem u Službenom listu Crne Gore – Međunarodni ugovori, učiniti dostupnim crnogorskoj javnosti i svim relevantnim subjektima.

MINISTAR

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

NOTE

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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United Nations Economic Commission for Europe (UNECE)

The United Nations Economic Commission for Europe (UNECE) is one of the five United Nations regional commissions, administered by the Economic and Social Council (ECOSOC). It was established in 1947 with the mandate to help rebuild post-war Europe, develop economic activity and strengthen economic relations among European countries, and between Europe and the rest of the world. During the Cold War, UNECE served as a unique forum for economic dialogue and cooperation between East and West. Despite the complexity of this period, significant achievements were made, with consensus reached on numerous harmonization and standardization agreements.

In the post -Cold War era, UNECE acquired not only many new member States, but also new functions. Since the early 1990s the organization has focused on analyses of the transition process, using its harmonization experience to facilitate the integration of central and eastern European countries into global markets.

UNECE is the forum where the countries of western, central and eastern Europe, Central Asia and North America – 56 countries in all – come together to forge the tools of their economic cooperation. That cooperation concerns economics, statistics, environment, transport, trade, sustainable energy, timber and habitat. The Commission offers a regional framework for the elaboration and harmonization of conventions, norms and standards. The Commission's experts provide technical assistance to the countries of South-East Europe and the Commonwealth of Independent States. This assistance takes the form of advisory services, training seminars and workshops where countries can share their experiences and best practices.

Transport in UNECE

The UNECE Inland Transport Committee (ITC) facilitates the international movement of persons and goods by inland transport modes. It aims to improve competitiveness, safety, energy efficiency and security in the transport sector.

At the same time it focuses on reducing the adverse effects of transport activities on the environment and contributing effectively to sustainable development.

The ITC is a:

- Centre for multilateral transport standards and agreements in Europe and beyond, e.g. regulations for dangerous goods transport and road vehicle construction at the global level
- Gateway for technical assistance and exchange of best practices
- Promoter of multi-country investment planning
- Substantive partner for transport and trade facilitation initiatives
- Historic centre for transport statistics.

For more than six decades, ITC has provided a platform for intergovernmental cooperation to facilitate and develop international transport while improving its safety and environmental performance. The main results of this persevering and important work are reflected in more than 50 international agreements and conventions which provide an international legal framework and technical regulations for the development of international road, rail, inland water and intermodal transport, as well as dangerous goods transport and vehicle construction.

Considering the needs of the transport sector and its regulators, UNECE offers a balanced approach to and treatment of facilitation and security issues alike.

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, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Monaco, Montenegro, Morocco, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Tajikistan, The former Yugoslav Republic of Macedonia, Tunisia, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America and 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 13 November 2014.

The amendments or corrections to the Agreement which have become applicable since the last edition of this publication are in Annex 1, Appendix 1, paragraph 3; Annex 1, Appendix 2, paragraphs 4.3.2; Annex 1, Appendix 3A; and Annex 2, Appendix 1.

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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 3 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 EQUIPMENT [1] FOR THE CARRIAGE OF PERISHABLE FOODSTUFFS

1. **Insulated equipment**. Equipment of which the body [2] 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 W/m^2.K;
I_R = Heavily insulated equipment specified by:	- a K coefficient equal to or less than 0.40 W/m^2.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 °C, of lowering the temperature inside the empty body to, and thereafter maintaining it:

At + 7 °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 W/m^2.K.

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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.*

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 °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 °C and 0 °C inclusive;

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 $W/m^2.K$.

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 $W/m^2.K$.

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 or recorded. This certificate shall conform to the model reproduced in appendix 3 to this annex.

The certificate of compliance shall be carried on the equipment during carriage and be produced whenever so required by the control authorities. However, if a certification plate of compliance, as reproduced in appendix 3 to this annex, is fixed to the equipment, the certification plate of compliance shall be recognized as equivalent to a certificate of compliance. A certification plate of compliance may be fixed to the equipment only when a valid certificate of compliance is available. Certification plates of compliance shall be removed as soon as the equipment ceases to conform to the standards laid down in 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 can issue a certificate of compliance:

(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 certificate of compliance 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 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

For a batch of identical serially produced insulated equipment (containers) having an internal volume of less than 2 m^3, a certificate of compliance for the batch may be issued by the competent authority. In such cases the identification numbers of all the insulated equipment, or the first and the last identification numbers of the series, shall be indicated on the certificate of compliance instead of the serial number of each individual unit. In that case, the insulated equipment listed in that certificate shall be fitted with a certification plate of compliance as described in Annex 1, Appendix 3 B issued by the competent authority.

In the case of transfer of this insulated equipment (containers) to another country which is a Contracting Party to this Agreement in order to be registered or recorded there, the competent authority of the country of the new registration or recording may provide an individual certificate of compliance based on the original certificate of compliance established for the whole batch.

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;

[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.*

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;

(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:

$$S = \sqrt{Si \cdot Se}$$

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 [1] passes through them, the mean inside temperature of the body remains below + 10 °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 1W/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 □0.5%.

[1] *To prevent frosting*

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 °C ± 2 K, the average temperature of the walls of the body being maintained at + 20 °C ± 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 l 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 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 two compartments, the measurements shall be made at least at the following points:

Near the end of the first compartment and near the partition with the second compartment, at the extremities of three radiuses forming 120° angles, one of the radiuses being directed vertically upwards.

Near the end of the second compartment and near the partition with the first compartment, at the extremities of three radiuses forming 120° angles, one of the radiuses being directed vertically downwards.

(c) If the tank has 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.

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

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 °C ± 2 K, with the average temperature of the tank walls being maintained at + 20 °C ± 0.5 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 l 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 ± 10% when using the method of internal cooling and ± 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 ± 0.5 K, at + 30 °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 °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;

T_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. 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 ± 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 ± 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 ±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 ±1%;

(d) *Pressure*: High precision pressure gauges (accurate to ± 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 °C ± 0.5 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 °C and +12 °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
± 1 K.

The mean inside temperature shall be maintained within a tolerance of ± 0.5 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 ± 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 ºC ± 3 K. It shall then be lowered to the following temperatures: -25 ºC for -20 ºC class, -13 ºC for -10 ºC class or -2 ºC for 0 ºC 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 ± 3%, with refrigerant flow measurement being accurate to ± 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 917, 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, AMCA 210-07, 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 l, 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 l% 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 l, paragraphs l (b) and l (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

such that $t \leq \frac{12 \times T}{T'}$ in which

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

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 from 2 January 2012

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 date given in 6.2 (i), 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.

8. PROCEDURE FOR MEASURING THE CAPACITY OF MECHANICAL MULTI-TEMPERATURE REFRIGERATION UNITS AND DIMENSIONING MULTI-COMPARTMENT EQUIPMENT

8.1 Definitions

(a) Multi-compartment equipment: Equipment with two or more insulated compartments for maintaining a different temperature in each compartment;

(b) Multi-temperature mechanical refrigeration unit: Mechanical refrigeration unit with compressor and common suction inlet, condenser and two or more evaporators set at different temperatures in the various compartments of multi-compartment equipment;

(c) Host unit: Refrigeration unit with or without an integral evaporator;

(d) Unconditioned compartment: a compartment considered to have no evaporator or for which the evaporator is inactive for the purposes of dimensioning calculations and certification;

(e) Multi-temperature operation: Operation of a multi-temperature mechanical refrigeration unit with two or more evaporators operating at different temperatures in multi-compartment equipment;

(f) Nominal refrigerating capacity: Maximum refrigerating capacity of the refrigeration unit in mono-temperature operation with two or three evaporators operating simultaneously at the same temperature;

(g) Individual refrigerating capacity ($P_{ind\text{-}evap}$): The maximum refrigerating capacity of each evaporator in solo operation with the host unit;

(h) Effective refrigerating capacity ($P_{eff\text{-}frozen\text{-}evap}$): The refrigerating capacity available to the lowest temperature evaporator when two or more evaporators are each operating in multi-temperature mode, as prescribed in paragraph 8.3.5.

8.2 Test procedure for multi-temperature mechanical refrigeration units

8.2.1 General procedure

The test procedure shall be as defined in section 4 of this appendix.

The host unit shall be tested in combination with different evaporators. Each evaporator shall be tested on a separate calorimeter, if applicable.

The nominal refrigerating capacity of the host unit in mono-temperature operation, as prescribed in paragraph 8.2.2, shall be measured with a single combination of two or three evaporators including the smallest and largest.

The individual refrigerating capacity shall be measured for all evaporators, each in mono-temperature operation with the host unit, as prescribed in paragraph 8.2.3.

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

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

- The host unit shall be tested with a combination of three evaporators: the smallest, the largest and a mid-sized evaporator.
- In addition, on demand of the manufacturer, the host unit can be tested optionally with a combination of two evaporators: the largest and smallest.

The tests are done in independent mode and stand by.

8.2.2 Determination of the nominal refrigerating capacity of the host unit

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

The air inlet temperature of the host unit shall be +30°C.

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

8.2.3 Determination of the individual refrigerating capacity of each evaporator

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

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

8.2.4 Test of the remaining effective refrigerating capacities of a set of evaporators in multi-temperature operation at a reference heat load

The remaining effective refrigerating capacity shall be measured for each tested evaporator at -20°C with the other evaporator(s) operating under control of a thermostat set at 0 °C with a reference heat load of 20% of the individual refrigerating capacity at -20 °C of the evaporator in question. The air inlet temperature of the host unit shall be +30 °C.

For multi-temperature refrigeration units with more than one compressor such as cascade systems or units with two-stage compression systems, where the refrigerating capacities can be simultaneously maintained in the frozen and chilled compartments, the measurement of the effective refrigerating capacity, shall be done at one additional heat load.

8.3 Dimensioning and certification of refrigerated multi-temperature equipment

8.3.1 General procedure

The refrigerating capacity demand of multi-temperature equipment shall be based on the refrigerating capacity demand of mono-temperature equipment as defined in this appendix.

For multi-compartment equipment, a K coefficient less than or equal to 0.40 W/m².K for the outer body as a whole shall be approved in accordance with subsections 2 to 2.2 of this appendix.

The insulation capacities of the outer body walls shall be calculated using the K coefficient of the body approved in accordance with this Agreement. The insulation capacities of the internal dividing walls shall be calculated using the K coefficients in the table in paragraph 8.3.7.

For issuance of an ATP certificate:

- The nominal refrigerating capacity of the multi-temperature refrigeration unit shall be at least equal to the heat loss through the internal dividing and outer body walls of the equipment as a whole multiplied by the factor 1.75 as specified in paragraph 3.2.6 of this appendix.

- In each compartment, the calculated remaining effective refrigerating capacity at the lowest temperature of each evaporator in multi-temperature operation shall be greater than or equal to the maximum refrigeration demand of the compartment in the most unfavourable conditions, as prescribed in paragraphs 8.3.5 and 8.3.6, multiplied by the factor 1.75 as specified in paragraph 3.2.6 of this appendix.

8.3.2 Conformity of the entire body

The outer body shall have a K value $K \leq 0.40$ W/m^2.K.

The internal surface of the body shall not vary by more than

20 %. The equipment shall conform to:

$$\mathbf{P_{nominal} > 1.75 * K_{body} * S_{body} * \Delta T}$$

Where:

$P_{nominal}$ is the nominal refrigerating capacity of the multi-temperature refrigeration unit, K_{body} is the K value of the outer body,

S_{body} is the internal surface of the full body,

T is the difference in temperature between outside and inside the body.

8.3.3 Determination of the refrigerating demand of chilled evaporators

With the bulkheads in given positions, the refrigerating capacity demand of each chilled evaporator is calculated as follows:

$$\mathbf{P_{chilled\ demand} = (S_{chilled\text{-}comp} - \Sigma S_{bulk}) * K_{body} * \Delta T_{ext} + \Sigma (S_{bulk} * K_{bulk} * \Delta T_{int})}$$

Where:

K_{body} is the K value given by an ATP test report for the outer body,

$S_{childled\text{-}comp}$ is the surface of the chilled compartment for the given positions of the bulkheads,

S_{bulk} are the surfaces of the bulkheads,

K_{bulk} are the K values of the bulkheads given by the table in paragraph 8.3.7,

ΔT_{ext} is the difference in temperatures between the chilled compartment and +30°C outside the body,

T_{int} is the difference in temperatures between the chilled compartment and other compartments. For unconditioned compartments a temperature of +20°C shall be used for calculations.

8.3.4 Determination of the refrigerating demand of frozen compartments

With the bulkheads in given positions, the refrigerating capacity demand of each frozen compartment is calculated as follows:

$$Pf_{rozen\ demand} = (S_{frozen\text{-}comp} - \Sigma S_{bulk}) * K_{body} * T_{ext} + \Sigma (S_{bulk} * K_{bulk} * T_{int})$$

Where:

K_{body} is the K value given by an ATP test report for the outer body,

$S_{frozen\text{-}comp}$ is the surface of the frozen compartment for the given positions of the bulkheads,

S_{bulk} are the surfaces of the bulkheads,

K_{bulk} are the K values of the bulkheads given by the table in paragraph 8.3.7,

T_{ext} is the difference in temperatures between the frozen compartment and +30 °C outside the body,

T_{int} is the difference in temperatures between the frozen compartment and other compartments. For insulated compartments a temperature of +20°C shall be used for calculations.

8.3.5 Determination of the effective refrigerating capacity of frozen evaporators

The effective refrigerating capacity, in given positions of the bulkheads, is calculated as follows:

$$P_{eff\text{-}frozen\text{-}evap} = P_{ind\text{-}frozen\text{-}evap} * [1 - \Sigma (P_{eff\text{-}chilled\text{-}evap} / P_{ind\text{-}chilled\text{-}evap})]$$

Where:

$P_{eff\text{-}frozen\text{-}evap}$ is the effective refrigerating capacity of the frozen evaporator with a given configuration,

$P_{ind\ -frozen\text{-}evap}$ is the individual refrigeration capacity of the frozen evaporator at -20 °C,

$P_{eff\text{-}chilled\text{-}evap}$ is the effective refrigeration capacity of each chilled evaporator in the given configuration as defined in paragraph 8.3.6,

$P_{ind\text{-}chilled\text{-}evap}$ is the individual refrigerating capacity at -20 °C for each chilled evaporator.

