



COMPANY
STANDARD

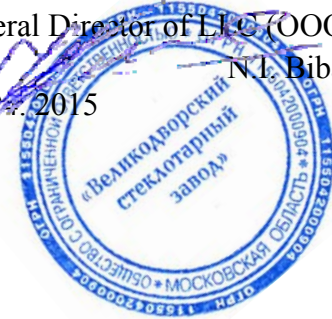
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APPROVED by

General Director of LLC (OOO) "VSZ"

N.L. Bibaev

03.07.2015



GLASS TARE FOR FOOD PRODUCTS

Technical Specifications



Preface

Purposes and principles of standardization in the Russian Federation were set forth in the Federal Law No. 184-FZ "On Technical Regulation" dd. December 27, 2002, and the rules of company standards use – in GOST P 1.0-2004 "Standardization in the Russian Federation. General provisions"

Information on the Standard

- 1 DEVELOPED by the quality management system division of LLC (OOO) "VSZ"
- 2 APPROVED AND IMPLEMENTED by the Order of General Director of LLC (OOO) "VSZ"
- 3 FIRST ISSUE
- 4 TN VED 7010 90 100 0, 7010 90 410 0, 7010 90 430 0, 7010 90 450 0,
7010 90 510 0, 7010 90 530 0, 7010 90 550 0, 7010 90 570 0
- 5 OCS (National Standards classification) 55.100 Д91 OCP (National Product Classification Code) 59 8611
Д92 OCP (National Product Classification Code) 59 8700

The original of this standard is the control copy.

This standard is governed by the quality management system division of LLC (OOO) "VSZ".

Alterations to the text of this standard shall be made by way of replacement (addition / removal) of sheets. A respective notification shall be issued as a notice of change. The notice of change and the sheets for replacement (addition) shall be approved by general director of LLC (OOO) "VSZ".

If this standard is revised (replaced) or abandoned, a respective notification shall be issued as an order of general director of LLC (OOO) "VSZ".

Uncontrolled copies of this standard may only be used for the purposes of training, information (references), or passed to third parties (with the permission of Quality Director of LLC (OOO) "VSZ").

Amendment: 6	Date: 06.06.2016	<i>Information on the standard. p. 4 (Revision)</i>	
Amendment: 0	Date: 01.10.2012		2

COMPANY STANDARD

GLASS TARE FOR FOOD PRODUCTS**Technical specifications**

Effective date 03.04.2015

1 SCOPE OF APPLICATION

This standard applies to the glass packaging used in industrial conditions for bottling (filling), storage and transportation of food products:

- food liquors (alcoholic and non-alcoholic);
- canned food (canned vegetable, fruits and berries, juices, pastes, honey, vegetable oil, etc.);
- coffee and coffee beverages;
- dry goods (spices, seasonings, etc.);
- baby food (juices, purees);
- milk and dairy products;
- edible acids and vinegars;
- fishery products (canned fish, fish preserves, caviar, seafood and derivative products).

The standard sets the classification, main parameters and sizes of glass packaging for food products (hereafter – the articles), technical requirements to their quality, acceptance procedures, quality control methods, packing, marking, transportation, storage and usage environment.

Terms and definitions of defects – under GOST 30005, GOST 33204.

This standard is fit for the purposes of conformity assessment.

This standard is used along with GOST 5717.1, GOST 5717.2, GOST 10117.2, GOST 32129, GOST 32130, GOST 32131, GOST 32671, GOST 15844, GOST P 52898.

2 NORMATIVE REFERENCES

References to the following standards and normative documents were used in this standard:

TR CU 005/2011 On Packaging Safety. Technical Regulations of the Customs Union. Approved by the Resolution of the Customs Union Commission No. 769 dd. 16.08.2011

GOST P ISO 2859-1-2007 Statistic methods. Sampling procedure by alternative sign. Part 1. Schedules of sampling procedure for subsequent batches on the basis of acceptable quality level

Amendment: 6	Date:	06.06.2016	<i>Section 1, paragraph 5 (Revision)</i>
Amendment: 5	Date:	05.11.2015	<i>Section 1, 2 (Revision)</i>
Amendment: 4	Date:	01.12.2014	<i>Section 1, 2 (Revision)</i>
Amendment: 3	Date:	01.04.2014	<i>Section 1, 2 (Revision)</i>

GOST P 52022-2003	Glass tare for food and perfume and cosmetics products. Glass grades
GOST P 52898-2007	Glass bottles for edible acetic acid and vinegars. Technical specifications
GOST ISO 9058-2013	Glass tare. Bottles. Allowed deviations from nominal sizes
GOST 8.579-2002	State system of measurement uniformity assurance. Requirements to the number of packaged goods in any kind of packaging during production, packaging, sale and import
GOST 30005-93	Glass tare. Terms and definitions of defects
GOST 5717.1-2014	Glass tare for canned food products. General technical specifications
GOST 5717.2-2003	Glass jars for canned food. Main parameters and sizes
GOST 10117.2-2001	Glass bottles for food liquors. Types, parameters and basic dimensions
GOST 10134.1-82	Inorganic glass and glassy-crystalline materials. Methods of Water resistance estimation at 98 °C
GOST 14192-96	Freight marking
GOST 15150-69	Machines, instruments and other technical products. Designs for different climatic regions. Categories, operating, storage and transportation conditions with regard to environmental climatic factors impact.
GOST 15844-2014	Glass tare for milk and dairy products. General technical specifications
GOST 17527-2014	Packaging. Terms and definitions
GOST 30005-93	Glass tare. Terms and definitions of defects
GOST 30288-95	Glass tare. General Safety, Marking and Resource Economy Regulations
GOST 32129-2013	Glass bottles. Neck finishes. Types and sizes. Part 1. Neck finish type
КИИМ-30	
GOST 32130-2013	Glass jars for fishery food products. Technical specifications
GOST 32131-2013	Glass bottles for alcoholic and non-alcoholic food products. General technical specifications
GOST 32671-2014	Glass tare for baby food products. General technical specifications
GOST 33204-2014	Glass tare. Defects of glass and glassware. Terms and definitions. Defects of glass

3 TERMS AND DEFINITIONS

In this standard the terms according to GOST 30005, GOST 17527, GOST 32130, GOST 32131, GOST P ISO 2859-1, GOST ISO 9058, GOST 15844, GOST 32671, GOST 33204, GOST P 52898 are used.

