SLOVENSKI STANDARD
SIST EN 14867:2005

01-september-2005

Embalaža – Polimerne vrečke za zamrzovanje – Podrobni opis in preskusne metode

Packaging - Plastic freezer bags - Specifications and test methods

Verpackungen - Gefrierbeutel aus Kunststoff - Spezifikationen und Prüfverfahren

Emballages - Sacs plastiques pour congélation - Spécifications et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 14867:2005**

ICS:

55.080	Vreče. Vrečke	Sacks. Bags
67.250	Materiali in predmeti v stiku z živili	Materials and articles in contact with foodstuffs

SIST EN 14867:2005 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14867

June 2005

ICS 55.080

English version

Packaging - Plastic freezer bags - Specifications and test methods

Emballages - Sacs plastiques pour congélation - Spécifications et méthodes d'essai

Verpackungen - Gefrierbeutel aus Kunststoff - Spezifikationen und Prüfverfahren

This European Standard was approved by CEN on 19 May 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 14867:2005: E

Contents

Foreword

This European Standard (EN 14867:2005) has been prepared by Technical Committee CEN/TC 261 “Packaging”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2005, and conflicting national standards shall be withdrawn at the latest by December 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies the dimensional characteristics, mechanical requirements and requirements of fitness for purpose of plastics freezer bags used for freezing foodstuffs.

It specifies also test methods to check these requirements.

It is applicable to plastic bags reserved for household uses to freeze foodstuffs, including the following types:

— bags with tie closure, without gusset;

— bags with tie closure and lateral gussets;

— bags with re-closable features (or with zipper) without gusset.

NOTE 1 The above list of types of bags is neither restrictive nor exhaustive.

NOTE 2 The application of this European Standard does not exempt the supplier or purchaser from complying with national regulations.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1186-1, *Materials and articles in contact with foodstuffs — Plastics — Part 1: Guide to the selection of conditions and test methods for overall migration*

EN 1186-2, *Materials and articles in contact with foodstuffs — Plastics — Part 2: Test methods for overall migration into olive oil by immersion*

EN 1186-3, *Materials and articles in contact with foodstuffs — Plastics — Part 3*: *Test methods for overall migration into aqueous simulants by total immersion*

EN ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1:1993 including Corr 1:1994)*

EN ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets (ISO 527-3:1995)*

EN ISO 6383-1, *Plastics — Film and sheeting — Determination of tear resistance — Part 1: Trouser tear method (ISO 6383-1:1983)*

EN ISO 7765-1, *Plastics film and sheeting — Determination of impact resistance by the free-falling dart method — Part 1: Staircase methods (ISO 7765-1:1988)*

ISO 4591, *Plastics — Film and sheeting — Determination of average thickness of a sample and average thickness and yield of a roll by gravimetric techniques (gravimetric thickness)*

ISO 4592, *Plastics — Film and sheeting — Determination of length and width*

ISO 4593, *Plastics — Film and sheeting — Determination of thickness by mechanical scanning*

ISO 13302:2003, *Sensory analysis — Methods for assessing modifications to the flavours of foodstuffs due to packaging*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
bag with tie closure
flush top bag whose closure after filling is achieved by means of a tie whose core can be metallic

3.2
bag with reclosable features (or with zipper)
bag with a specially designed interlock incorporating two profiles, a male and a female one, over the whole width of the bag, which allow closure by simple pressure after filling

3.3
veil
strip of film located above the closure profiles of a bag with a zipper, thicker than the bag body constituent film in order to facilitate both grip and opening

3.4
nominal thickness
E_n
thickness of the bag constituent film, as declared by the supplier, in micrometres (µm)

3.5
width
P
inner half perimeter of the bag, measured at the top and bottom of the bag with the gussets unfolded if applicable, in millimetres (mm) (see Figure 1)

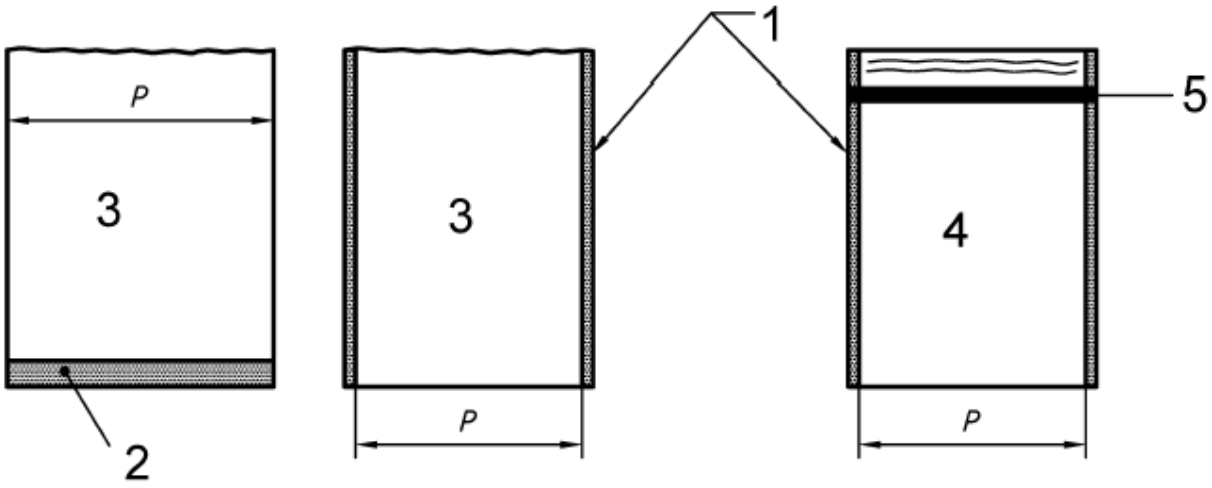
3.6
length
L
length measured inside the bag, along one of the lateral edges from the bottom of the bag up to the upper edge for bags with tie closure (flush top) and up to the closure (excluded) for bags with zipper, in millimetres (see Figure 1)