This calculation method is only approved for multi-temperature mechanical refrigeration units with a single one-stage compressor. For multi-temperature refrigeration units with more than one compressor such as cascade systems or units with two-stage compression systems, where the refrigerating capacities can be simultaneously maintained in the frozen and the chilled compartments, this calculation method shall not be used, because it will lead to an underestimation of the effective refrigerating capacities. For this equipment, the effective refrigerating capacities shall be interpolated between the effective refrigerating capacities measured with two different heat loads given in the tests reports as prescribed in 8.2.4.

8.3.6 Conformity declaration

The equipment is declared in conformity in multi-temperature operation if, for each position of the bulkheads, and each distribution of temperature in the compartments:

$$P_{eff\text{-}frozen\text{-}evap} \geq 1.75 * P_{frozen\ demand}$$

$$P_{eff\text{-}chilled\text{-}evap} \geq 1.75 * P_{chilled\ demand}$$

Where:

$P_{eff\text{-}frozen\text{-}evap}$ is the effective refrigeration capacity of the considered frozen evaporator at the class temperature of the compartment in the given configuration,

$P_{eff\text{-}chilled\text{-}evap}$ is the effective refrigeration capacity of the considered chilled evaporator at the class temperature of the compartment in the given configuration,

$P_{frozen\ demand}$ is the refrigerating demand of the considered compartment at the class temperature of the compartment in the given configuration as calculated according to 8.3.4,

$P_{chilled\ demand}$ is the refrigerating demand of the considered compartment at the class temperature of the compartment in the given configuration as calculated according to 8.3.3.

It shall be considered that all the positions of the bulkheads have been dimensioned if the wall positions from the smallest to the largest compartment sizes are checked by iterative methods whereby no input step change in surface area is greater than 20 %.

8.3.7 Internal dividing walls

Thermal losses through internal dividing walls shall be calculated using the K coefficients in the following table.

	K coefficient – [W/m².K]		*Minimum foam thickness [mm]*
	Fixed	*Removable*	
Longitudinal – alu floor	2.0	3.0	25
Longitudinal – GRP floor	1.5	2.0	25
Transversal – alu floor	2.0	3.2	40
Transversal – GRP floor	1.5	2.6	40

K coefficients of movable dividing walls include a safety margin for specific ageing and unavoidable thermal leakages.

For specific designs with additional heat transfer caused by additional thermal bridges compared to a standard design, the partition K coefficient shall be increased.

8.3.8 The requirements of section 8 shall not apply to equipment produced before the entry into force of the requirements and having undergone equivalent tests as multi-temperature equipment. Equipment produced before the entry into force of this section may be operated in international transport but may only be transferred from one country to another with the agreement of the competent authorities of the countries concerned

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 [3]……kg 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, width ……m, height…… ..... m

Inside: length …….. m, width ……m, height…… ..... m

Total floor area of body
..... m^2

Usable internal volume of body
..... m^3

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: $S = S_i . S_e$ ..... 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 cylinder …….m, major axis ……. m, minor axis ..... m

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

Usable internal volume
..... m^3

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: $S = S_i \cdot S_e$ …….. 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 = ……..°C ± ……..K

(b) Mean inside temperature of body: ..... T_i = ……...°C ± ……..……...K

(c) Mean temperature difference achieved: T = …….....K

Maximum temperature spread:

Outside body …….....….K

Inside body ..... ……...K

Mean temperature of walls of body $\frac{T_e + T_i}{2}$ .....

Operating temperature of heat exchanger [2]
.....

Dew point of atmosphere outside body during continuous operation [2]
……..……. °C ± .....

Total duration of test
.....

Duration of continuous operation

Power consumed in exchangers: W
.....[1]

Power absorbed by fans: W_2
.....

Overall coefficient of heat transfer calculated by the formula:

Inside-cooling test[1] $K = \frac{W_1 \square W_2}{S.\ \Delta T}$

ıside-heating test[1] [1] $K = \frac{W_1 + W_2}{S.\ \Delta T}$

K =……. $W/m^2.K$

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 for ……..……hours of continuous operation

(from …… a.m./p.m. to …… a.m./p.m.):

(a) Mean outside temperature of tank: T_e = ……C ± ……K

(b) Mean inside temperature of tank:

$$T_i = \frac{\sum S_{in} . T_{in}}{\sum S_{in}}$$

= …….. °C± ……K

(c) Mean temperature difference achieved: T ……..K

Maximum temperature spread:

Inside tank ..... K

Inside each compartment
..... K

Outside tank
..... K

Mean temperature of tank walls ..... °C

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:

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

K = …… $W/m^2.K$

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/m^2.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
..... m^3/h

Dimensions of ducts: cross-section …… ..... m^2, length ……..……m

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 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 …….. . ……..

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 manufacturer ……kJ/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 of ……..kJ 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):

Make ……Type …….No. ……

Where situated ……

Compressor: Make ……..Type ..... ……

Type of drive ……

Nature of refrigerant ……

Condenser ……

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

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 l, 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 ..... m^3/h

Dimensions of ducts: cross-section ……..…… ... m^2, length ……m

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 system ……..……W

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

..... m^3/h

Dimensions of ducts: cross-section …… ..... m^2, 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
..... m^2

Effective power rating as specified by manufacturer
..... kW

Inside ventilation appliances:

Description (number of appliances, etc.)
.....

Power of electric fans
..... W

Delivery rate
.....
..... m^3/h

Dimensions of ducts: cross-section …….. .... m^2, 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 ..... m^3/h

Dimensions of ducts: cross-section …… m^2, 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

-10 °C .....

-20 °C .....

Nature.....ofrefrigerantandfillingcapacity

Inside ventilation appliances:

Description.....(numberofappliances,etc.)

Power.....ofelectricfans

Delivery rate ……m^3/h

Dimensions of.....ducts:cross-section……m^2, 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
..... m^2

Effective power rating as specified by manufacturer
..... kW

Inside ventilation appliances:

Description (number of appliances, etc.)
.....

Power of electric fans
..... W

Delivery rate
..... m^3/h

Dimensions of ducts: cross-section …… ..... m^2, 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 voltage …….V Supply frequency ..... Hz

MODEL No. 10 (cont'd)

Internal combustion engine:	Make: ……. Number of cylinders: …… Power:…… kW Fuel: ……..	Type: …… Cubic capacity: …… at ……rpm
Hydraulic motor:	Make: …….. Method of drive:……..	Type: ……
Alternator:	Make: …….. Method of drive:……..	Type:…….
Speed of rotation:	(nominal speed given by the manufacturer: ((……rpm ((minimum speed: ……...rpm	

Refrigerant fluid:
.....

Heat exchangers		Condenser	Evaporator
Make-type			
Number of tubes			
Fan pitch (mm) 2/			
Tube: nature and diameter (mm) 2/			
Exchange surface area (m^2) 2/			
Frontal area (m^2)			
FANS	Number		
	Number of blades per fan		
	Diameter (mm)		
	Nominal power (W) - 2/,3/		
	Total nominal output at a pressure of . . . . . Pa (m^3/h) 2/		
	Method of drive		

Expansion valve: Make: …….. Model: ……

Adjustable: 1 …….. Not adjustable: 1 …….

Defrosting device: …….

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)

	Brzina obrtanja			Pover of internal fan heater[4]	Pover apsorbed by the unit cooler fan	Fuel or electrical power consumption	Mean temperature around the body	Internal temperature		Efective refrigerating capacity
	Fans[3]	Alternator[3]	Compresor[3]					Mean	Inlet to evaporator	
	o/min	o/min	o/min	W	W	W ili l/h	°C	°C	°C	W
Nominal	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _ _____ _ _____ _ _____ _	_____ _____ _____ _____
Minimal	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _ _____ _ _____ _ _____ _	_____ _____ _____ _____

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 = ... m^2
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 ……..m^3/h

..... at a pressure of ……Pa

Existence of a means of supplying heat to the evaporator for setting the thermostat between 0 and 12 °C [1]: yes/no

(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

Certificates of compliance of equipment issued before 2 January 2011 in accordance with the requirements regarding the model of the certificate in Annex 1, Appendix 3 in force until 1 January 2011 shall remain valid until their original date of expiry.

/ EQUIPMENT [1]

( ) [2]	XXXXXXXXX [3]	INSULATED	REFRIGERATED	MECHANICALLY REFRIGERATED	HEATED	MULTI-TEMPERATURE [4]

/ CERTIFICATE [5] **ATP XXXXXXXXX**

/ 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: **XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX**
2. / Equipment [b]: **XXXXXXXXXXXXXXXXXXXX**
3. / Registration number [a]: **XXXXXXXXXX** / Vehicle identification number [a] **XXXXXXXXXXXXXXXXXXXX**

/ allotted by: **XXXXXXXXXXXXXXXXXXXX**

Insulated box serial number: [15] **XXXXXXXXXXXXXXXXXXXXXXXXXXXX**

4. Owner or operated by: **XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX**
5. / Submitted by: **XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX**
6. / Is approved as: [7] **XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX**

6.1 / With one or more thermal appliances which is (are) [1]:

6.1.1 / Independent; [8] **MARK, MODEL, REFRIGERANT, SERIAL NUMBER/YEAR OF MANUFACTURE** (If any)

6.1.2 / Not independent; [8] **MARK, MODEL, REFRIGERANT, 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: **XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX**

7.2.2 / The nature of the tests: [9] **XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX**

7.2.3 / The number(s) of the report(s): **NNNNNNNN (TESTING STATION) YYYY/MM/DD and NNNNNNNN (TESTING STATION) YYYY/MM/DD**

7.2.4 / The K coefficient: **0.nn W/m[2]K**

7.2.5 / The effective refrigerating capacity at an outside temperature of 30 °C and an inside temperature of: [10]

[11]	Nominal capacity	Evap.1	Evap.2	Evap.3
°C	**xxxxx W**	**xxxxx W**	**xxxxx W**	**xxxxx W**
°C	**xxxxx W**	**xxxxx W**	**xxxxx W**	**xxxxx W**
°C	**xxxxx W**	**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, 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: **XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX**

CERTIFIED DUPLICATE [12]

Do not print this stamp on the original Certificate
(Officer name)
(Competent or authorized authority)

10. / On: **YYYY/MM/DD**

/ The competent authority **XXXXXXXXXXXXXXXXXXXXXXXXX**

[14] / Responsible for the ATP

LOGOTYPE[13]

Security stamp (relief, ultraviolet, etc.)

Original document

(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, refrigerant, 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.*

[15] *All the serial numbers of insulated equipment (containers) having an internal volume of less than 2m^3 shall be listed. It is also acceptable to collectively list these numbers, i.e. from number … to number ….*

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 l, 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:

Equipment	Distinguishing mark
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

Equipment	Distinguishing mark
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 - 201I

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 other 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 shall be fitted with an instrument capable of measuring and recording air temperatures and storing the data obtained (hereinafter referred to as the instrument) to monitor the air temperatures to which quick-frozen foodstuffs intended for human consumption are subjected.

The instrument shall be verified in accordance with 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) by an accredited body and the documentation shall be available for the approval of ATP competent authorities.

The instrument shall comply with standard EN 12830 (Temperature recorders for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream – Tests, performance, suitability).

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.

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;

(ii) [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.

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[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.

I. Raw milk[1]

II. Red meat[2] and large game (other than red offal)

III. Meat products,[3] pasteurized milk, butter, 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] , concentrated fruit juice and fish products[3] not listed below

IV. Game (other than large game), poultry[2] and rabbits

V. Red offal[2]

VI. Minced meat[2]

VII. Untreated fish, molluscs and crustaceans [6]

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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.*

SPORAZUM O

MEĐUNARODNOM PREVOZU LAKOKVARLJIVIH NAMIRNICA I SPECIJALNIM SREDSTVIMA ZA NJIHOV PREVOZ (ATP)

NAPOMENA

Primjenjene oznake i prikaz materijala u ovoj publikaciji ne izražavaju bilo kakvo mišljenje bilo kojeg dijela Sekretarijata Organizacije Ujedinjenih nacija, a koji se odnosi na legalni status bilo koje zemlje, teritorije, grada ili oblasti, ili njihovih predstavnika, ili definisanja njihovih granica ili međa.

EKONOMSKA KOMISIJA ZA EVROPU (ECE) / TRANS /

PUBLIKACIJA UJEDINJENIH NACIJA
Tiraž:
Međunarodni standardni broj knjige (ISBN)

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 mijenjani 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 primjenljivost

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 vrijeme publikovanja, te strane ugovornice su Albanija, Andora, Austrija, Azerbejdžan, Bjelorusija, Belgija, Bosna i Hercegovina, Bugarska, Hrvatska, Češka Republika, Danska, Estonija, Finska, Francuska, Gruzija, Njemačka, Grčka, Mađarska, Irska, Italija, Kazahstan, Kirgistan, Letonija, Litvanija, Luksemburg, Monako, Crna Gora, Maroko, Holandija, Norveška, Poljska, Portugal, Moldavija, Rumunija, Ruska Federacija, Srbija, Slovačka, Slovenija, Španija, Švedska, Tadžikistan, Bivša Jugoslovenska Republika Makedonija, Tunis, Turska, Ukrajina, Ujedinjeno Kraljevstvo Velike Britanije i Sjeverne Irske, Sjedinjene Američke Države i Uzbekistan.

ATP se primjenjuje 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 primjenom ATP-a potrebno je obratiti se relevantnoj kompetentnoj organizaciji. Dodatne informacije mogu se takođe naći na internet prezentaciji Transportnog sektora UNECE, i to na sljedećoj 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.

Sljedeći tekst sadrži sam Sporazum i njegove priloge sa posljednjim izmjenama koje stupaju na snagu 13. novembra 2014. godine.

Izmjene i dopune ili ispravke Sporazuma koje se primjenjuju od posljednjeg izdanja ove publikacije su u tački 3. Dodatka br. 1 Priloga br. 1; tačkama 4.3.2. Dodatka br. 2 Priloga br. 1; Dodatku br. 3A Prilogu br. 1 i Dodatku br. 1 Prilogu br. 2.

SADRŽAJ

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

STRANE UGOVORNICE

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

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

DOGOVORILE su se o sljedećem:

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 zagrijavanje" su samo ona transportna sredstva koja odgovaraju definicijama i normama iznijetim u Prilogu br. 1 ovog sporazuma.