4 CLASSIFICATION

4.1 Articles of two types are manufactured: bottles and jars.

4.2 Types of the articles are divided into groups as per table 1 depending on the kind of the food product, for which they are intended.

Amendment: 6	Date:	06.06.2016	Section 2 (Revision)
Amendment: 5	Date:	05.11.2015	Section 3 (Revision)
Amendment: 4	Date:	01.12.2014	Sections 1, 2 (Revision)
Amendment: 3	Date:	01.04.2014	Sections 1, 2 (Revision)

Table 1

Type of the product	Name of food products	Denomination of product group
Bottles	Champagne, sparkling wines	ШК
	Strongly carbonated drinks Beer	ПК
	Sparkling and carbonated wines, cider Carbonated low-proof beverages Non-alcoholic beverages: carbonated, slightly carbonated	ГК
	Alcoholic beverages (vodka, spirits, cognac, liqueurs and spirits products, wine, wine beverages, etc.) Low-alcohol beverages (cocktails, beverages, kvass, etc.) Non-alcoholic drinks, mineral and drink water: non-carbonated	БК
	Horticultural products (juices, dressings, ketchups, vegetable oil, etc.)	КП
	Milk, dairy products and milk-containing products	МК
	Edible acetic acids and vinegars	УК
	Baby food products (juices)	ДП
Jars	Fishery products (canned fish, fish preserves, caviar, seafood and derivative products)	КР
	Coffee and coffee drinks	КФ
	Dry goods (spices, seasonings, etc.)	СП
	Products for home and industrial canning (canned horticultural products, meat and vegetable products, fruits and vegetables: juices, ketchups, dressings, mayonnaise, pastes, jams, marmalades, honey, etc.)	КП
	Baby food products (canned horticultural products, meat and vegetable products, canned vegetables, fish)	ДП

4.3 Depending on the form the articles are divided to the round and non-round ones.

4.4 Neck finishes are divided to types depending on the combination of the article closure type as per table 2, closing part number and neck finish construction form.

Table 2

Type of the article	Identifying code of the type of closure	Neck finish name acc. to the closure type
Bottles	В	Neck finish for screw closure
	БКП	Combined neck finish for screw cap closure
	КН	Combined neck finish for crown cap, aluminium cap and stopper
	КП	Neck finish for crown cap
	КПМ	Modified neck finish for crown cap
	КПН	Low neck finish for crown cap
	КПШ	Combined neck finish for crown cap, cork or polyethylene cap
	П	Neck finish for cap
	ТО	Neck finish with multistart thread
	Ш	Neck finish for cork or polyethylene cap
Jars	Б	Yoke neck finish
	I	Roll-around neck finish
	II	Crimp neck finish (Eurocap)
	III	Screwed neck finish (twist-off)

Amendment: 5	Date:	05.11.2015	Table 2 (Revision)
Amendment: 3	Date:	01.04.2014	Table 1 (Revision)
Amendment: 0	Date:	01.10.2012	5

- 4.5 Identifying code of the bottle neck finish includes
- order number, indicated by Roman figures (if necessary);
 - designation of the type of closure;
 - number of the finish sealing part.

4.6 Identifying code of the jar neck finish includes:

- designation of the type of closure;
- designation of the neck finish construction form (for screwed stopper rings);
- number of the sealing part of the neck finish;
- order number, indicated by Roman figures (if necessary).

4.6a Identifying code of coloured glass is accompanied by an index depending on the colour of the frit used:

- CT – blue container glass, glass code GL73;
- ГКТ – bluish-brown (grey) container glass, glass code GL74;
- ГТ – light-blue tare glass, glass code GL75.

4.7 Identifying code of an article should contain:

- type of the article (bottle or jar) and capacity in liters;
- name of the article (in quotes);
- index of colour of the coloured glass (in brackets);
- designation of the neck finish type;
- nominal capacity in cm³;
- designation of this standard.

Example of designation of the bottle "Pyat ozer" with screw neck finish, type VIII-B-30, nominal capacity 500 cm³, coloured blue:

Bottle 0,5 "Pyat ozer" (CT) VIII-B-30-500 CTO 61540408-001-2012

Change of identifying code upon requirement of the customer is allowed.

4.8 The list of manufactured articles with identifying codes is given in the supplement A of this standard.

5 MAIN PARAMETERS AND DIMENSIONS

5.1 Form, main parameters and dimensions of the articles and neck finishes should correspond to ones indicated on the drawings of the articles and neck finishes agreed with the customer (hereinafter – the drawings).

Quality parameters of the articles should conform to the requirements of this standard.

5.2 Control parameters of the articles:

- bottles: full capacity, total height, body outside diameter for round bottles, body dimensions for bottles of different form, wall and bottom thickness (except for the groups ДП, МК, УК);
- jars: full capacity, total height, body outside diameter for round jars, body dimensions for jars of different form, wall and bottom thickness, weight for the jars of type 1 for fish and canned fish

Nominal capacity by filling level shall be controlled upon agreement with the customer.

5.3 Controlled dimensions of neck finishes:

- bottles: to be indicated on the drawings agreed with the customer;
- jars: diameter of the sealing ring of neck finishes of types I and II, outside screw diameter of neck finishes of type III.