3.7
gusset depth
S
half width of the deployed gusset, in millimetres (mm)

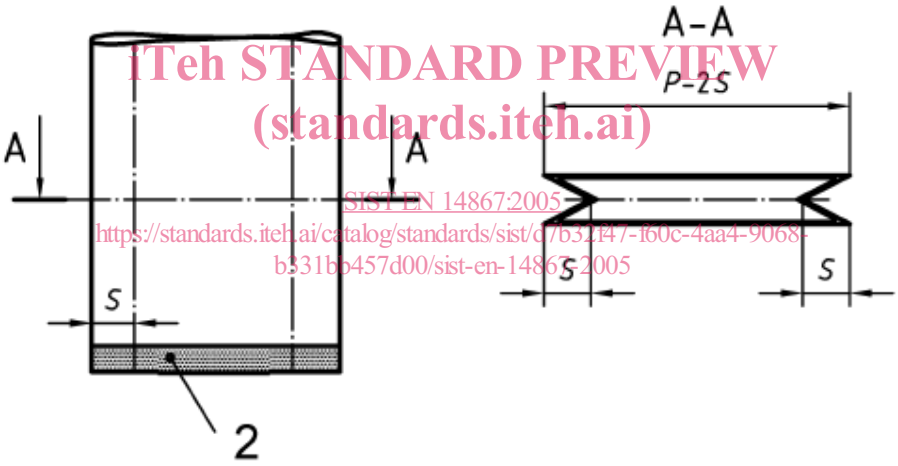
3.8
opening resistance from the outside
F_{oe}
tensile strength opposed to the user to open a bag with a zipper, in Newtons (N)

3.9
opening resistance from the inside
F_{oi}
tensile strength opposed to the thrust exerted by the packaged substance on the zipper closure via the bag walls, in Newtons (N)

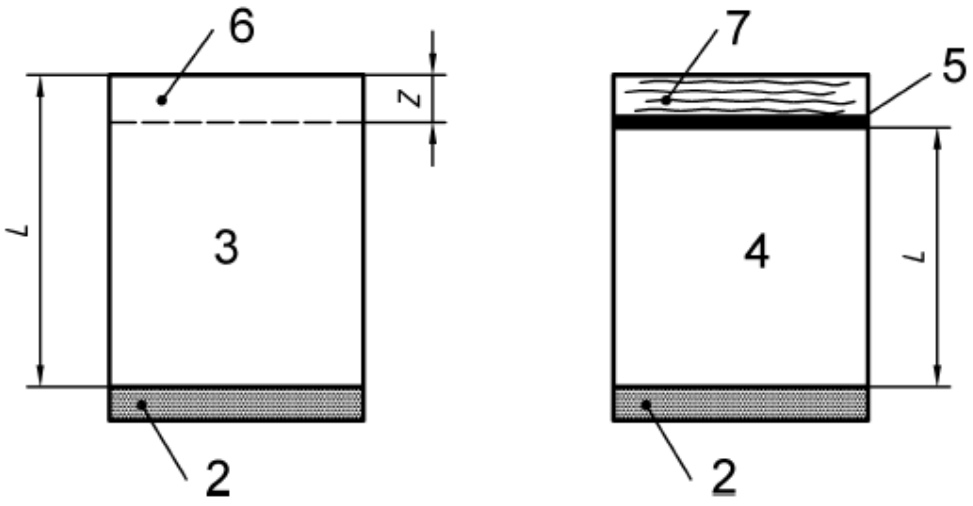
3.10
sales packaging or primary packaging
packaging conceived so as to constitute a sales unit to the final user or consumer at the point of purchase [definition of European Community Directive on Packaging and Packaging Waste (94/62/EC)]



a) Types of bags



b) Bags with lateral gussets



c) Bags with reclosable features without gusset

Key

1	Lateral seams	L	Length
2	Bottom seam	P	Width
3	Flush top bag	S	Gusset depth
4	Bag with closure	z	Reservation for tying
5	Closure (zip)		
6	Allowance for closure		
7	Veil		

Figure 1 – Typical freezer bags

4 General characteristics and requirements

4.1 Dimensional characteristics

4.1.1 Effective volume

By convention, the effective volume is calculated using Formula (1):

$$V_u = [\, P_m^2/\pi\, (L_m - P_m/2 - Z) - S_m^3]10^{-6} \quad (1)$$

where

V_u is the effective volume, expressed in dm^3;

L_m, is the arithmetic mean, expressed in millimetres, of the two measurements of the length, L, made along the lateral edges on a bag.