Član 2

Strane ugovornice preduzimaju potrebne mjere da obezbijede 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 certifikat o usaglašenosti koje izdaju nadležni organi neke druge strane ugovornice. Svaka strana ugovornica može priznati važnost certifikata o usaglašenosti 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 IZVJESNIH LAKOKVARLJIVIH NAMIRNICA

Član 3

1. Odredbe navedene u članu 4. ovog sporazuma primjenjuju se na svaki prevoz, za račun drugoga ili za sopstveni račun, koji se isključivo obavlja, sa izuzetkom odredaba iz tačke 2. ovog člana, željeznicom 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 mjesto na kojem se roba ili transportno sredstvo koje sadrži ovu robu utovaruje u željezničko ili drumsko vozilo i mjesto na kojem se roba ili transportno sredstvo koje sadrži ovu robu istovaruje, nalaze u dvije različite države, a ukoliko se mjesto 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 primjenjuju 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 primjenjuju na prevoz namirnica koje nisu namijenjene 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 vrijeme 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 vrijeme čitavog prevoza. Osim toga, treba preduzeti sve potrebne mjere, naročito u pogledu temperature namirnica u trenutku utovara i smrzavanja, ponovnog smrzavanja za vrijeme puta ili drugih potrebnih radnji. Međutim, odredbe iz ove tačke primjenjuju 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 vrijeme stupanja na snagu ovog sporazuma ili iz konvencija kojima one budu zamijenjene.

2. Ako za vrijeme prevoza koji podliježe 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 zahtjevima 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 riječ u posljednjoj 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 obezbijede 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 obezbijede ili pruže usluge pod uslovom da se poštuju odredbe ovog sporazuma, ona su dužna da obezbijede to poštovanje ako je ono vezano za izvršenje usluga koje su ona prihvatila da obezbijede ili pruže.

4. Za vrijeme prevoza koji podliježe zahtjevima ovog sporazuma, a čije se mjesto 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 primjenjuju se na prevoz kopnom koji se obavlja putem izotermičkih pomorskih kontejnera bez pretovara robe, pod uslovom da ovim prevozima prethodi ili se poslije 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 obezbijedila poštovanje odredaba ovog sporazuma. Nadležni organi strana ugovornica redovno se obavještavaju o opštim mjerama preduzetim u tu svrhu.

2. Ako neka strana ugovornica utvrdi prekršaj koji počini neko lice koje boravi na teritoriji neke druge strane ugovornice, ili mu izrekne kaznu, uprava prve strane obavještava 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 primjenjuju, 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 primjenjuju samo na međunarodni prevoz koji se vrši između strana ugovornica koje budu zaključile dvostrane ili višestrane 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 savjetodavni 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 primjeni tačke 11. mandata ove Komisije, mogu postati strane ugovornice ovog sporazuma ako mu pristupe poslije njegovog stupanja na snagu.

3. Ovaj sporazum je otvoren za potpisivanje do 31. maja 1971. zaključno. Poslije 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 primjenjuje 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 primjenjuje 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 primjenjuju 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 primjenjuje na prevoze na teritoriji označenoj u saopštenju shodno tački 1. ovog člana, a Sporazum se primjenjuje 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 mjeseci od dana kada generalni sekretar o tome primi saopštenje.

Član 13

Ovaj sporazum prestaje da proizvodi dejstvo ako je, poslije njegovog stupanja na snagu, u bilo kojem periodu od dvanaest uzastopnih mjeseci 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 primjenjuje na sve ili neke teritorije koje ona predstavlja na međunarodnom planu. Ovaj sporazum se primjenjuje 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 primjenljivosti 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 primjenu ovog sporazuma rješava se, ukoliko je to moguće, putem pregovora između strana u sporu.

2. Svaki spor koji nije riješen 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 mjeseca od dana zahtjeva za arbitražu strane u sporu ne mogu da se sporazumiju 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 rješavanje.

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 vrijeme 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 obavještava o tom zahtjevu sve strane ugovornice i saziva konferenciju za reviziju ako mu, u roku od četiri mjeseca od dana kada uputi ovo saopštenje, najmanje jedna trećina strana ugovornica dostavi svoju saglasnost sa ovim zahtjevom.

2. Ako se sazove konferencija u skladu sa tačkom 1. ovog člana, generalni sekretar o tome obavještava sve strane ugovornice i poziva ih da u roku od tri mjeseca podnesu prijedloge koje žele da se na konferenciji razmotre. Generalni sekretar dostavlja svim stranama ugovornicama privremeni dnevni red konferencije, kao i tekst ovih prijedloga, najkasnije tri mjeseca 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 izmjena ovog sporazuma. Tekst svakog prijedloga izmjene dostavlja se generalnom sekretaru Organizacije Ujedinjenih nacija

koji ga upućuje svim stranama ugovornicama i o njemu obavještava druge države o kojima je riječ 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 mjeseci, računajući od dana kada generalni sekretar dostavi prijedlog izmjene, svaka strana ugovornica može obavijestiti generalnog sekretara:

a) bilo da ima primjedbu na predloženu izmjenu,
b) bilo da, iako ima namjeru da prihvati prijedlog, uslovi potrebni za to prihvatanje nisu još ispunjeni u njenoj zemlji.

3. Sve dok strana ugovornica koja je uputila obavještenje predviđeno u gornjoj tački 2. pod b) ovog člana, ne saopšti generalnom sekretaru da usvaja izmjenu, ona može, tokom devet mjeseci od dana isteka šestomjesečnog roka predviđenog za obavještenje, staviti primjedbu na predloženu izmjenu.

4. Ukoliko je neka primjedba stavljena na prijedlog izmjene pod uslovima predviđenim u tačkama 2. i 3. ovog člana, izmjena se smatra neprihvaćenom i ostaje bez dejstva.

5. Ukoliko nije bilo nikakvih primjedbi na prijedlog izmjene pod uslovima predviđenim u tačkama 2. i 3. ovog člana, smatra se da je izmjena prihvaćena:

a) ako nijedna strana ugovornica nije dostavila obavještenje prema tački 2. pod b) ovog člana, po isteku šestomjesečnog roka predviđenog u tački 2;
b) ako je makar jedna strana ugovornica uputila obavještenje prema tački 2. pod b) ovog člana, onog datuma koji je bliži jednom od dva sljedeća:
    - datumu kada sve strane ugovornice koje su uputile takvo obavještenje saopšte generalnom sekretaru da prihvataju prijedlog, s tim da se taj datum odloži do isteka šestomjesečnog roka predviđenog u tački 2. ovog člana, ako su sva prihvatanja saopštena pre tog isteka;
    - datumu isteka devetomjesečnog roka o kome je reč u tački 3. ovog člana.

6. Svaka izmjena koja se smatra prihvaćenom stupa na snagu šest mjeseci od dana kada se smatra prihvaćenom.

7. Generalni sekretar upućuje što je moguće prije svim stranama ugovornicama saopštenje da li je neka primjedba stavljena na neki prijedlog izmjena 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 poslije toga obavještava sve strane ugovornice da li strana ili strane ugovornice koje su dostavile takvo saopštenje stavljaju primjedbu na prijedlog izmjene ili ga prihvataju.

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

Član 19

Osim obavještenja predviđenih u članovima 17. i 18. ovog sporazuma, generalni sekretar Organizacije Ujedinjenih nacija obavještava zemlje o kojima je riječ 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,

c) otkazima na osnovu člana 12,

d) ukidanju ovog sporazuma shodno članu 13,

e) saopštenjima primljenim shodno članovima 10. i 14,

f) izjavama i saopštenjima primljenim shodno tačkama 1. i 2. člana 16,

g) stupanju na snagu svake izmjene shodno članu 18.

Član 20

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

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

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

Prilog br. 1

DEFINICIJE I NORME SPECIJALNIH SREDSTAVA[1] ZA PREVOZ LAKOKVARLJIVIH NAMIRNICA

1. **Izotermičko transportno sredstvo.** Transportno sredstvo čija je zatvorena komora[2] sastavljena od izolacionih zidova, uključujući vrata, pod i krov, koji omogućavaju da se ograniči razmjena toplote između unutrašnjosti i spoljašnosti zatvorene komore, tako da se po ukupnom koeficijentu prenosa toplote (koeficijent K) transportno sredstvo može svrstati u jednu od dve sljedeće kategorije:

IN = Obično izotermičko transportno sredstvo - čija je karakteristika u tome što mu je koeficijent K jednak ili niži od 0,7 W/m^2K,

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

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

2. **Rashladno transportno sredstvo.** Izotermičko transportno sredstvo koje, pomoću nekog izvora hladnoće (vodeni 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 ˚C,

na najviše + 7 ˚C za klasu A,

na najviše - 10 ˚C za klasu B,

na najviše - 20 ˚C za klasu C,

na najviše 0 ˚C za klasu D,

Ukoliko takvo transportno sredstvo ima jedan ili više odeljaka, spremnika ili rezervoara, namijenjenih 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 zahtjevima 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 W/m^2K.

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 ˚C, temperatura u unutrašnjosti prazne zatvorene komore spusti i da se zatim stalno održava na sljedeći način:

Za klase A, B i C na svaku praktično stalnu željenu vrijednost Ti, shodno doljenavedenim normama za tri klase:

Klasa A. Transportno sredstvo - hladnjača sa takvim rashladnim uređajem da Ti može da se izabere između + 12 ˚C i 0 ˚C zaključno;

Klasa B. Transportno sredstvo - hladnjača sa takvim rashladnim uređajem da Ti može da se izabere između + 12 ˚C i - 10 ˚C zaključno;

Klasa C. Transportno sredstvo - hladnjača sa takvim rashladnim uređajem da Ti može da se izabere između + 12 ˚C i - 20 ˚C zaključno.

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

Klasa D. Transportno sredstvo - hladnjača sa takvim rashladnim uređajem da Ti bude jednako ili niže od 0 ˚C;

Klasa E. Transportno sredstvo - hladnjača sa takvim rashladnim uređajem da je Ti jednako ili niže od - 10 ˚C;

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

4. **Transportno sredstvo za zagrijavanje.** Izotermičko transportno sredstvo koje je sposobno da temperaturu unutar prazne zatvorene komore poveća i zatim stalno održava najmanje 12 časova bez dodatnog snabdijevanja, na praktično stalnom nivou koji nije niži od + 12 ˚C, pri sljedećim srednjim spoljnim temperaturama:

- Klasa A. Transportno sredstvo za zagrijavanje pri srednjoj spoljnoj temperaturi od - 10 ˚C.
- Klasa B. Transportno sredstvo za zagrijavanje pri srednjoj spoljnoj temperaturi od - 20 ˚C.

Uređaj za proizvodnju toplote treba da ima snagu u skladu sa zahtjevima 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 W/m^{2}K.

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[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.*

Prilog br. 1, Dodatak br. 1

ODREDBE O KONTROLI USAGLAŠENOSTI NORMAMA ZA IZOTERMIČKA, RASHLADNA, TRANSPORTNA SREDSTVA-HLADNJAČE I TRANSPORTNA SREDSTVA ZA ZAGRIJAVANJE

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

a) pre puštanja transportnog sredstva u upotrebu,

b) periodično - najmanje svake šeste godine,

c) 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 usaglašenosti normama dati su u Dodatku br. 2 ovog priloga.

3. Certifikat o usaglašenosti 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.

Certifikat mora biti uz transportno sredstvo za sve vrijeme njegovog prevoza i pokazan na zahtjev kontrolnog organa. Međutim, ako je na transportno sredstvo pričvršćena ATP certifikaciona pločica, prikazana u Dodatku br. 3 ovog priloga, ona će se smatrati ekvivalentom ATP certifikata. Certifikaciona pločica o usaglašenosti može se pričvrstiti na transportno sredstvo tek po dobijanju validnog certifikata o usaglašenosti normama. Certifikaciona pločica o usaglašenosti se uklanja čim transportno sredstvo prestane da bude u skladu sa standardima utvrđenim u ovom prilogu.

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

a) u svim slučajevima, izvještaj 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 mjeseca;
c) 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 izvještaja 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 provjeri radi identifikacije prije nego što nadležni organ države u kojoj transportno sredstvo treba da bude registrovano ili upisano izda certifikat o usaglašenosti.

Certifikat o usaglašenosti normama izdaje nadležan organ za svaku seriju, kada postoji više serijski proizvedenih izotermičkih transportnih sredstava (kontejnera) sa unutrašnjom zapreminom manjom od $2m^3$. Tada će se identifikacioni brojevi izotermičkih transportnih sredstava, ili prvi i zadnji identifikacioni broj serija, navesti u certifikatu o usaglašenosti, umjesto serijskog broja svakog kontejnera posebno. U tom slučaju, izotermička transportna sredstva navedena u tom certifikatu o usaglašenosti normama moraju imati i certifikacionu pločicu o usaglašenosti, izdatu od strane nadležnog organa, kako je opisano u Dodatku 3B ovog priloga.

U slučaju kada se isporučuje izotermičko transportno sredstvo (kontejner) u drugu zemlju potpisnicu ovog Sporazuma radi registrovanja ili upisivanja, nadležni organ zemlje, u kojoj će pomenuto sredstvo biti registrovano ili upisano, može obezbijediti posebni certifikat o usaglašenosti normama, koji će se bazirati na originalnom certifikatu koji je utvrđen za cijelu seriju.

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 usaglašeno normama utvrđenim u ovom prilogu.

5. Izotermičke komore izotermičkih, rashladnih, transportnih sredstava-hladnjača i transportnih sredstava za zagrijavanje i njihovi rashladni, odnosno grejni uređaji moraju na sebi imati trajne proizvođačke pločice koje proizvođač pričvršćuje na vidljivom i lako dostupnom mjestu na dijelu koji nije zamenljiv. Mora biti omogućena laka provjera 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 sljedeće 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;

Mjesec 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 zahtjeve predviđene za klasu kojoj pripada, rezultujući izvještaj o ispitivanju treba smatrati certifikatom o odobrenju tipa. Rok važnosti takvog certifikata je šest godina od dana završetka ispitivanja.

Datum prestanka važnosti izvještaja o ispitivanju biće definisan mjesecima i godinama.