5.4 Control of other parameters and dimensions of the articles and neck finishes is allowed upon agreement with the customer.

5.5 Controlled dimensions of the articles and neck finishes shall be indicated on the drawings agreed with the customer.

Other dimensions of the articles and neck finishes indicated on the drawings shall be used at making moulds and/or for reference.

Amendment: 6	Date:	06.06.2016	<i>p. 4.6a (Revision)</i>
Amendment: 5	Date:	05.11.2015	<i>pp. 4.6a, 4.7, 5.1, 5.3, 5.5 (Revision)</i>
Amendment: 4	Date:	01.12.2014	<i>p. 4.6a (Added additionally)</i> <i>pp. 5.1, 5.3, 5.5 (Revision)</i>
Amendment: 3	Date:	01.04.2014	<i>p. 5.1 (Revision)</i>

5.6 Limits of acceptable deviations from nominal dimensions for the articles of new types:

- for bottles – as per GOST ISO 9058;
- for round jars – as per GOST 5717.1;
- for non-round jars – shall be accepted upon agreement with the customer and indicated on the agreed drawings.

5.7 On the body of the bottles of groups ДП and МК a label impression up to 0,5 mm is allowed, for other articles – (0,2-0,6) mm is recommended.

5.8 The recommended impression height from the notch on the mould on the bottom of the articles is (0,1-0,8) mm. Impressions of mould vacuum openings on the external surface of the article are allowed.

5.9 Bottles for edible acetic acid should have three clear-cut circumferential rings of the shoulders and neck as a sign distinctive from bottles used for other edible vinegars and liquors.

5.10 On the outside surface of bottles for baby dairy products a clear gauging with the intervals equal to 10 cm³ of capacity, and digits corresponding to the interval of 50 cm³ should be applied. Deviation from the nominal capacity or a part of it should not exceed ±5 %.

5.11 Decorative and embossed images, logotypes, inscriptions should be indicated on the pictures (drawings), and readable and identifiable on the articles. Control samples with decorative or embossed images, inscriptions may be agreed upon with the customers.

6 TECHNICAL REQUIREMENTS

6.1 General characteristics

6.1.1 The articles should conform to the requirements of this standard.

6.1.2 The articles are made from colourless container glass as per GOST P 52022 marks БТ-1, БТ-2 or other compounds approved for contact with food products.

Glass water resistance should be not less than III hydrolytic class as per GOST 10134.1.

6.1.3 Sanitary and hygienic characteristics and standards for the substances evolving from the articles at contact with food products are specified in the TR CU 005/2011.

6.1.4 Change of glass colour by way of adding glass frit into the feeder channel is allowed.

At that, the specific parameter of the general light transmission of the glass shall be agreed with the customer.

6.2 Bottles characteristics

6.2.1 The following is not allowed on the bottles:

6.2.1.1 Stuck-up glass particles, glass threads and spears, open bubbles on the internal surface, glass dust and glass fragments inside bottles;

6.2.1.2 Through checks, sharp seams, chippings, angles and burrs;

6.2.1.3 Foreign inclusions with cracks or checks around;

6.2.1.4 Distinct brush marks, wrinkles, cold appearance, double seams, traces of scissors cuts, or cold appearance and corrugation visible at filling the jars with water.

6.2.1.5 Surface single checks more than 10 mm long, and if concentrated – more than 5 mm long..

On the bottles of the groups ДП and КП surface checks with the length an in the quantity exceeding the ones indicated in the table 3 are not allowed.

Amendment: 4	Date:	01.12.2014	<i>p. 6.1 (Revision)</i>
Amendment: 3	Date:	01.04.2014	<i>p. 6.2.1.7 (Revision)</i>
Amendment: 0	Date:	01.10.2012	

Table 3

Bottle group	Checks location	Checks length, mm	Number, pcs.
ДП	On the neck finish end opening and side surfaces	Not allowed	
	On the neck	1	2
	On the body, shoulders and bottom	3 (total)	not rated
КП	Single checks		
	On the neck finish end opening surface	Not allowed	
	On the neck finish side surface	3	2
	On the body and bottom	8	4
	On the neck of jars with capacity, cm ³ :		
	Up to 1000 incl.	1	2
	over 1000	3	2
	Checks concentrated in one place		
	On the neck of jars with capacity, cm ³ :		
	Up to 350 incl.	3 (total)	Not rated
from 350 » 1000 »	5 (total)	Same	
over 1000	8 (total)	»	
Note – for checks condensed in one place their total length is indicated			

6.2.1.6 Streaks and striae, distinct and/or accompanied by internal tensions giving specific difference of polarimeter ray path more than 115 nm/cm, for bottles of groups ДП, МК and УК – more than 110 nm/cm;

6.2.1.7 Bottle surface erosion with checks and chippings;

6.2.1.8 Dirt stains stubborn to washing agents.

6.2.1.9 Closed bubbles, open bubbles on the outer surface, foreign inclusions in the number and size exceeding the ones specified in the table 4;