P_m, is the arithmetic mean, expressed in millimetres, of the two measurements of the width, P, made, at the top and bottom, on a bag.

S_m, is the half arithmetic mean, expressed in millimetres, of the two measurements of the width of gusset, $2S$, made each side on a bag.

Z is a value, expressed in mm, taking into account the closure system, (see Figure 1):

Z = 0 for bags with zipper;

Z = 30 for bags with tie closure (reservation for tying).

NOTE The effective volume is not related to the permissible load.

4.1.2 Requirements

The supplier shall declare the nominal width P_n and the nominal length L_n, expressed in millimetres.

When tested in accordance with test methods as specified in Table 1, the plastics freezer bag shall have dimensional characteristics conforming to the requirements given in Table 1.

Table 1 — Dimensional characteristics

Characteristic	Unit	Requirements		Test method subclause
		Bags with tie closure	Bags with zipper	
Bag width, P_m	mm	$P_m \geq P_n$ - 10	$P_m \geq P_n$ - 10	5.1.4
Bag length, L_m	mm	$L_m \geq L_n$ - 20	$L_m \geq L_n$ - 10	5.1.4
P_m / L_m	-	0,6 ≤ P_m / L_m ≤ 1	0,6 ≤ P_m / L_m ≤ 1	-
Effective bag volume, V_u				
— Small size	dm^3	1,1 ≤ V_u < 2,8	1,0 ≤ V_u < 3,05	-
— Medium size	dm^3	2,8 ≤ V_u < 6,9	3,05 ≤ V_u < 6,85	
— Large size	dm^3	6,9 ≤ V_u < 10,0	6,85 ≤ V_u < 10,0	
Individual film thickness, E	µm	$E \geq E_n - X$ [a]	$E \geq E_n - X$ [a]	5.1.5
Average film thickness, E_m	µm	E_n > 20 µm : $E_m > E_n$ – 8 %	$E_m \geq E_n$ – 12,5 %	5.1.5
	µm	E_n ≤ 20 µm : $E_m > E_n$ – 10 %		
Veil height, H_v [b]	mm	-	H_v ≥ 15 mm	5.1.6
Mass per area of veil / mass per area of constituent film, R_m [b]	-	-	R_m ≥ 1,5	5.1.7
Tie length, T_l [c]	mm	T_l ≥ 70 mm	-	5.1.8

[a] X = 15 E_n / (25 + E_n).

[b] Only for bags with zipper.

[c] Only for bags with tie closure.

4.2 Mechanical requirements

When tested in accordance with test methods as specified in Table 2, the plastics freezer bag shall have mechanical characteristics conforming to the requirements given in Table 2.

Table 2 — Mechanical characteristics

Characteristic	Unit	Requirements	Test method subclause
Tear resistance, F_t	N	$F_t \geq 2{,}5$	5.2.2
Puncture resistance, F_p	N	$F_p \geq 11$	5.2.3
Impact resistance at – 30 °C	-	Maximum 2 failures	5.2.4
Opening resistance [a] — from the outside, F_{oe} — from the inside, F_{oi}	 N N	 $F_{oe} \leq 5$ $F_{ie} \geq 6$	5.2.5
Seam resistance [b] — bottom seam, F_{sb} — lateral seam, F_{sl}	 N N	 $F_{sb} \geq 6$ $F_{sl} \geq 5$	5.2.6
[a] Only applicable for bags with zipper. [b] Only applicable for bags with bottom and/or lateral seams.			

4.3 Requirements for fitness for purpose

4.3.1 Suitability for writing

The bags shall be provided with a printed area, reserved for writing.

The area reserved exclusively for writing shall be greater than 15 cm². The control shall be carried out in accordance with 5.3.1.

The printing on the bag and text written with a ball point (greasy ink) shall withstand wiping with a pure cellulose piece of paper after passing through water.

4.3.2 Transparency of the film

The bag constituent film shall be sufficiently transparent in order to allow legibility through ten stacked layers (five bags). The control shall be carried out in accordance with 5.3.2.

4.3.3 Water tightness

When tested in accordance with 5.3.3, the bags shall remain watertight.

4.3.4 Veil

One of the faces of each veil shall not be smooth.

4.4 Suitability for food contact

4.4.1 General

The bag constituent materials shall conform to the requirements of all relevant national and/or European regulations.