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

c) Transportno sredstvo se ne može smatrati transportnim sredstvom istog tipa kao odobreno transportno sredstvo ukoliko ne zadovoljava sljedeće minimalne zahtjeve:

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

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 reprezenta 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,

zahtjevi 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;

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

a) transportno sredstvo - hladnjača;

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

- zahtjevi 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 zagrijavanje, kada reprezent tipa može biti izotermičko transportno sredstvo ili transportno sredstvo za zagrijavanje,

- zahtjevi 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.

d) 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 MJERENJE I KONTROLU IZOTERMIJE I EFIKASNOSTI RASHLADNIH ILI GREJNIH UREĐAJA SPECIJALNIH SREDSTAVA ZA PREVOZ LAKOKVARLJIVIH NAMIRNICA

1. DEFINICIJE I OPŠTE ODREDBE

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

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

gdje je W toplotna snaga koja je potrebna da se u komori srednje površine S održi, pri stalnom režimu, apsolutna razlika □T između srednje unutrašnje temperature T_i i srednje spoljne temperature Te 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 dvije 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 izvještaja 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 mjere temperature

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

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

Ako komora nema oblik paralelopipeda, tih 12 mjernih 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 mjerenih na odstojanju 10 cm od zidova na sljedećih 12 tačaka:

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

Ako komora nema oblik paralelopipeda, tih 12 mjernih 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 mjerenje 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 ± 0,3 K, odnosno ± 1,0 K u toku prethodnog 6-točasovnog perioda.

Razlika između grejne ili rashladne snage mjerene 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 vrijednosti temperatura i grejne ili rashladne snage u toku najmanje 6 posljednjih 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 mjerenja koeficijenta K

2.1 Transportna sredstva osim cisterni namijenjenih za prevoz tečnih namirnica

2.1.1 Mjerenje koeficijenta K vrši se pri stalnom režimu bilo metodom unutrašnjeg hlađenja, bilo putem metoda unutrašnjeg zagrijavanja. 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 razmjenjivača toplote se postavlja u unutrašnjost ispitne komore. Površina tih razmjenjivača treba da bude takva da omogući da se, ako kroz njih prolazi fluid temperature ne niže od 0 ˚C[4], srednja unutrašnja temperatura komore održava ispod + 10 ˚C u stalnom režimu. Kod metoda unutrašnjeg zagrijavanja koriste se električni grejni uređaji. Razmjenjivači toplote ili električni grejni uređaji treba da budu opremljeni ventilatorima čija je propusna moć dovoljna da obezbijedi 40 do 70 izmjena vazduha na čas pri praznoj zapremini ispitivane komore, a da raspodjela vazduha po unutrašnjoj površini ispitivane komore bude takva da obezbijedi 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.

[4] *Kako bi se spriječilo smrzavanje.*

2.1.3 Količina toplote: Toplotni fluks koji se rasipa otpornim električnim grejnim uređajem sa ventilatorom ne treba da pređe vrijednost od 1 W/cm^2, a grejna tijela treba da budu zaštićena kućištem niske vrijednosti emisivnosti. Potrošnja električne energije treba da bude određena sa tačnošću od 0,5%.

Postupak ispitivanja

2.1.4 Bez obzira na to koji se metod koristi, u ispitnoj komori za sve vrijeme trajanja ispitivanja, srednja temperatura treba da bude ujednačena i stalna u skladu sa tačkom 1.7 ovog dodatka, sa odstupanjem od ± 0,5 K i na takvom nivou da razlika temperature između unutrašnjosti transportnog sredstva i ispitne komore bude 25 ˚C ± 2 K, a da se srednja temperatura zidova komore transportnog sredstva održava na +20 ˚C ± 0,5 K.

2.1.5 Za vrijeme ispitivanja, kako metodom unutrašnjeg hlađenja, tako i metodom unutrašnjeg zagrijavanja, treba obezbijediti 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.

2.1.6 U pogon se stavljaju uređaji za stvaranje i raspoređivanje hladnoće ili toplote, uređaji za mjerenje razmijenjene rashladne ili grejne snage i kaloričnog ekvivalenta ventilatora. Gubici u električnom kablu između instrumenta za mjerenje uvedene toplote i ispitivane komore se određuju mjerenjem ili proračunom i oduzimaju od ukupno izmjerene toplote.

2.1.7 Pri stalnom režimu, maksimalna razlika između temperatura na najtoplijoj i najhladnijoj tački izvan komore transportnog sredstva ne smije preći 2 K.

2.1.8 Srednja spoljna i srednja unutrašnja temperatura komore transportnog sredstva treba da se mjeri najmanje 4 puta na čas.

2.2 Transportna sredstva-cisterne namijenjena za prevoz tečnih namirnica

2.2.1 Niže iznijeti metod primjenjuje se samo na transportna sredstva-cisterne sa jednim ili više odjeljaka, koja su namijenjena jedino za prevoz tečnih namirnica, kao što je, na primjer, mlijeko. Svaki odjeljak tih cisterni ima najmanje jedan revizioni otvor i jedan priključak za pražnjenje; ako postoji više odjeljaka, oni su međusobno odvojeni neizolovanim vertikalnim pregradama.

2.2.2 Mjerenje se vrši pri stalnom režimu metodom unutrašnjeg zagrijavanja cisterne koja se, bez ikakvog tereta, stavlja u ispitnu komoru.

Metod ispitivanja

2.2.3 Jedan električni razmjenjivač toplote stavlja se unutar cisterne. Ako cisterna ima više odjeljaka, u svaki odjeljak se stavlja po jedan električni razmjenjivač. Ti razmjenjivači treba da budu opremljeni ventilatorima čija je propusna moć dovoljna da obezbijedi da razlika između maksimalne i minimalne temperature unutar svakog odjeljka ne prelazi 3 K pri stalnom režimu. Ako cisterna ima više odjeljaka, razlika između srednje temperature mjerene u najhladnijem odjeljku i srednje temperature mjerene u najtoplijem odeljku ne treba da iznosi više od 2 K, s tim da se mjerenje temperature vrši na način koji je označen u tački 2.2.4 ovog dodatka.

2.2.4 Uređaji za mjerenje temperature, zaštićeni od zračenja, smještaju se unutar i izvan cisterne na odstojanju od 10 cm od zidova na sljedeći način:

a) ako cisterna ima samo jedan odjeljak, mjerenje treba obaviti na najmanje sljedećih 12 tačaka:

- 4 krajnje tačke dva prečnika pod pravim uglom, jedan horizontalan, a drugi vertikalan, u blizini svakog od dva danca,
- 4 krajnje tačke dva prečnika, s nagibom od 45˚ nad horizontalom, u aksijalnoj ravni cisterne;

b) ako cisterna ima dva odjeljka mjerenje treba obaviti na sljedeći način:

- Blizu kraja prvog odjeljka i blizu pregrade sa drugim odjeljkom, na krajnjim tačkama tri radiusa koji čine ugao od 120^0, pri čemu je jedan od radiusa usmjeren vertikalno naviše.
- Blizu kraja drugog odjeljka i blizu pregrade sa prvim odjeljkom, na krajnjim tačkama tri radiusa koji čine ugao od 120^0, pri čemu je jedan od radiusa usmjeren vertikalno naniže.

c) ako cisterna ima više odjeljaka, raspodjela je sljedeća:

za svaki od dva krajnja odjeljka, najmanje sljedeće:

- krajnje tačke horizontalnog prečnika u blizini danca i krajnje tačke vertikalnog prečnika u blizini pregrade;

a za svaki drugi odjeljak 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.

(d) Srednja unutrašnja i srednja spoljna temperatura cisterne predstavljaju aritmetičku sredinu svih mjerenja izvršenih unutar, odnosno spolja. Za cisterne sa više odjeljaka, srednja unutrašnja temperatura svakog odjeljka predstavlja aritmetičku sredinu ne manje od četiri i ne više od 12 za mjerenja koja se odnose na dati odeljak.

Postupak ispitivanja

2.2.5 Tokom ispitivanja, u ispitnoj komori za sve vrijeme 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 ˚C ± 2 K, a da se srednja temperatura zidova cisterne održava na +20 ˚C ± 0,5 K.

2.2.6 Treba obezbijediti 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 mjerenje razmijenjene 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 mjeri najmanje 4 puta na čas.

2.3 Zajedničke odredbe za sve tipove izotermičkih transportnih sredstava

2.3.1 Provjera koeficijenta K

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

2.3.2 Tačnost mjerenja koeficijenta K

Ispitne stanice treba da budu snabdijevene potrebnom opremom i instrumentima kako bi koeficijent K bio određen sa najvećom greškom od ± 10% kada se koristi metod unutrašnjeg hlađenja, odnosno ± 5% kada se koristi metod unutrašnjeg zagrijavanja.

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 ˚C, sa odstupanjem ± 0,5 K. Vazduh u ispitnoj komori treba da cirkuliše na način opisan u tački 2.1.5 ovog dodatka.

3.1.2 Uređaji za mjerenje temperature, zaštićeni od zračenja, stavljaju se unutar i izvan komore transportnog sredstva na mjestima 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 mjesta kada srednja unutrašnja temperatura komore dostigne srednju spoljnu temperaturu komore (+ 30 ˚C). Vrata, kapci i drugi otvori se zatvaraju, a uređaji za unutrašnje provjetravanje 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 razmjenjuje kroz zidove. Za vrijeme ispitivanja nije dopušteno dodatno snabdijevanje 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 vrijeme 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 razmijenjene kroz zidove pri stalnom režimu. Za vrijeme ispitivanja ne vrši se ponovo zaleđivanje rastvora.

c) Za transportna sredstva opremljena sistemima sa tečnim gasom koristi se sljedeći 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 provjetravanje (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 vrijeme hlađenja komore transportnog sredstva potrebno je mijenjati utrošeno rashladno sredstvo. Zamjena 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 vrijeme ispitivanja.

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

Zajedničke odredbe za sve tipove rashladnih transportnih sredstava

3.1.4 Mjerenje 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 provjetravanje (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 razmijenjene toplote kroz zidove u stalnom režimu.

3.2.3 Srednja spoljna i srednja unutrašnja temperatura komore transportnog sredstva mjere 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 vrijeme 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 ocijenjen 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 zamijeni uređajem drugog tipa, nadležni organ može:

a) da zahtijeva da se transportno sredstvo podvrgne mjerenjima i provjerama predviđenim u tačkama 3.2.1 do 3.2.4;
b) da se uvjeri da je korisna rashladna snaga novog uređaja, na temperaturi predviđenoj za tu klasu transportnih sredstava, ista ili veća od snage zamijenjenog uređaja;
c) da se uvjeri da korisna rashladna snaga novog uređaja zadovoljava odredbe tačke 3.2.6.

3.3 Transportna sredstva za zagrijavanje

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 mjerenje temperature, zaštićeni od zračenja, stavljaju se unutar i izvan komore transportnog sredstva na mjestima 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 provjetravanje (ukoliko postoje), stavljaju se u pogon do njihovog najvećeg opterećenja.

3.3.4 Srednja spoljna i srednja unutrašnja temperatura komore transportnog sredstva mjere 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 vrijednost 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 MJERENJE 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:

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

gdje je U gubitak toplote kalorimetrijske kutije ili izotermičke komore transportnog sredstva izražen u W/˚C.

□T je razlika između srednje unutrašnje temperature T_i i srednje spoljne temperature Te 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 smiješta u kalorimetrijsku kutiju ili izotermičku komoru transportnog sredstva.

U oba slučaja, toplotni gubici se mjere preko srednje temperature zida pre mjerenja snage. Za vrijeme određivanja efektivne rashladne snage uvodi se aritmetički korekcioni faktor, baziran na iskustvu ispitne stanice, koji uzima u obzir prosječnu temperaturu zidova pri svakoj termičkoj ravnoteži.

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

Postupak mjerenja je opisan gore u tačkama 1.1 do 2.1.8; međutim, dovoljno je mjeriti samo gubitak toplote U, čija je vrijednost definisana sljedećim izrazom:

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

gde je:

W - grejna snaga (mjerena u W) odavana unutrašnjim grijačem 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 mjereno sa ugrađenim rashladnim uređajem.

Kalorimetrijska kutija ili transportno sredstvo se smešta u ispitnu komoru. Ako se koristi kalorimetrijska kutija, U ΔT 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 Mjerna oprema

Ispitne stanice treba da budu opremljene mjernom opremom koja obezbjeđuje mjerenje vrednosti U sa tačnošću od 5%. Gubici toplote kroz curenja vazduha usljed nezaptivenosti ne treba da pređu 5% od ukupnog prenosa toplote kroz kalorometrijsku kutiju ili kroz izotermičku komoru transportnog sredstva. Rashladna snaga treba da bude određena sa tačnošću od ± 5%.

Mjerna oprema kalorimetrijske kutije ili transportnog sredstva treba da odgovara tačkama 1.3 i 1.4 ovog dodatka. Potrebno je mjerenje sljedećih veličina:

a) Temperature vazduha: Najmanje četiri termometra ravnomjerno raspoređenih na uvodnom otvoru isparivača;

Najmanje četiri termometra ravnomjerno raspoređenih na ispusnim otvorima iz isparivača;

Najmanje četiri termometra ravnomjerno raspoređenih na uvodnom otvoru (uvodnim otvorima) rashladnog uređaja;

Termometri treba da budu zaštićeni od zračenja.

Tačnost sistema za mjerenje temperature treba da bude ± 0,2 K;

b) Potrošnja energije: Potrebno je obezbijediti opremu za mjerenje potrošnje električne energije ili goriva rashladnog uređaja.

Potrošnju električne energije i goriva potrebno je odrediti sa tačnošću od ± 0,5%;

c) Brzina obrtanja: Potrebno je obezbijediti opremu za mjerenje brzine obrtanja kompresora i ventilatora ili način da se brzina obrtanja proračuna ukoliko je samo mjerenje nepraktično.

Brzinu obrtanja potrebno je odrediti sa tačnošću od ± 1%;

d) Pritisak: Davače pritiska visoke rezolucije (tačnosti do ± 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) Prosječna temperatura vazduha na uvodnom otvoru (uvodnim otvorima) u sklop rashladnog uređaja treba da bude održavana na 30 ˚C ± 0,5 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 ˚C i + 12 ˚C zavisno od karakteristike uređaja, od kojih jedan nivo temperature treba da bude na najmanjoj propisanoj temperaturi za klasu koju zahtijeva proizvođač sa dozvoljenim odstupanjem od ± 1 K.