Table 4

Bottle group	Bottle nominal capacity, cm ³	Size, mm		Number	
		Bubble	Foreign inclusion	Bubbles	Foreign inclusions
Except for ДП, КП	Up to 250 incl.	Over 1,0 to 1,5 incl. » 1,5 » 3,0 »	Up to 1,0 incl. –	4 2	1 –
	Over 250 to 500 incl.	Over 1,0 to 1,5 incl. » 1,5 » 4,0 »	Up to 1,0 incl. Over 1,0 to 1,5 incl.	8 3	1 1
	Over 500	Over 1,0 to 1,5 incl. » 1,5 » 4,0 »	Up to 1,0 incl. Over 1,0 to 1,5 incl.	8 3	2 1
ДП	Up to 350 incl.	Over 1,0 to 1,5 incl.	Up to 0,5 incl.	4	2
КП	Up to 350 incl.	Over 1,0 to 1,5 incl.	Up to 0,5 incl.	4	2
	Over 350 to 500 incl.	Over 1,0 to 2,0 incl. » 2,0 » 3,0 »	Up to 0,5 incl. –	4 2	2 –
	Over 500 to 1000 incl.	Over 1,0 to 2,0 incl. » 2,0 » 4,0 »	Up to 1,0 incl. –	4 3	2 –
	Over 1000	Over 1,0 to 4,0 incl. » 4,0 » 6,0 »	Up to 1,0 incl. –	5 5	3 –
Note – Size for round bubbles – diameter, for oval ones – half of the sum of length and width					

6.2.2 Dirt stains on the surface or foreign objects inside the bottles of the group ДП are not allowed.

6.2.3 On bottles closed bubbles not more than 1,0 mm (seed), sparse and/or as single clusters (no more than 10 for a cluster) are allowed.

Amendment: 3	Date:	01.04.2014	<i>p. 6.2.1.7 (Revision)</i>
Amendment: 0	Date:	01.10.2012	8

6.2.4 Round bottles walls and bottom thickness should not be less than the one specified in the table 5.

Table 5

Bottle group	Bottle nominal capacity, cm ³	Thickness, mm	
		walls	bottom
IIIK	–	2,5	4,0
IIK (except for beer bottles)	–	1,8	3,0
ГK	Up to 1000	1,4	2,5
IIK (beer bottles) BK	Up to 500 incl.	1,2	2,5
	Over 500 to 1000 incl.	1,4	3,0
	Over 1000	2,0	4,0
Bottles made by NNPB method	Up to 500 incl.	1,0	2,0
	Over 500 to 1000	1,2	2,5
KП	Up to 500 incl.	1,2	2,0
	Over 500 to 1000 incl.	1,4	2,5
	1000	1,4	2,5
	Over 1000	–	–
ДП	200, 250	1,1	1,6
УK	Up to 100 to 250 incl.	1,3	3,0
	Over 250 to 1000	1,4	3,0
	1000	1,8	4,0
MK	Up to 1000	1,4	3,0
	1000	1,8	4,0

Note – Bottle walls and bottom thickness change is allowed upon agreement with the customer, provided that other mandatory requirements to the articles are observed.

Recommended thickness difference ratio – not less than 0,35.

Thickness of wall and bottom for non-round bottles to be set upon agreement with customer and specified on the drawings.

6.2.5 Neck finish end surface should be smooth, without burrs and blisters.

Neck finish deformation, checks or closed bubbles with dia. > 1 mm (more than 2) on the end surface, or foreign inclusions are not allowed.

Neck finish plane shall pass to the inner chamber of the bottle as per the drawing. Smooth round plunger mark not protruding to the neck finish end surface is allowed.

6.2.6 Neck finish end surface should be parallel to the bottom surface. Allowed deviations for round bottles should not exceed the figures in the table 6:

Table 6

Bottle group	Nominal neck finish diameter	Allowed deviation, mm
Except for ДП	Up to 20 incl.	0,45
	Over 20 to 30 incl.	0,60
	Over 30 to 40 incl.	0,70
	Over 40 to 50 incl.	0,80
	Over 50	1,00
ДП	–	0,80

6.2.7 Side and bottom seams should be smooth. Seam height on the body and bottom should not exceed 0,3 mm, on the side surface and neck finish end surface – 0,2 mm.

Passing of the bottom seam to the body above the bottom thickness is not allowed.

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Amendment: 5	Date:	05.11.2015	<i>pp. 6.6.11, 6.2.12 (Revision)</i>
Amendment: 4	Date:	01.12.2014	<i>pp. 6.6.11, 6.2.12 (Revision)</i>

Blunted angles on the seam junction on the body should not exceed 1 mm.

6.2.8 Vertical axis of the bottle should be perpendicular to the bottle bottom. Deviation of the neck centre from the axis of the bottle body should not exceed the figure indicated or calculated according to the formula in the table 7.

Table 7

Bottle group	Bottle height H, mm	Allowed deviation, T_V , mm
Except for ДП	Up to 120 incl.	1,5 mm
	Over 120	$T_V = 0,3+0,01H$
ДП	–	$T_V = 0,01H$

6.2.9 Ovality of body and ovality of neck finish of bottles should not exceed allowed deviations for their diameters.

6.2.10 Allowed capacity, height, body diameter deviations for round bottles – as per GOST ISO 9058, for non-round bottles the deviations shall be agreed with consumer and indicated on drawings.

6.2.11 Allowed deviations of controlled dimensions of bottle neck finishes should correspond to the ones indicated on drawings, agreed with the customer, or to GOST 10117.2, GOST 15844, GOST P 52898, GOST 32671, GOST 32129.

6.2.12 Bottles should be heat-resistant. Bottles should withstand the temperature difference specified in the table 8.

Table 8

Bottle group	Temperature difference, min.
ШК, ВК, УК	35
ПК, ГК, КП, МК	40
ДП	50

6.2.13 Round bottles should withstand w/o destruction the internal hydrostatic pressure specified in the table 9 during (60 ± 2) c.

Table 9

Bottle group	Internal hydrostatic pressure P_{60} , MPa (kgf/cm ²), min.
ШК	1,67 (17)
ПК (except for beer bottles)	1,57 (16)
ГК, ПК (beer bottles) capacity, cm ³ : up to 1000 incl. over 1000	0,98 (10) 0,67 (7)
ВК, КП capacity, cm ³ : from 250 to 1000 incl. over 1000	0,49 (5) 0,39 (4)
ДП, МК	0,78 (8)
Notes. 1 For bottles with capacity up to 250 cm ³ , incl. it is allowed not to test for resistance to internal hydrostatic pressure. 2 For non-round bottles the internal hydrostatic pressure parameter should be set as not less than 0,1 Mpa upon agreement with the customer.	