Srednja unutrašnja temperatura treba da bude održavana sa odstupanjem od ± 0,5 K. Za vrijeme mjerenja rashladne snage, toplotni gubici u kalorimetrijskoj kutiji ili izotermičkoj komori transportnog sredstva biće održavani na stalnom nivou sa odstupanjem od ± 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 vrijeme ispitivanja.

4.3 Postupak ispitivanja

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

a) Faza hlađenja - početna temperatura kalorimetrijske kutije ili transportnog sredstva treba da iznosi 30 ˚C ± 3 K. Ona se potom smanjuje do sljedećih vrednosti: - 25 ˚C za klasu - 20 ˚C, - 13 ˚C za klasu - 10 ˚C ili - 2 ˚C za klasu 0 ˚C;

b) Mjerenje 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 spoljašnosti kalorimetrijske kutije ili transportnog sredstva.

Drugo ispitivanje obavlja se bez korišćenja termostata u cilju određivanja maksimalne rashladne snage, sa grejnom snagom unutrašnjeg grijača koja obezbjeđuje 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 potrebno 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 primjenjuje i kod dolje opisanog metoda razlike entalpija, sa tom specifičnošću što je potrebno mjeriti rasipanje toplotne snage na ventilatorima isparivača pri svakom temperaturnom nivou.

Taj metod se može, alternativno, koristi i za ispitivanje reprezenta 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 (ho) i entalpije tečnosti na uvodnom otvoru uređaja (hi).

Da bi se dobila efektivna rashladna snaga, potrebno je oduzeti toplotu koju generišu ventilatori isparivača (Wf). Mjerenje Wf 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 mjeri odgovarajućim instrumentima sa tačnošću od ± 3%, uz mjerenje protoka rashlađivača sa tačnošću od ± 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 grijač se postavlja unutar transportnog sredstva kako bi se postigla termička ravnoteža.

4.3.3 Mjere predostrožnosti

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

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

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 Provjere

Potrebno je provjeriti sljedeće stavke i u izvještaju 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 mjeri cirkulacija vazduha ventilatora isparivača rashladnog uređaja, koristiće se metode koje omogućavaju mjerenje ukupne izlazne zapremine. Preporučuje se korišćenje jednog od relevantnih standarda, na primjer 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 zahtjevima ATP-a je ona koja odgovara srednjoj temperaturi na ulaznom otvoru (ulaznim otvorima) isparivača. Instrumenti za mjerenje temperature treba da budu zaštićeni od zračenja.

5. PROVJERA IZOTERMIJE TRANSPORTNOG SREDSTVA U UPOTREBI

U svrhu provjere 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:

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

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

5.1 Opšti pregled transportnog sredstva

Pregled treba da ima formu inspekcije transportnog sredstva u cilju utvrđivanja sljedećih 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 dio transportnog sredstva demontira i zahtijevati da im se na uvid stavi sva dokumentacija koja im je potrebna (crteži, izvještaji o ispitivanju, specifikacije, fakture, itd.).

5.2 Pregled zaptivenosti vazduha (nije primjenljivo na cisterne)

Ovaj pregled obavlja pregledač smješten u transportno sredstvo, koje se nalazi u jako osvijetljenom prostoru. Može se, takođe, koristiti bilo koji drugi metod koji obezbjeđuje 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 mjerenja 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 zamijenjene odgovarajućim.

III) Ako se transportno sredstvo sastoji od sklopova serijski proizvedenih transportnih sredstava određenog tipa koji zadovoljavaju zahtjeve tačke 6. Dodatka br. 1 ovog priloga i pripadaju jednom sopstveniku, tada pored pregleda svakog pojedinačnog transportnog sredstva, koeficijent K može biti mjeren 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 provjere i mjerenja prihvatljivi, sva razmatrana transportna sredstva mogu biti zadržana u upotrebi kao izotermička transportna sredstva njihove početne klase u toku narednih šest godina.

6. PROVJERA EFEKTIVNOSTI TOPLOTNIH UREĐAJA TRANSPORTNIH SREDSTAVA U UPOTREBI

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

- bilo primjeniti metode opisane u tačkama 3.1. do 3.3. ovog dodatka;
- bilo ovlastiti stručnjake da primjenjuju metode opisane u tačkama 5.1 i 5.2 ovog dodatka, kao i sljedeće odredbe:

6.1 Rashladna transportna sredstva osim transportnih sredstava sa fiksnim eutektičkim akumulatorima

Provjeriće 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

□T razlika između + 30 ˚C i ove granične temperature, i

□T' razlika između srednje spoljne temperature za vrijeme 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 od 02. januara 2012. godine.

Provjerava 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 primjenjuju na transportna sredstva u upotrebi

Za transportna sredstva konstruisana prije nastupanja datuma navedenog u tački 6.2 (i), primjenjuju se sljedeće odredbe:

Provjeriće 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 zagrijavanje

Provjeriće se da li razlika između unutrašnje temperature transportnog sredstva i spoljne temperature mjerodavne 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 zagrijavanje, u svojoj prvobitnoj klasi, za novi period u trajanju od najviše 3 godine.

6.4 Tačke na kojima se mjeri temperatura

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

Mjerenje 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.

Mjerenje 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 tijela 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 zagrijavanje

I) Ako su rezultati neprihvatljivi, rashladna transportna sredstva, transportna sredstva - hladnjače ili transportna sredstva za zagrijavanje 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 zagrijavanje određenog tipa koji zadovoljavaju zahtjeve 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 provjere i mjerenja prihvatljivi, sva razmatrana transportna sredstva mogu biti zadržana u upotrebi kao transportna sredstva njihove početne klase u toku narednih šest godina.

7. IZVJEŠTAJI O ISPITIVANJU

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

8. POSTUPAK ZA MJERENJE KAPACITETA MULTITEMPERATURNIH MEHANIČKIH RASHLADNIH UREĐAJA I ODREĐIVANJE DIMENZIJE TRANSPORTNIH SREDSTAVA SA VIŠE ODJELJAKA

Definicije:

(a) Višetemperaturno transportno sredstvo je izotermičko transportno sredstvo sa dva ili više odjeljaka sa različitim temperaturama u svakom odjeljku;
(b) Multitemperaturni mehanički rashladni uređaj je mehanički rashladni uređaj sa kompresorom i zajedničkim usisnim uvodnim otvororm, kondezatorom i sa dva ili više isparivača, postavljenim na različitim temperaturama u različitim odjeljcima u transportnim sredstvima sa više odjeljaka;
(c) „Host“ uređaj je uređaj sa ili bez integralnog isparivača;

(d) Neuslovljeni odjeljak je odjeljak za koji se smatra da nema isparivač ili kod koga isparivač nije aktiviran u svrhu izračunavanja dimenzija i certificiranja;
(e) Multitemperaturni režim je režim multitemperaturnog mehaničkog rashladnog uređaja sa dva ili više isparivača koji rade na različitim temperaturama u transportnim sredstvima sa više odjeljaka;
(f) Nominalni rashladni kapacitet je maksimalni rashladni kapacitet rashladnog uređaja u režimu mono temperature sa dva ili tri isparivača koji rade istovremeno na istoj temperaturi.
(g) Individualni rashladni kapacitet ($P_{ind-evap}$) je maksimalni rashladni kapacitet svakog isparivača u samostalnom režimu sa "host" jedinicom;
(h) Efektivni rashladni kapacitet ($P_{eff-frozen-evap}$) je rashladni kapacitet dostupan na najnižoj temperature isparivača kada su dva ili više isparivača u režimu "multitemperature mode", kako je opisano u tački 8.3.5.

Procedura ispitivanja za multitemperaturne mehaničke rashladne uređaje

8.2.1. Opšta procedura

Procedura ispitivanja će se sprovoditi na način preciziran u odjeljku 4 ovog dodatka.

„Host" uređaj će biti testiran u kombinaciji sa različitim isparivačima. Ukoliko je to moguće, svaki isparivač mora se ispitati na posebnom kalorimetru.

Nominalni rashladni kapacitet "host" uređaja u režimu monotemperature određuje se jednom kombinacijom dva ili tri isparivača, kako najmanji tako i najveći, na način opisan u tački 8.2.2.

Individualni rashladni kapacitet određuje se za sve isparivače, i to za svaki u monotemperaturnom režimu sa „host" uređajem, kako je propisano u tački 8.2.3.

Ispitivanje će se izvršiti uz upotrebu dva ili tri isparivača, uključujući najmanji, najveći i, ukoliko je to neophodno, isparivač srednje veličine.

Ukoliko se multitemperaturnim uređajem može upravljati sa više od dva isparivača:

- „Host" uređaj će se ispitati uz upotrebu kombinacije tri isparivača: najmanjeg, najvećeg i srednjeg isparivača.
- Dodatno, na zahtjev proizvođača, „host" uređaj se može ispitivati po želji, kombinovanjem dva isparivača: najvećeg i najmanjeg.

Ispitivanja se vrše u režimu „independent mode" i „stand by".

8.2.2 Određivanje nominalnog rashladnog kapaciteta „host" uređaja

Nominalni rashladni kapacitet „host" uređaja u režimu monotemperature određuje se sa jednom kombinacijom dva ili tri isparivača koji istovremeno rade na istoj temperaturi. Ovo ispitivanje će se vršiti na -20°C i na 0°C.

Temperatura vazduha uvodnog otvora „host" uređaja mora biti +30°C.

Nominalni rashladni kapacitet na -10°C biće izračunat linearnom interpolacijom iz kapaciteta na -20°C i na 0°C.

8.2.3 Određivanje individualnog rashladnog kapaciteta svakog isparivača

Individualni rashladni kapacitet svakog isparivača će se mjeriti u solo režimu sa "host" uređajem. Ispitivanje će se vršiti na -20°C i na 0°C. Temperatura vazduha uvodnog otvora rashladnog uređaja mora biti +30°C.

Individualni rashladni kapacitet na -10°C biće izračunat linearnom interpolacijom iz kapaciteta na 0°C i na -20°C.

8.2.4 Ispitivanje preostalih efektivnih kapaciteta rashladnih uređaja iz niza isparivača u multitemperaturnom režimu pri opterećenju referentne toplote

Preostali efektivni kapacitet rashladnih uređaja za svaki ispitani isparivač određuje se na -20°C sa drugim isparivačem(ima) koji rade pod kontrolom termostata podešenog na 0°C, pri opterećenju referentne toplote u iznosu od 20% individualnog rashladnog kapaciteta, na temperaturi od -20°C predmetnog isparivača. Temperatura vazduha uvodnog otvora „host"uređaja mora biti +30°C.

Što se tiče multitemperaturnih rashladnih uređaja, koji imaju više od jednog kompresora, kao što su to kaskadni sistemi ili uređaji sa sistemom kompresije iz dva dijela (two-stage), gdje se rashladni kapaciteti mogu istovremeno održavati i u zamrznutom i u ohlađenom odjeljku, mjerenje efektivnog rashladnog kapaciteta vrši se pod dodatnim toplotnim opterećenjem.

8.3 Određivanje dimenzije i certificiranje rashladnih multitemeraturnih transportnih sredstava

8.3.1 Opšta procedura

Zahtjev koji se odnosi na rashladni kapacitet multitemperaturnih transportnih sredstava bazira se na zahtijevanom kapacitetu monotemperaturnih transportnih sredstava, kako je definisano u ovom prilogu.

Za transportna sredstva sa više odjeljaka, koeficijent K manji ili jednak 0.40 W/m^2 za vanjsku komoru u cjelini se odobrava u skladu sa stavovima od 2 do 2.2 ovog dodatka.

Kapacitet izolacije zidova spoljne komore obračunava se uz upotrebu koeficijenta K komore odobrene u skladu sa ovim Sporazumom. Kapaciteti izolacije unutrašnjih pregradnih zidova obračunava se uz upotrebu koeficijenata K, datih u tabeli, u tački 8.3.7.

Za izdavanje ATP certifikata:

- Nominalni rashladni kapacitet multitemperaturnog rashladnog uređaja mora biti u najmanju ruku jednak gubitku toplote kroz unutašnje pregradne zidove i spoljašnje zidove komore transportnih sredstava, koji se u cjelini množi sa faktorom 1.75, kako je precizirano u tački 3.2.6 ovog dodatka.
- U svakom odjeljku, obračunati preostali efektivni rashladni kapacitet na najnižoj temperaturi svakog isparivača u multitemperaturnom režimu mora biti veći ili jednak zahtijevanom rashladnom maksimumu odjeljaka u najnepovoljnijim uslovima, kako je propisano u tačkama 8.3.5 i 8.3.6, pomnoženo sa faktorom 1.75, kako je precizirano u tački 3.2.6 ovog dodatka.

8.3.2 Usklađenost cijele komore

Spoljna komora mora imati K vrijednosti K ≤ 0.40 $W/M^2.K$.

Unutrašnja površina komore ne smije varirati više od 20%.

Transportno sredstvo mora biti u skladu sa:

$$\mathbf{P_{nominal} > 1.75 * K_{body} * S_{body} * \Delta T}$$

Gdje:

$P_{nominal}$ je nominalni rashladni kapacitet multitemperaturnog rashladnog uređaja,
K_{body} je vrijednost K spoljnje komore,
S_{body} je unutrašnja površina pune komore,
ΔT je razlika u temperaturi između unutrašnjosti i spoljašnjosti komore.

8.3.3 Određivanje stepena rashlađenosti koji se zahtijeva za rashladne isparivače

Sa nepropusnim pregradama u datim pozicijama, određivanje stepena rashlađenosti koji se zahtijeva za rashladne isparivače, obračunava se na sljedeći način:

$$\mathbf{P_{chilled\ demand} = (S_{chilled\text{-}comp} - \Sigma S_{bulk}) * K_{body} * \Delta T_{ext} + \Sigma (S_{bulk} * K_{bulk} * \Delta T_{int})}$$

Gdje:

K_{body} je vrijednost K data na osnovu test izvještaja ATP-a za spoljnu komoru,
$S_{chilled\text{-}comp}$ je površina rashladnog odjeljka za nepropusne pregrade u datim pozicijama,
S_{bulk} su površine nepropusnih pregrada,
K_{bulk} su K vrijednosti nepropusnih pregrada datih u tabeli u tački 8.3.7,
ΔT_{ext} je razlika u temperaturi između rashladnih odjeljaka i $+30^0$c izvan komore,
ΔT_{int} je razlika u temperaturi između rashladnih odjeljaka i drugih odjeljaka. Za neuslovljene odjeljke koristiće se temperatura od $+20^0$c za obračunavanje.

8.3.4 Određivanje stepena rashlađenosti koji se zahtijeva za odjeljke za zamrzavanje

Sa nepropusnim pregradama u datim pozicijama, obračunavanje hlađenja za svaki odjeljak za zamrzavanje vrši se na sljedeći način:

$$\mathbf{P_{frozen\ demand} = (S_{frozen\text{-}comp} - \Sigma S_{bulk}) * K_{body} * \Delta T_{ext} + \Sigma (S_{bulk} * K_{bulk} * \Delta T_{int})}$$

Gdje:

K_{body} je vrijednost K data na osnovu izvještaja o ispitivanju ATP za spoljnu komoru,
$S_{frozen\text{-}comp}$ je površina odjeljka za zamrzavanje za nepropusne pregrade u datim pozicijama,
S_{bulk} je površina nepropusnih pregrada,
K_{bulk} vrijednosti K date u tabeli u tački 8.3.7,
ΔT_{ext} je razlika u temperaturi između odjeljka za zamrzavanje i +30°C izvan komore.
ΔT_{int} je razlika u temperaturi između smrznutog odjeljka za zamrzavanje i drugih odjeljaka. Za izolovane odjeljke koristiće se temperatura od $+20^0$c za obračunavanje.

8.3.5 Određivanje efektivnog rashladnog kapaciteta zamrznutih isparivača

Efektivni rashladni kapacitet nepropusnih pregrada u datim pozicijama, obračunava se na sljedeći način:

$$P_{eff\text{-}frozen\text{-}evap} = P_{ind\text{-}frozen\text{-}evap} * [1 - \Sigma (P_{eff\text{-}chilled\text{-}evap} / P_{ind\text{-}chilled\text{-}evap})]$$

Gdje:

$P_{eff\text{-}frozen\text{-}evap}$ je efektivni rashladni kapacitet zamrznutog isparivača sa datom konfiguracijom,
$P_{ind\text{-}frozen\text{-}evap}$ je individualni rashladni kapacitet zamrznutog isparivača na -20°C,
$P_{eff\text{-}chilled\text{-}evap}$ je efektivni rashladni kapacitet svakog rashladnog isparivača sa datom konfiguracijom, kako je precizirano u tački 8.3.6,
$P_{ind\text{-}chilled\text{-}evap}$ je individualni rashladni kapacitet na -20°C za svaki rashladni isparivač.

Ovaj metod obračunavanja je odobren isključivo za multitemperaturne mehaničke rashladne uređaje sa jednim "one-stage" kompresorom. Ovaj metod obračunavanja se ne smije koristiti za multitemperaturne rashladne uređaje koji imaju više od jednog kompresora, kao što je to slučaj sa kaskadnim sistemima ili uređajima sa "two-stage" kompresorom, kod kojih rashladni kapaciteti mogu biti simultano održavani u smrznutim i rashladnim odjeljcima, jer bi to dovelo do podcjenjivanja efektivnih rashladnih kapaciteta. Za ova transportna sredstva, efektivni rashladni kapaciteti će se interpolirati između efektivnih rashladnih kapaciteta mjerenih u dva različita toplotna opterećenja u izvještajima o ispitivanju, kako je opisano u tački 8.2.4.

8.3.6 Izjava o usaglašenosti

Transportno sredstvo se smatra usklađenim sa multitemperaturnim režimom, za svaku poziciju pregrade i pri svakoj distribuciji temperature u odjeljcima:

$$P_{eff\text{-}frozen\text{-}evap} \geq 1.75 * P_{frozen\ demand}$$

$$P_{eff\text{-}chilled\text{-}evap} \geq 1.75 * P_{chilled\ demand}$$

Gdje:

$P_{eff\text{-}frozen\text{-}evap}$ je efektivni rashladni kapacitet predmetnog zamrznutog isparivača kada se dostigne temperatura odjeljka propisana za klasu za koju se smatra da joj transportno sredstvo pripada u datoj konfiguraciji.
$P_{eff\text{-}chilled\text{-}evap}$ je efektivan rashladni kapacitet predmetnog rashladnog isparivača kada se dostigne temperatura odjeljka propisana za klasu za koju se smatra da joj transportno sredstvo pripada u datoj konfiguraciji.
$P_{frozen\ demand}$ je zahtjev u vezi sa stepenom rashlađivanja predmetnog odjeljka kada se dostigne temperature odjeljka propisana za klasu za koju se smatra da joj transportno sredstvo pripada u datoj konfiguraciji, u skladu sa tačkom 8.3.4.
$P_{chilled\ demand}$ je zahtjev u vezi sa stepenom zamrzavanja predmetnog odjeljka kada se dostigne temperatura odjeljka propisana za klasu za koju se smatra da joj transportno sredstvo pripada u datoj konfiguraciji, u skladu sa tačkom 8.3.3.

Smatra se da su pregrade dimenzionirane ukoliko se zidovi najmanjih i najvećih odjeljaka stalno provjeravaju i ukoliko nema promjena u prostoru većih od 20%.

8.3.7 Unutrašnji pregradni zidovi

Toplotni gubici kroz unutrašnje pregradne zidove obračunavaju se korišćenjem koeficijenta K u sljedećoj tabeli.

	Koeficijent K - *[W/m².K]* *Stalna kategorija*	Uklonljiv	Minimalna debljina pjene (mm)
Uzdužni – aluminijumski pod	2.0	3.0	25
Uzdužni – GRP pod	1.5	2.0	25
Poprečni - aluminijumski pod	2.0	3.2	40
Poprečni - GRP pod	1.5	2.6	40

Koeficijen K pokretnih pregradnih zidova uključuje i bezbjednosnu pregradu za neizostavna curenja vode.

Koeficijent K će se povećati za specifične dizajne, koji u poređenju sa standardnim dizajnom, imaju dodatne prenose toplote, koji uzrokuju dodatni termalni mostovi.

8.3.8 Zahtijevi iz odjeljka 8 neće se primjenjivati na transportna sredstva proizvedena prije stupanja na snagu zahtjeva i na ona koja su prošla testove istovjetne onima za multitemperaturna transportna sredstva. Transportna sredstva proizvedena prije stupanja na snagu ovog odjeljka mogu biti transportovana u međunarodnom saobraćaju, ali se u drugu zemlju mogu isporučiti samo na osnovu sporazuma nadležnih organa dvije zemlje.

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 1 A

Izvještaj o ispitivanju

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

Izvještaj o ispitivanju br. _____

Odjeljak 1

Specifikacije transportnog sredstva, izuzev cisterne namijenjene 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 sredstva[3] _____ kg Korisna nosivost[3]_____ kg

Komora:

Marka i tip _____ Identifikacioni broj _____

Proizvođač _____

Vlasnik ili korisnik _____

Podnosilac zahtjeva _____

Datum izrade _____

Osnovne dimenzije:

Spolja: dužina _____ m, širina _____ m, visina _____ m

Unutra: dužina _____ m, širina _____ m, visina _____ m

Ukupna površina poda komore _____ m^3

Korisna unutrašnja zapremina komore_____ m^3

MODEL Br. 1 A

Ukupna unutrašnja površina zidova komore S_i _____ m^2

Ukupna spoljna površina zidova komore S_e _____ m^2

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

Specifikacija zidova komore:[4]

Krov _____

Pod _____

Bočni zidovi _____

Specifičnosti konstrukcije komore:[5]

Broj, mjesto i dimenzije	}	vrata _____ otvora za provjetravanje _____ otvora za utovar leda _____

Pomoćni uređaji[6] _____

K = _____ W/m^2K

---

[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.*
[4] *Priroda i debljina materijala koji sačinjavaju zidove od unutrašnjosti ka spoljašnosti, način konstrukcije itd.*
[5] *Ako je površina nepravilna prikazati usvojeni način određivanja Si i Se.*
[6] *Poluge za meso, fletner ventilatori, itd.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 1 B

Izvještaj o ispitivanju

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

Izvještaj o ispitivanju br. _____

Odjeljak 1

Specifikacije transportnog sredstva - cisterne namijenjene 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 cisterne[3] _____ kg Korisna nosivost[3] _____ kg

Cisterna:

Marka i tip _____ Identifikacioni broj _____

Proizvođač _____

Vlasnik ili korisnik _____

Podnosilac zahtjeva _____

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 _____ m^3

MODEL Br. 1 B

Unutrašnja zapremina svakog odjeljka _____ m^3

Ukupna unutrašnja površina zidova S_i _____ m^2

Unutrašnja površina svakog odjeljka S_{i1} __, S_{i2} __, __ m^2

Ukupna spoljna površina zidova S_e _____ m^2

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

Specifikacija zidova:[4] _____

Specifičnosti konstrukcije cisterne:[5] _____

Broj, dimenzije i opis revizionih otvora _____

Opis poklopaca revizionih otvora _____

Broj, dimenzije i opis odvodnih cijevi _____

Broj i opis oslonaca cisterne _____

Pomoćni uređaji _____

K = _____ W/m^2K

---

[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.*
[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 IZVJEŠTAJA O ISPITIVANJU BR. 2 A

Odjeljak 2

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

---

Metod ispitivanja: unutrašnje hlađenje/unutrašnje zagrijavanje[1]

Datum i vrijeme zatvaranja vrata i drugih otvora transportnog sredstva _____

Srednje vrijednosti postignute za _____ časova rada pri stalnom režimu

(od _____ do _____ časova):

a) Srednja spoljna temperatura komore: _____ T_e = _____ °C ± _____ K

b) Srednja unutrašnja temperatura komore: _____ T_i = _____ °C ± _____ K

c) Ostvarena srednja razlika u temperaturi: □T = _____ K

Maksimalna razlika u temperaturi:

izvan komore _____ K

unutar komore _____ K

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

Temperatura rada razmjenjivača toplote[2] _____ °C

Temperatura stvaranja rose vazduha izvan komore za vrijeme trajanja stalnog režima[2]._____ °C ± _____ K

Ukupno trajanje ispitivanja _____ h

Trajanje stalnog režima _____ h

Utrošena snaga u razmjenjivačima: W_1 _____ W

Snaga koju apsorbuju ventilatori: W_2 _____ W

Ukupni koeficijent prenosa toplote obračunat prema formuli:

Ispitivanje putem unutrašnjeg hlađenja[1]	$K = \frac{W_1 - W_2}{S \cdot \Delta T}$
Ispitivanje putem unutrašnjeg zagrijavanja[1]	$K = \frac{W_1 + W_2}{S \cdot \Delta T}$

K = _____ W/m²K

MODEL Br. 2 A

Maksimalna greška mjerenja koje odgovara izvršenom ispitivanju _____ %

Primjedbe[3] _____

(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 izvještaj 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

---

[1] *Obrisati ukoliko je nepotrebno.*
[2] *Samo za ispitivanje putem unutrašnjeg hlađenja.*
[3] *Ako komora nije oblika paralelopipeda, potrebno je naznačiti tačke na kojima su mjerene spoljne i unutrašnje temperature.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 2 B

Odjeljak 2

Mjerenje ukupnog koeficijenta prenosa toplote cisterni namijenjenih za prevoz tečnih namirnica u skladu sa tačkom 2.2. Dodatka br. 2 Priloga br. 1 ATP sporazuma

---

Metod ispitivanja: unutrašnje zagrijavanje

Datum i vrijeme zatvaranja otvora cisterne _____

Srednje vrednosti postignute za _____ časova rada pri stalnom režimu

(od _____ do _____ časova):

a) Srednja spoljašnja temperatura cisterne: T_e = _____ °C ± _____ K

b) Srednja unutrašnja temperatura cisterne

$$T_i = \frac{\sum S_{in} \cdot T_{in}}{\sum S_{in}}$$ = _____ °C ± _____ K

c) Ostvarena srednja razlika u temperaturi: ΔT =_____ K

Maksimalna razlika u temperaturi:

Unutar cisterne _____ K

Unutar svakog odjeljka _____ K

Izvan cisterne _____ K

Srednja temperatura zidova cisterne _____ °C

Ukupno trajanje ispitivanja _____ h

Trajanje stalnog režima _____ h

Utrošena snaga u razmjenjivačima: 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 =..... W/m^{2}K

MODEL Br. 2 B

Maksimalna greška mjerenja koje odgovara izvršenom ispitivanju _____ %

Primjedbe:[1]

_____

(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 izvještaj 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

[1] *Ako cisterna nije oblika paralelopipeda, potrebno je naznačiti tačke na kojima su mjerene spoljne i unutrašnje temperature.*

[2] *Obrisati ukoliko je nepotrebno.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 3

Odjeljak 2

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

---

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

Stanje pri provjeri:

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 izvještaju o ispitivanju)
_____ W/m^2K

Primjedbe:
_____

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 tri godina, sa oznakom IN/IR.[1]

Sačinjeno u _____
na dan _____

Lice odgovorno za ispitivanje

_____

[1] *Obrisati ukoliko je nepotrebno.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 4 A

Odjeljak 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 c) Dodatka br. 2 Priloga br. 1 ATP sporazuma

Rashladni uređaj:

Opis _____

Vrsta rashlađivača

_____

Nominalni kapacitet punjenja rashlađivača naznačen od strane proizvođača

_____

Stvarno punjenje rashlađivača korišćenog za ispitivanje

_____

Pogon nezavisan/zavisan/glavnim pogonom[1]

_____

Rashladni uređaj nestacionaran/stacionaran[1]

_____

Proizvođač

_____

Tip, serijski broj

_____

Godina proizvodnje

_____

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

_____

Uređaji za unutrašnje provjetravanje:

Opis (broj uređaja, itd.)