6.2.14 Bottles for beer and edible acids should be resistant to vertical load. Beer bottles should withstand w/o destruction the compression load in the direction of the body vertical axis min. 5000 (500) N (kgf), edible acids bottles – min. 1000 (100) N (kgf).

6.2.15 ДП group bottles should be resistant to abrasive wear. No scratches should appear on the surface of the bottles after mutual friction with the force equal to 200 (20) N (kgf).

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Amendment: 5	Date:	05.11.2015	<i>pp. 6.6.11, 6.2.12 (Revision)</i>
Amendment: 4	Date:	01.12.2014	<i>pp. 6.6.11, 6.2.12 (Revision)</i>

6.2.16a Bottle glass should be water-resistant – class 3/98 as per ГОСТ 10134.1. At water resistance testing by boiling at 98° it should take over 0,20 to 0,85 cm³, incl. of hydrochloric acid solution with concentration equal to $c(\text{HCl}) = 0,01 \text{ mol/dm}^3$ to titer 1 g of glass granules. At water resistance testing of colourless or semi-white glass for vodka and liqueurs and spirits products the discharge of hydrochloric acid solution with concentration equal to $c(\text{HCL})=0,01 \text{ mol/dm}^3$, for titration of 1 g of glass granules should be over 0,20 - 0,60 cm³ inclusive.

6.2.16 Bottles of groups ШК, ПК, ГК, БК should come out water-resistant at testing by internal surface leaching procedure under the action of water. Water-resistance factors expressed as the volume of the solution with concentration $c(\text{HCL}) = 0,01 \text{ mol/dm}^3$ used for titration of 50 cm³ of water extract should not exceed the figures specified in the table 10.

Table 10

Capacity, cm ³	Water resistance factor
from 50 to 250 incl.	0,45
over 250 to 1000 incl.	0,35
over 1000	0,30

6.2.17 Bottles of groups КП, ДП, МК, УК should be acid-resistant. After acid-resistance control the glass surface should not show signs of erosion or turbidity.

6.2.18 Bottles should be annealed. Specific path-length difference of the polariscope-polarimeter rays at control of residual stresses after annealing of bottles of groups ШК, ПК, ГК, БК, КП should not exceed 115 nm/cm, bottles of groups ДП, МК and УК – 110 nm/cm.

The following colours are not allowed in the polariscope field: orange, light-yellow, yellow, white, bluish-green, green, yellow-green.

6.2.19 Application of protective and hardening coating approved for contact with food products on the outer surface of bottles is allowed.

Iridescence is allowed on the bottles with oxide-metallic coating.

6.2.20 Recommended thickness of protective and hardening coating of the bottle: on the neck finish – max. 1 (10) nm (CTU), on the body – from 2 to 6 (from 20 to 60) nm (CTU). If necessary, thickness of protective and hardening coating may be controlled, and the acceptance results negotiated with the consumer.

6.2.21 Protective coating of round bottles should ensure their sliding in the process of testing; at that the recommended tilt angle of samples to the horizontal plane is $(15 \pm 5)^\circ$ and may be controlled if necessary.

Protective coating of non-round bottles and bottles with engravings (drawings) on the body should ensure continuity of the strokes made by test-marker with the surface tension from 34 to 42 nm/m (strokes should not shrink into drops).

6.3 Jars characteristics

6.3.1 The following is not allowed on the jars:

6.3.1.1 Stuck-up glass particles, glass threads and spears on the inner surface.

6.3.1.2 Through checks, chippings.

6.3.1.3 Sharp seams, angles, burrs.

6.3.1.4 Foreign inclusions with cracks or checks around.

6.3.1.5 Open bubbles on the inner surface.

6.3.1.6 Surface erosion with chippings (for jars of КР, ДП groups), surface erosion with checks (for jars of КП, КФ, СП groups).

Amendment: 3	Date:	01.04.2014	<i>p. 6.2.21 (Revision)</i> <i>p. 6.2.16a (Added additionally)</i>
Amendment: 0	Date:	01.10.2012	11

6.3.1.7 Distinct: wrinkles, brush marks, double seams, traces of scissors cuts; cold appearance or corrugation visible at filling the jars with water.

6.3.1.8 Streaks and striae, distinct and/or accompanied by internal tensions.

Specific difference of polarimeter rays path at the control on polarimeter should not exceed 110 nm/cm (which corresponds to the following colours in the polariscope field: orange, light-yellow, yellow, white, bluish-green, green, yellow-green).

6.3.2 Dirt stains stubborn to washing solution are not allowed on the jars of the КП group.

6.3.3 The following is not allowed on the jars of КФ, КР, ДП, СП groups:

- any dirt stains on the surface;
- glass dust, foreign objects and glass fragments inside the jars.

6.3.4 Close or open bubbles on the outer surface, and foreign inclusions in the number and size exceeding the ones specified in the table 11, are not allowed.