_____

Snaga električnih ventilatora _____ W

Propusna moć _____ m^3/h

Dimenzije vodova: poprečni presjek _____ m^2, dužina _____ m

Zaslon na uvodnom otvoru za vazduh; opis[1] _____

MODEL Br. 4 A

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 vrijeme zatvaranja vrata i drugih otvora

_____

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

_____

Primjedbe:

_____

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 _____

Međutim, ovaj izvještaj 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

_____

[1] *Obrisati ukoliko je nepotrebno.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 4 B

Odjeljak 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 c) 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/stacionaran[1]

Pogon nezavisan/zavisan/glavnim pogonom[1]

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 provjetravanje (ukoliko postoje):

Opis

_____

Automatski uređaji

_____

MODEL Br. 4 B

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) _____

Termostat _____

Presostat NP _____

Presostat VP _____

Sigurnosni ventil _____

Ostalo _____

Pomoćni uređaji:

Električni grijači 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

MODEL Br. 4 B

Snaga unutrašnjeg grejnog sistema _____ W

Datum i vrijeme zatvaranja vrata i drugih otvora _____

Period akumuliranja hladnoće
_____ h

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

Primjedbe _____

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 _____

Međutim, ovaj izvještaj 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

---

[1] *Obrisati ukoliko je nepotrebno.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 4 C

Odjeljak 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 pogonom[1]

Rashladni uređaj nestacionaran/stacionaran[1]

Proizvođač _____

Tip, serijski broj
_____

Godina proizvodnje
_____

Vrsta rashlađivača
_____

Nominalni kapacitet punjenja rashlađivača naveden od strane proizvođača

Stvarno punjenje rashlađivača korišćenog za ispitivanje _____ kg

Opis rezervoara
_____

Uređaj za punjenje (opis, položaj) _____

Uređaji za unutrašnje provjetravanje:

Opis (broj, itd.)
_____

Snaga električnih ventilatora
_____ W

Propusna moć _____ m^3/h

Dimenzije vodova: poprečni presjek _____ m^2, dužina _____ m

Automatski uređaji _____

MODEL Br. 4 C

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 vrijeme zatvaranja vrata i drugih otvora
_____

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

Primjedbe:
_____
_____

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 _____

Međutim, ovaj izvještaj 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

_____
[1] *Obrisati ukoliko je nepotrebno.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 5

Odjeljak 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 pogonom[1]

Mehanički rashladni uređaji nestacionarni/stacionarni[1]

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 °C _____ W

- 10 °C
_____ W

- 20 °C
_____ W

Kompresor:

Marka _____ Tip _____

Pogon: električni, toplotni, hidraulički[1]

Opis
_____

Marka _____ Tip _____ Snaga _____ kW _____ pri _____ o/min

Kondenzator i isparivač
_____

Motor ventilatora: marka _____ tip _____ broj _____

snaga _____ kW pri _____ o/min

MODEL Br. 5

Uređaji za unutrašnje provjetravanje:

Opis (broj uređaja, itd.)
_____

Snaga električnih ventilatora
_____ W

Propusna moć
_____ m^3/h

Dimenzije vodova: poprečni presjek _____ m^2, 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 vrijeme zatvaranja vrata i drugih otvora
_____

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

MODEL Br. 5

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

Primjedbe _____

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 _____

Međutim, ovaj izvještaj 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

_____
[1] *Obrisati ukoliko je nepotrebno.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 6

Odjeljak 3

Određivanje efikasnosti grejnih uređaja transportnih sredstava za zagrijavanje 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 pogonom[1]

Grejni uređaj nestacionaran/stacionaran[1]

Proizvođač
_____

Tip, serijski broj
_____

Godina proizvodnje
_____

Položaj _____

Ukupna površina razmjenjivača toplote _____ m^2

Efektivna snaga navedena od strane proizvođača _____ kW

Uređaji za unutrašnje provjetravanje:

Opis (broj uređaja itd.) _____

Snaga električnih ventilatora _____ W

Propusna moć _____ m^3/h

Dimenzije vodova: poprečni presjek _____ m^2, dužina _____ m

Srednje temperature na početku ispitivanja:

Unutrašnja _____ ˚C ± _____ K

Spoljna_____ ˚C ± _____ K

Datum i vrijeme zatvaranja vrata i drugih otvora

_____

MODEL Br. 6

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

_____

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

Tamo gde je primjenljivo, srednja grejna snaga korišćena za vrijeme ispitivanja da bi se održala propisana razlika[2] temperatura između unutrašnje i spoljne strane tijela _____ W

Primjedbe _____

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 _____

Međutim, ovaj izvještaj 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

_____

[1] *Obrisati ukoliko je nepotrebno.*

[2] *Povećana za 35% u slučaju novog transportnog sredstva.*

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 7

Odjeljak 3

Terenska provjera 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

---

Provjera je zasnovana na izvještaju 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 provjetravanje:

Opis (broj uređaja itd.) _____

Snaga električnih ventilatora _____ W

Propusna moć _____ m^3/h

Dimenzije vodova: poprečni presjek _____ m^2, dužina _____ m

Stanje rashladnih i uređaja za ventilaciju _____

Ostvarena unutrašnja temperatura _____ ˚C

Pri spoljnoj temperaturi _____ ˚C

MODEL Br. 7

Unutrašnja temperatura transportnog sredstva pre pokretanja rashladnog uređaja _____ ˚C

Ukupno vrijeme rada rashladnog uređaja _____ h

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

Funkcionalna provjera termostata _____

Za rashladni uređaj sa eutektičkim pločama:

Vrijeme rada rashladnog uređaja za smrzavanje eutektičkog rastvora _____ h

Vrijeme za koje se unutrašnja temperatura vazduha održava posle isključivanja uređaja _____ h

Primjedbe _____

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 tri godine, sa oznakom _____

Sačinjeno u _____

na dan _____

Lice odgovorno za ispitivanje

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 8

Odjeljak 3

Terenska provjera 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

---

Provjera je zasnovana na izvještaju 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 ˚C _____ W

- 10 ˚C _____ W

- 20 ˚C _____ W

Vrsta rashlađivača i kapacitet punjenja _____ kg

Uređaji za unutrašnje provjetravanje:

Opis (broj uređaja itd.) _____

Snaga električnih ventilatora _____ W

Propusna moć _____ m^3/h

Dimenzije vodova: poprečni presjek _____ m^2, dužina_____ m

Stanje mehaničkih rashladnih i uređaja za unutrašnje provjetravanje
_____

MODEL Br. 8

Dostignuta unutrašnja temperatura _____ ˚C

Pri spoljnoj temperaturi od _____ ˚C

i sa relativnim vremenom rada od_____ %

Vrijeme rada _____ h

Funkcionalna provjera termostata

_____

Primjedbe

_____

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 tri godine, sa oznakom _____

Sačinjeno u _____

na dan _____

Lice odgovorno za ispitivanje

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 9

Odjeljak 3

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

---

Provjera je zasnovana na izvještaju 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 razmjenjivača toplote _____ m^2

Efektivna snaga navedena od strane proizvođača _____ kW

Uređaji za unutrašnje provjetravanje:

Opis (broj uređaja, itd.) _____

Snaga električnih ventilatora _____ W

Propusna moć _____ m^3/h

Dimenzije vodova: poprečni presjek _____ m^2, dužina _____ m

Stanje grejnog i uređaja za unutrašnje provjetravanje _____

Postignuta unutrašnja temperatura _____ ˚C

MODEL Br. 9

Pri spoljnoj temperaturi od _____ ˚C

i sa relativnim vremenom rada od_____ %

Vrijeme rada _____
h

Funkcionalna provjera termostata
_____

Primjedbe _____

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 tri godine, sa oznakom _____

Sačinjeno u _____
na dan _____

Lice odgovorno za ispitivanje

MODEL IZVJEŠTAJA O ISPITIVANJU BR. 10

IZVJEŠTAJ O ISPITIVANJU

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

Izvještaj 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: _____

Kategorija[1]

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 sagorijevanjem, motor vozila, kretanje vozila

Motor za pogon kompresora[1,2]:

Električni: Marka: _____ Tip: _____
Snaga:_____ kW pri: _____ o/min
Napon napajanja:_____V Frekvencija napajanja: _____ Hz

MODEL Br. 10

Motor sa unutrašnjim sagorijevanjem:	Marka: _____	Tip: _____
	Broj cilindara: _____	Radna zapremina: _____
	Snaga: _____ kW	pri: _____ o/min
	Vrsta goriva: _____	
Hidraulični motor:	Marka: _____	Tip: _____
	Vrsta pogona: _____	
Alternator:	Marka: _____	Tip: _____
	Vrsta pogona:_____	

Broj obrtaja:	{	nominalni broj obrtaja dat od proizvođača: _____ o/min
		minimalni broj obrtaja: _____ o/min

Rashladna tečnost:

_____

Razmjenjivači toplote		Kondenzator	Isparivač
Marka-tip			
Broj cijevi			
Korak lopatica $(mm)^2$			
Cijev: materijal i prečnik (mm^2)			
Površina na kojoj se vrši razmjena $(m^2)^2$			
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:

_____

Rezultati mjerenja i rashladne performanse

(Srednja temperatura vazduha na uvodnom otvoru (uvodnim otvorima) rashladnog uređaja _____ ˚C)

	Brzina obrtanja			Snaga ventilatora unutrašnjeg grijača[4]	Snaga koju utroši ventilator hladnjaka	Potrošnja goriva ili električne energije	Srednja spoljna temperatura	Unutrašnja temperatura		Efektivna rashladna snaga
	Ventilatora[3]	Alternatora[3]	Kompresora[3]					Srednja	Na ulasku u isparivač	
	o/min	o/min	o/min	W	W	W ili l/h	°C	°C	°C	W
Nominalna	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____
Minimalna	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____

MODEL Br. 10

b) Metod ispitivanja i rezultati:

Metod ispitivanja[1]: metod ravnoteže toplote/metod razlike entalpija

U kalorimetrijskoj kutiji srednje površine = _____ m^2

izmjerena vrijednost koeficijenta *U* kutije sa postavljenim rashladnim uređajem: _____W/˚C

pri srednjoj temperaturi zida _____ ˚C.

U transportnom sredstvu:

izmjerena vrijednost koeficijenta *U* dijela transportnog sredstva sa postavljenim rashladnim uređajem _____ W/˚C

pri srednjoj temperaturi zida _____ ˚C.

Primjenjeni metod za korekciju koeficijenta *U* komore u zavisnosti od srednje temperature zida komore: _____

Maksimalna greška pri određivanju:

koeficijenta *U* komore _____

snage rashladnog uređaja _____

c) Provjere

Regulator temperature: Podešavanje _____ Razlika _____ ˚C

Funkcionisanje odmrzivača[1]: zadovoljavajuće / nezadovoljavajuće

Zapreminski protok vazduha na izlasku iz isparivača: _____ izmjerena vrijednost _____ m^3/h _____ pri pritisku od _____ Pa

Postojanje načina snabdijevanja toplotom isparivača radi podešavanja termostata između 0 i 12 ˚C: da/ne

d) Primjedbe

Sačinjeno u _____

na dan _____

Lice odgovorno za ispitivanje

---

[1] *Obrisati ukoliko je nepotrebno.*
[2] *Vrijednost koju daje proizvođač.*
[3] *Gde je primjenljivo.*
[4] *Samo za metod razlike entalpija.*

Prilog br. 1, Dodatak br. 3

A. Model obrasca certifikata o usaglašenosti transportnog sredstva propisanog u tački 3. Dodatka br. 1 Priloga br. 1

OBRAZAC CERTIFIKATA ZA IZOTERMIČKA, RASHLADNA, TRANSPORTNA SREDSTVA - HLADNJAČE ILI TRANSPORTNA SREDSTVA ZA ZAGRIJAVANJE NAMIJENJENA ZA SUVOZEMNI MEĐUNARODNI PREVOZ LAKOKVARLJIVIH NAMIRNICA

Certifikati o usaglašenosti normama transportnih sredstava, koji su izdati prije 02. januara 2011. godine, u skladu sa zahtijevima za model certifikata u Dodatku 3 priloga 1, ostaju na snazi do isteka datuma njihove validnosti naznačenog u samom certifikatu.

TRANSPORTNO SREDSTVO/EQUIPMENT[1]

MNE[1]	XXXXXXXXX[3]	IZOTERMIČKO INSULATED	RASHLADNO REFRIGERATED	HLADNJAČA MECHANICALLY REFRIGERATED	ZA ZAGREAVANJE HEATED	VIŠETEMPERATURNO MULTITEMPERATURE[4]

SERTIFIKAT/CERTIFIKATE[5] **ATP XXXXXXXXXXXXX**

Izdat prema Sporazumu o međunarodnom prevozu lakokvarljivih namirnica i specijalnim sredstvima za njihov prevoz (ATP)/ Issued pursuant to the Agreeme on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP)

1. *Organ koji je izdao sertifikat/Issuing authority:* XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
2. *Transportno sredstvo/ Equipment*[6] XXXXXXXXXXXXXXXXXXXXXXX
3. *Registracioni broj/ Registration number* XXXXXXXXXXXXXXXXX *VIN/Vehicle identification number*XXXXXXXXXXXXXXX
dodijeljen od/ allotted by: XXXXXXXXXXXXXXXXXXXXXXX
Serijski broj izotermičke komore/Insulated box serial number: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
4. *Vlasnik ili korisnik/Owner or operated by:* XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
5. *Podnosilac zahtjeva/ Submitted by:* XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
6. *Odobreno je kao/ Is approved as:*[7] XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

6.1 *Sa jednim ili više toplotnih uređaja koji su/With one or more thermal appliances which is (are)*

6.1.1. *Nazavisan/Independent*[8] **MARKA,TIP,GORIVO,SERIJSKI BROJ/GODINA PROIZVODNJE** *(ukoliko postoji*

6.1.2. *Zavisan/Not independent*[9] **MARKA,TIP,GORIVO,SERIJSKI BROJ/GODINA PROIZVODNJE** *(ukoliko postoji*

6.1.3. *Nestacionarna/Removable;*

6.1.4. *Stacionarna/Not removable.*

7. *Osnova za izdavanje sertifikata/ Basis of issue of certificate*

7.1. *Ovaj sertifikat se izdaje na osnovu/This certificate is issued on the basis of:*

7.1.1. *Ispitivanje transportnog sredstva/Tests of the equipment;*

7.1.2. *Usaglašenost sa reprezentom tipa /conformity with a reference item of equipment;*

7.1.3. *Periodične kontrole/A periodic inspection.*

7.2. *Ako se sertifikat izdaje na osnovu ispitivanja ili saobraznosti sa reprezentom tipa navesti/ Specify:*

7.2.1. *Ispitna stanica/The testing station:* XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

7.2.2. *Metod ispitivanja/The nature of the tests:*[9] XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

7.2.3. *Broj ili brojevi izvještavanju o ispitivanju/The number(s) of the report(s):*
NNNNNNNN (ISPITNA STANICA) YYYY/MM/DD and NNNNNNNN (ISPITNA STANICA) YYYY/MM/DD

7.2.4. *Vrijednosni koeficijent K/ The K coefficient: 0.nn W/m²K*

Korisna rashladna snaga pri spoljnoj temperaturi od 30C i unutrašnjoj temperaturi od/ The effective refrigerating capacity at an outside temperature of 30 °C and an inside temperature of:

u	Nominalna snaga Nominal kapacity	Evap 1	Evap 2	Evap 3
C	xxxxxW	xxxxxW	xxxxxW	xxxxxW
C	xxxxxW	xxxxxW	xxxxxW	xxxxxW
C	xxxxxW	xxxxxW	xxxxxW	xxxxxW

7.3. *Broj otvora i specijalne opreme/Number of openings and special equipment* **X**

7.3.1. *Broj vrata/Number of doors* **X** *zadnja vrata/rear door* **X** *bočna vrata/side door(s)* **X**

7.3.2. *Broj ventilatornih otvora/ Number of vents:* **X**

7.3.3. *Oprema za vješanje mesa/ Hanging meat equipment:* **X**

7.4. *Ostalo/Others*

8. *Ovaj sertifikat važi do/This certificate is valid until:* **MJESEC I GODINA**

8.1. *Pod sledećim uslovima/Provided that:*

8.1.1. *Da se izometralna komora toplotni uređaj (ukoliko postoji) održavaju u dobrom stanju/ The insulated body and, where applicable, the thermal appliance is maintained in good condition; and*

8.1.2. *Da ni jedna važna izmjena nije učinjena na toplotnom uređaju/No material alteration is made to the thermal appliances;*

9 *Izdato od/ Done by* **XXXXXXXXXXXXXXX**
XXXXXXXXXXXXXXX
XXXXXXXXX
XXXXXXXXXXXXXXX

10. *Na dan/ On:* **XXYYYY/MMDD**

DUPLIKAT[12]
Ne štampati na originalu sertifikata
(Odgovorno lice)
(Nadlećni ili ovlašćeni organ)

LOGOTIP[13]
Sigurnosi pečat (reljefni, ultraljubičasti, itd)
Originalni dokument
Original dokument

Nadležni organ/*The competent authority*
XXXXXXXXXXXXXXXXXXXXXXX

[14]

Odgovoran za ATP/ Responsible for the ATP

(Odgovorno lice)

a */ Not mandatory*

Ove bilješke se ne štampaju na certifikatu

[1] *Precrtati ono što se ne primjenjuje.*

[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. Višetemperaturno transportno sredstvo je izotermičko transportno sredstvo sa dva ili više odjeljaka sa različitim temperaturama u svakom odjeljku.*

[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 riječ "cisterna".*

[7] *Ovdje unijeti 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] *Mjerenje 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, fluoroscentni, ultraljubičasti ili druga sigurnosna oznaka koja potvrđuje vjerodostojnost certifikata).*

[14] *Ukoliko je primjenljivo, navesti način na koji je delegiran organ koji izdaje ATP certifikat.*

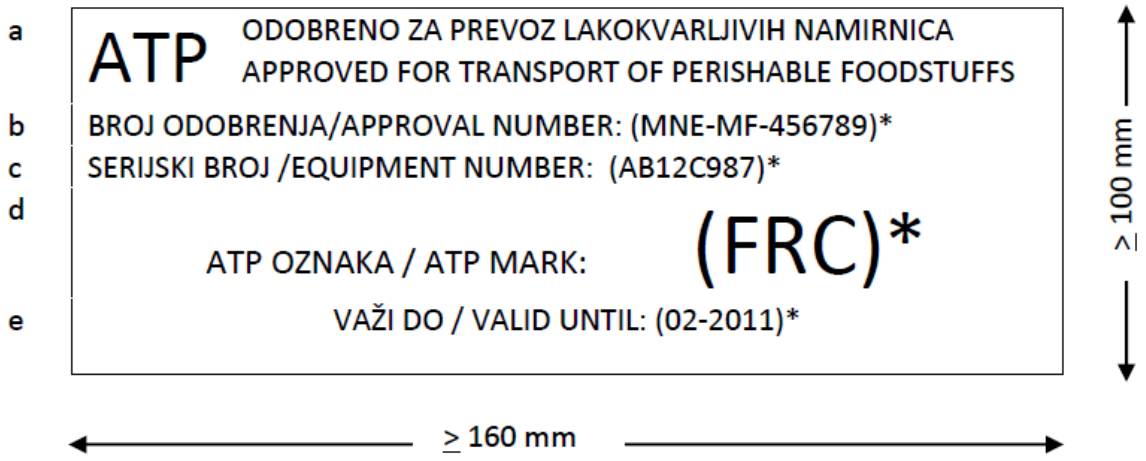
[15] *Biće navedeni svi serijski brojevi izotermičkih transportnih sredstava (kontejnera) sa unutrašnjom zapreminom od najmanje 2 m^3. Prihvatljivo je i kolektivno navođenje ovih brojeva, npr. od broja ... do broja ...*

B. Certifikaciona pločica o usaglašenosti 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 dolje 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, sljedeće stavke:

a) Latinična slova "ATP" iza kojih slijede riječi "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;
c) "SERIJSKI BROJ" praćeno zasebnim brojem dodijeljenim za identifikaciju pojedinih delova transportnog sredstva (može biti proizvođačev broj);
d) "ATP OZNAKA" praćeno karakterističnom oznakom propisanom u Dodatku br. 4 Priloga br. 1, koja odgovara klasi i kategoriji transportnog sredstva;
e) "VAŽI DO" praćeno datumom (mjesec i godina) kada ističe odobrenje transportnog sredstva. Ako je odobrenje obnovljeno posle ispitivanja ili provjere, 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.



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 bijeloj 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 m, 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 sljedeće:

Transportno sredstvo	Oznaka za raspoznavanje
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 zagrijavanje klase A	CNA
Pojačano transportno sredstvo za zagrijavanje klase A	CRA
Pojačano transportno sredstvo za zagrijavanje klase B	CRB

Ako je transportno sredstvo snabdijeveno nestacionarnim ili zavisnim toplotnim uređajem i ako postoje posebni uslovi za upotrebu toplotnog uređaja, slovne oznake za raspoznavanje biće dopunjene latiničnim slovom X u sljedećim 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 dio nestacionaran, što bi spriječilo njegovo funkcionisanje.

Datum (mjesec, godina) naveden u odjeljku 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	2 = mjesec	}	prestanka važnosti
02-20110	2011 = godina		certifikata

Prilog br. 2

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

1. Za prevoz sljedećih duboko smrznutih i smrznutih namirnica, transportno sredstvo treba izabrati i koristiti na taj način da za vrijeme 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 provjeri 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 vrijednosti pri utovaru, za vrijeme prevoza i pri istovaru.

3. Kada je potrebno otvoriti transportno sredstvo, na primjer zbog inspekcije, nužno je obezbijediti 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 vrijeme određenih operacija, kao što je odmrzavanje isparivača transportnih sredstava-hladnjača, dozvoljava se kratkotrajno povećanje temperature površine namirnica za ne više od 3 ˚C u dijelu tovara, na primjer 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

Doljenavedene 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 namijenjene za dalju obradu neposredno po dolasku na odredište, može se dozvoliti postepeno povećanje temperature za vrijeme 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 pratile, u kratkim i ravnomjernim intervalima, temperature vazduha kojem su izložene duboko smrznute namirnice namijenjene za ljudsku upotrebu.

Mjerni instrument mora biti odobren od akreditovanog tijela i dokumentacija mora biti na raspolaganju za odobrenje nadležnih ATP organa.

Mjerni 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.

Prilog br. 2, Dodatak br. 2

POSTUPAK ZA UZORKOVANJE I MJERENJE TEMPERATURE KOD PREVOZA RASHLAĐENIH, SMRZNUTIH I DUBOKO SMRZNUTIH LAKOKVARLJIVIH NAMIRNICA

A. OPŠTA RAZMATRANJA

1. Kontrola i mjerenje temperatura utvrđeni u Prilozima br. 2 i 3 treba da budu obavljeni tako da namirnice ne budu izložene uslovima štetnim za bezbjednost ili kvalitet namirnica. Mjerenje temperature hrane treba da bude obavljeno u rashlađenoj okolini, i sa minimum kašnjenja i minimum ometanja operacija prevoza.

2. Postupci kontrole i mjerenja, kao što je navedeno u tački 1, će prvenstveno biti obavljeni na mestima utovara ili istovara. Ti postupci obično neće biti sprovođeni u toku prevoza, sve dok ne postoji ozbiljna sumnja u usaglašenost 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 tovare lakokvarljivih namirnica za uzorkovanje i postupke mjerenja. Prelazak na mjerenje temperature hrane treba izvršiti samo ako postoji ozbiljna sumnja u upravljanje temperaturom za vrijeme prevoza.

4. Kada se izabere tovar, prvo treba primjeniti mjerenje bez razaranja (između kutija ili između pakovanja). Samo ako rezultati mjerenja bez razaranja nisu saglasni sa temperaturama navedenim u Prilozima br. 2 ili 3 (uzimajući u obzir dozvoljena odstupanja), primjeniće se mjerenje 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 mjestu kontrole, i ovjerene zvaničnim pečatom kontrolnog organa.

B. UZORKOVANJE

5. Tipovi izabrane ambalaže za mjerenje temperature treba da budu takvi da je njihova temperatura predstavnik najtoplije tačke pošiljke.

6. Kada je potrebno da se izaberu uzorci za vrijeme 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 vrijeme istovara pošiljke, po četiri uzorka treba da budu izabrana na sljedećim 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 vrijeme transporta.

V. MJERENJE TEMPERATURE LAKOKVARLJIVIH NAMIRNICA

9. Sondu za mjerenje temperature prije mjerenja treba ohladiti na temperaturu što bližu temperaturi proizvoda.

I. Rashlađena hrana

10. Mjerenje bez razaranja. Mjerenje između kutija ili između pakovanja treba da se obavi pljosnatom sondom, koja obezbjeđuje 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. Mjerenje sa razaranjem. Treba koristiti sondu sa krutim robusnim tijelom i oštrim vrhom, izrađenu od materijala koji se može lako čistiti i dezinfikovati. Sondu treba uvući u središte pakovanja hrane, i zabilježiti temperaturu kada se ustali.

II. Smrznuta i duboko smrznuta hrana

12. Mjerenje bez razaranja. Isto kao u tački 10.

13. Mjerenje 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 isječeno na kocke npr.). U tim slučajevima unutrašnja temperatura pakovanja hrane se određuje umetanjem pogodne sonde sa oštrim vrhom u centar pakovanja kako bi se izmjerila temperatura u dodiru sa hranom.

Posle umetanja sonde, temperatura se očitava nakon njenog ustaljenja.

G. OPŠTI KRITERIJUMI ZA MJERNI SISTEM

14. Mjerni sistem (sonda i pokazivač) koji se koristi za određivanje temperature treba da zadovolji sljedeće kriterijume:

I. vrijeme odziva treba da bude takvo da omogući registrovanje 90% od razlike između početnog i konačnog očitavanja u periodu od tri minuta;
II. [1]sistem treba da ima tačnost od ± 0,5 ˚C u mjernom opsegu od - 20 ˚C do + 30 ˚C;
III. [1]tačnost mjerenja ne smije da se promjeni za više od 0,3 ˚C za vrijeme 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 provjeravati;
VI. sistem treba da posjeduje važeći certifikat o kalibraciji izdat od ovlašćene institucije;
VII. električne komponente sistema treba da budu zaštićene od neželjenih efekata usljed kondenzacije vlage;
VIII. sistem treba da bude robustan i otporan na udar.

D. DOZVOLJENA ODSTUPANJA PRI MJERENJU TEMPERATURE

Određena odstupanja treba da budu dozvoljena u tumačenju temperaturnih mjerenja:

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 - mjerenje bez razaranja može da dâ 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 mjerenja temperature sa razaranjem.

Prilog br. 3

IZBOR TRANSPORTNIH SREDSTAVA I TEMPERATURNIH USLOVA ZA PREVOZ RASHLAĐENIH NAMIRNICA

1. Za prevoz sljedećih rashlađenih namirnica, transportno sredstvo treba izabrati i koristiti na taj način da za vrijeme prevoza najviša temperatura u bilo kojoj tački tereta ne pređe naznačenu temperaturu. Međutim, ukoliko se pristupi provjeri temperature namirnice, 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 vrijednosti pri utovaru, za vrijeme prevoza i pri istovaru.

3. Kada je potrebno otvoriti transportno sredstvo, na primjer zbog inspekcije, nužno je obezbijediti 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.

		Maksimalna temperatura
I.	Sirovo mlijeko[1]	+ 6 ˚C
II.	Crveno meso[2] i krupna divljač (osim crvenih iznutrica)	+ 7 ˚C
III.	Proizvodi od mesa[3], pasterizovano mlijeko, svježi mliječni proizvodi (jogurt, kefir, pavlaka i svjež sir[4]), gotova jela (meso, riba, povrće), sirovo povrće spremno za jelo, proizvodi od povrća[5] i riblji proizvodi[3] koji nisu navedeni dolje	ili na +6 ˚C ili na temperaturi naznačenoj na etiketi i/ili u ispravi o prevozu
IV.	Divljač (osim krupne divljači), živina[2] zečevi	+ 4 ˚C
V.	Crvene iznutrice[2]	+ 3 ˚C
VI.	Mljeveno 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] *Postupak će biti određen.*

[1] *Kada se mlijeko skuplja sa farmi za neposrednu preradu, za vrijeme 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 "svježim sirom" se podrazumijeva nezreo sir koji je spreman za konzumiranje ubrzo posle proizvodnje i koji ima ograničen period konzervacije.*

[5] *Sirovo povrće koje je isjeckano 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.*