Table 11

Jar group	Jar nominal capacity, cm ³	Size, mm		Number, pcs	
		Bubble	Foreign inclusion	Bubbles	Foreign inclusions
ДП	Up to 350 incl.	Over 1,0 to 1,5 incl.	Up to 0,5 incl.	4	2
КР	Up to 200 incl.	Over 1,0 to 1,5 incl.	Up to 0,5 incl.	4	2
	Over 200 to 500 »	» 1,0 » 2,0 » » 2,0 » 3,0 »	» 0,5 » –	4 2	2 –
КФ	Up to 350 incl.	Over 1,0 to 1,5 incl.	Up to 0,5 incl.	4	2
	Over 350 to 500 »	» 1,0 » 2,0 » » 2,0 » 3,0 »	» 0,5 » –	4 2	2 –
КП	» 500 » 1000 »	» 1,0 » 2,0 » » 2,0 » 4,0 »	» 1,0 » –	4 3	2 –
СП	» 1000	» 1,0 » 4,0 » » 4,0 » 6,0 »	» 1,0 » –	5 5	3 –

Notes:

1 Size for round bubbles – diameter, for oval ones – half of the sum of length and width
2 Closed bubbles max. 1,0 mm (seed), sparse and/or as single clusters (no more than 10 for a cluster) are allowed

6.3.5 Neck finish deformation or close bubbles with dia. larger than 1,0 mm, foreign inclusions or burrs on the neck finish end surface are not allowed.

6.3.6 No surface checks longer and in the number more than specified in the table 12 are allowed for the jars.

Table 12

Jar group	Checks location	Checks length, mm	Number
ДП	On the neck finish end opening and side surfaces	Not allowed	
	On the neck	1	2
	On the body, shoulders and bottom	3 (total)	not rated
КР	Single checks		
	On the neck finish end opening and side surfaces	Not allowed	
	On the neck	1	2
	On the body and bottom of jars with capacity, cm ³ :		
	up to 200 incl.	2	2
	over 200 » 500 »	4	4
Checks concentrated in one place			
On the body, neck and bottom of jars with nominal capacity, cm ³ :			
up to 200 incl.	3 (total)	not rated	
over 200 » 500	5 (total)	Same	

Amendment: 3	Date:	01.04.2014	pp. 6.3.1.6, 6.3.3, Table 11-14 (Revision)
Amendment: 0	Date:	01.10.2012	12

End of Table 12

Jar group	Checks location	Checks length, mm	Number
КП КФ СП	Single checks		
	On the neck finish end opening and side surfaces	Not allowed	
	On the neck finish side surface	3	2
	On the body and bottom	8	4
	On the neck of jars with nominal capacity, cm ³ :		
	up to 1000 incl.	1	2
over 1000	3	2	
	Checks concentrated in one place		
	On the body, neck and bottom of jars with capacity, cm ³ :		
	up to 350 incl.	3 (total)	not rated
	over 350 » 1000 »	5 (total)	Same
	over 1000 » 3000 »	8 (total)	»
Note – For checks condensed in one place their total length is indicated			

6.3.7 Walls and bottom thickness of round jars – not less than the values specified in the table 13.

Table 13

Jar group	Nominal capacity of jars, cm ³	Thickness, mm	
		walls	bottom
ДП	100, 130, 230 (jars with neck finishes of types II, III)	1,1	1,2
	250, 350 (jars with neck finishes of types I, III)	1,4	2,0
КР	Jars type I	3	3
	Jars of types II, III : up to 250 incl.	1,1	1,2
	over 250	1,4	2,0
КП, КФ, СП	Jars of types II, III : up to 1000 incl.	1,2	2,0
	over 1000 » 3000 »	1,4	2,5
Note – Jar walls and thickness change is allowed upon agreement with the customer, provided that other mandatory requirements to the articles are observed.			

Recommended thickness difference ratio – min. 0,35.

6.3.8 Thickness of wall and bottom for non-round jars to be set upon agreement with customer and specified on the drawings.

6.3.9 Ovality of the body and neck of the jars should not exceed the allowed deviations limits for their diameters.

6.3.10 Flatness (concavity) of the neck finish end opening should not exceed the values specified in the table 14.

Table 14

Jar group	Types of neck finish end openings of the jars	Neck finish end opening concavity, mm
ДП	II, III	0,25
	I	0,4
КР	II, III	0,25
	I	0,5
КП, КФ, СП	I: neck finish dia. up to 85 mm incl.	0,5
	over 85 mm	0,7
	II и III: neck finish dia. up to 85 mm incl.	0,3
	over 85 mm	0,5

Amendment: 5	Date:	05.11.2015	Table 13, n.6.3.8 (Revision)
Amendment: 4	Date:	01.12.2014	p. 6.3.8 (Revision)
Amendment: 0	Date:	01.10.2012	13

6.3.11 Neck finish end opening shall be rounded and pass to the inner chamber of the bottle as per the drawing.

6.3.12 Height of seams should not exceed the values specified in the table 15. Passing of the bottom seam to the body above the bottom thickness is not allowed.

Table 15

Jar group	Types of neck finish end openings of the jars	Seam height, mm		Height of blunted angles on the seam junction on the body, mm
		on the neck, body and bottom	on the neck finish side surface and end opening	
ДП	I, II, III	0,3	0,2	1,0
КР	I, II, III	0,3	0,2	1,0
КП, КФ, СП	capacity up to 1000 cm ³ . over 1000 cm ³	0,3	0,2	1,0
		0,5		1,5

6.3.13 Deviation of jar bottom plane from parallelity to the plane of neck finish opening end should not exceed the values specified in the table 16.

Table 16

Jar group	Neck finish nominal dia., mm	Deviation of jar bottom plane from parallelity to the plane of neck finish opening end, mm
ДП	all jars	0,5
КР	Up to 20 incl.	0,45
	over 20 to 30 incl.	0,60
	over 30 to 40 incl.	0,70
	over 40 to 50 incl.	0,80
	over 50 to 60 incl.	0,90
	over 60	1,00
СП	All jars	0,7
КП, КФ	Jars with capacity up to 250 cm ³ incl.: to 70 incl.	0,5
	Jars with capacity over 250 cm ³ : over 60 to 80 incl. over 80	0,8
		1,0

6.3.14 Deflection of vertical axis of the neck against vertical axis of the body should not exceed: for jars with capacity up to 1000 cm³ incl. – 0,5 mm, over 1000 cm³ – 1,0 mm.

6.3.15 Jars for baby food should be heat-resistant at the temperature difference not less than 50°C, for other types of food products – at the temperature difference not less than 40°C. Jars for coffee and dry goods need not to be tested for heat-resistance.

6.3.16 The jars should withstand without destruction the internal hydrostatic pressure specified in the table 17 for 5 sec.

Table 17

Jar group	Nominal capacity of jars, cm ³	Internal hydrostatic pressure, P, Mpa (kgf/cm ²), min
ДП	all jars	0,30 (3)
КФ, СП	all jars	0,1 (1)
КП	up to 1000 incl.	0,30 (3)
	over 1000 to 3000 incl.	0,25 (2,5)
КР	all jars	0,30 (3)
Note – It is allowed not to test non-round jars for internal hydrostatic pressure resistance		

Amendment: 5	Date: 05.11.2015	Table 15, p. 3.12 (Revision)
Amendment: 3	Date: 01.04.2014	Table 15-17, p. 6.3.15 (Revision)
Amendment: 0	Date: 01.10.2012	

6.3.17 The jars should withstand without destruction the compression load in the vertical axis direction equal to not less than the values specified in the table 18.

Table 18

Jar group	Compression load in the vertical axis direction, min N (kgf)
КФ, СП	1000 (100)
ДП	2500 (250)
КП	3000 (300)

6.3.18 Jars for baby food products should withstand without destruction the impact load equal to 0,15 J min.

6.3.19 Specific path-length difference of the polariscope-polarimeter rays at control of annealing of jars of КП, КФ, СП groups should not exceed 115 nm/cm, KP and ДП groups – 110 nm/cm. The following colours are not allowed in the polariscope field at control of residual stresses: orange, light-yellow, yellow, white, bluish-green, green, yellow-green.

6.3.20 Jars of КП, KP, ДП groups should be acid-resistant. After acid-resistance control the glass surface should not show signs of erosion or turbidity.

6.3.21 Protective and hardening coating approved for contact with food products by the Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing should be applied on the outer surface of bottles. Subject to agreement with the customer it is allowed not to apply the protective and hardening coating.

6.3.22 Insertion of the protective and hardening coating inside a jar is not allowed.

6.3.23 Recommended thickness of the protective and hardening coating on the neck finish of the jar is max. 1 (10) nm (CTU), on the body – from 2 to 6 (from 20 to 60) nm (CTU).

6.3.24 Protective coating of the jars should ensure their sliding in the process of testing; at that, the recommended tilt angle of samples to the horizontal plane is: for jars of ДП group – $(12 \pm 3)^\circ$, for jars of other groups – $(13 \pm 5)^\circ$.

Protective coating of non-round jars should ensure continuity of the strokes made by test-marker with the surface tension from 34 to 42 mN/m (strokes should not shrink into drops).

Jars for baby food products should be resistant to abrasive wear.

6.3.25 No scratches should appear on the surface of the jars after mutual friction with the force equal to 200 (20) N (kgf).

6.4 Marking

6.4.1 Marking of the articles should contain the following information:

- trade mark or designation allowing to identify the manufacturer;
- nominal capacity specifying one of the units of measurement (l, ml);
- date of manufacture (year – two last digits);
- designation "ДП" (on the articles for baby food products). Designation "ДП" is applied after the capacity of the article.

6.4.2 The following is allowed:

- to mark the full capacity value in centilitres without indication of the measurement unit “cl”, or the distance in millimetres from the neck finish end of the article to the filling level corresponding to the nominal capacity, specifying the measurement unit “mm”, if the article is intended for filling up to the fixed level (in accordance with GOST 8.579);
- to mark the nominal capacity by Latin letters – "L", "mL";
- after digital designation of the year to mark points meaning extension of the manufacture date of the article by the respective number of years equal to the number of points, if the mould resource is not worn out in the year of its manufacture;
- for articles with capacity up to 200 ml, inclusive, not to mark the manufacture date;

Amendment: 3	Date:	01.04.2014	<i>Table 18, pp. 6.3.19, 6.3.20 (Revision)</i>
Amendment: 1	Date:	01.04.2013	<i>p. 6.3.24 (Revision)</i>
Amendment: 0	Date:	01.10.2012	15

Marking may bear additional information on the mould number.

6.4.3 Marking is made as an imprint on the bottom or the lower part of the body of the articles.

It is Allowed to do marking partially on the bottom and partially on the lower part of the body of the articles.

If marking is made on the lower part of the body of articles, the size of marking signs should not go outside the dimensions of the body outer diameter.

6.4.4 Sizes of marking sizes are in compliance with GOST 30288.

6.5 Packing

6.5.1 The articles are placed upright in layers on corrugated liners or in corrugated trays put on a wooden pallet. Ready pallets are wrapped into heat-shrink film.

Use of plastic liners is allowed. In that case the pallets may be tied round heightwise by strapping tape.

6.5.2 The specific types of packing providing contamination- and weather protection of the articles during transportation and storage to be agreed between the manufacturer and the customer in the supply contract.

6.5.3 On each pallet a label should be placed stating the following:

- name of manufacturer;
- name, identification code and designation of the articles;
- number of articles in the pallet;
- manufacture date;
- letter marking and code of glass:
 - 1 . colourless glass – GL70;
 - 2 . blue glass – GL73;
 - 3 . grey glass – GL74;
 - 4 . light-blue glass – GL75.
- handling signs “Fragile. Handle with care” and “Keep dry” – acc. to GOST 14192;
- icons “Food contact grade” and “Mobius strip” (recoverability) – acc. to TP TC 005/2011.

6.5.4 In addition, the following automated pallet record data should be specified on the transportation marking: packing type code, pallet identification No., manufacture date and time, machine line and working shift No., checker inspector name.

Other additional handling signs acc. to GOST 14192 may be marked with consideration of packing type, transportation conditions, if they are provided for in the supply agreement (contract).

7 SAFETY REQUIREMENTS

7.1 Product safety is ensured by the set of requirements to:

- the glass, of which the products were made, as it pertains to sanitary and hygienic measurements specified in TP TC 005/2011;
- mechanical integrity of the products (as per p. 6.2.13-6.3.15, , 6.3.15-6.3.17);
- chemical integrity of the products (as per p. 6.2.17, 6.2.18, 6.3.20);
- protective and hardening coatings safety (as per p. 6.2.20 и 6.3.21).

7.2 Periodicity of sample testing for safety indicators – no less than once in 5 years and/or upon change of glass grade.

7.3 Periodicity of production control in terms of safety indicators is specified in the table 19.

Amendment: 6	Date:	06.06.2016	<i>p. 6.5.3 (Revision)</i>
Amendment: 4	Date:	01.12.2014	<i>p. 7.1 (Revision)</i>
Amendment: 3	Date:	01.04.2014	<i>pp. 6.5.3, 7.1, 7.3 (Revision)</i>
Amendment: 0	Date:	01.10.2012	

Table 19

Indicator groups	Safety indicator	Normative requirements	Control periodicity
Appearance defects	Absence of dangerous or critical defects	п.6.3.1, п.6.2.1	Each batch
Physical and mechanical performance	Temperature difference resistance	п. 6.2.13 п.6.3.15	Each batch
	Resistance to internal hydrostatic pressure	п. 6.2.14 п.6.3.16	Each batch
	Vertical load resistance (articles for beer, canning and baby food products)	п. 6.2.15 п.6.3.17	Each batch
Chemical integrity	Glass water resistance	п. 6.2.17	Each launching into manufacture
	Acid resistance (articles for canning, edible acids and baby food products)	п. 6.2.18 п.6.3.20	Each launching into manufacture

8 ACCEPTANCE REGULATIONS

8.1 Products shall be accepted by batches. Each batch should consist of the articles of the same group, form and capacity, made of the same glass grade on the same machine line and executed as a single document. Number of articles in the batch shall be agreed with the customer.

8.2 Testing of conformance of the articles to the requirement of this standard, resolution on the batch:

- bottles for alcoholic and non-alcoholic food products – acc. to GOST 32131 (section 6);
- bottles and jars for canned food products and jars for coffee and dry goods – acc. to GOST 5717.1 (section 6);
- bottles and jars for baby food products – acc. to GOST 32671 (section 6);
- bottles for milk and dairy products – acc. to GOST 15844 (section 6);
- bottles for edible acetic acid and vinegars – acc. to GOST P 52898 (section 6);
- jars for fishery products – acc. to GOST 32130 (section 6).

8.2a Testing of conformance of design of the articles to the requirements of the drawing shall be performed according to two-stage usual acceptance sampling plan in accordance with the table 19a.

Table 19 a

Value	Sample scope	Acceptance quality limit AQL=1%		
		Sample	Ac	Re
Design conformance	80 pcs.	First	1	3
		Second	4	5

8.3 Each batch of the products shall be visually examined in respect of package integrity and correctness of transportation marking.

8.4 It is allowed to take resolution on the batch according to the customer's specification.

8.5 Each batch is executed by the quality passport, where the following should be specified:

- name of the manufacturing country;
- name of the manufacturing plant and/or trade mark;
- legal or actual address of the manufacturing plant;
- name and code designation of the products;
- glass colour;
- designation of this standard;

Amendment: 6	Date:	06.06.2016	<i>p. 8.2 (Revision)</i>
Amendment: 5	Date:	05.11.2015	<i>p. 8.2 (Revision)</i> <i>p. 8.2a (Added additionally)</i>
Amendment: 4	Date:	01.12.2014	<i>pp. 6.5.3, 7.1, 7.3 (Revision)</i>
Amendment: 3	Date:	01.04.2014	<i>pp. 6.5.3, 7.1, 7.3 (Revision)</i>

- number of articles in the batch (pcs.);
- manufacture date and date of dispatch;
- storage conditions;
- authorized person's signature.

8.6 Upon agreement with the consumer the document may also contain other information confirming the quality of the goods.

8.7 The Quality passport should bear the mark "EAC" (the unified market circulation mark of Customs Union member states), icons "Food contact grade" and "Mobius strip" (recoverability).

9 CONTROL METHODS

9.1 Control methods:

- bottles for alcoholic and non-alcoholic food products – acc. to GOST 32131 (section 7);
- bottles and jars for canned food products and jars for coffee and dry goods – acc. to GOST 5717.1 (section 7);
- bottles and jars for baby food products – acc. to GOST 32674 (section 7);
- bottles for milk and dairy products – acc. to GOST 15844 (section 7);
- bottles for edible acetic acid and vinegars – acc. to GOST P 52898 (section 7);
- jars for fishery products – acc. to GOST 32130 (section 7).

9.2 Thickness of protective and hardening coating shall be measured by quantitative method on the respective instruments providing for the required precision of measurements.

10 TRANSPORTATION AND STORAGE

10.1 The packed products may be carried by all transportation means in accordance with the shipping rules operative for each transportation means.

10.2 Storage conditions for the products are in accordance with GOST 15150 (section 10) – indoor unheated premises (conditions 2) or shelters (conditions 5). Upon agreement with the customer storage of the products in open storage areas is allowed (conditions 9).

10.3 Recommended terms of storage for the products are specified in the table 20.

Table 20

Type of articles	Group of articles	Recommended storage life, months		
		CONDITIONS 2 (indoor unheated warehouse)	CONDITIONS 5 (shelters)	CONDITIONS 9 (open storage area)
Bottles	КП, УК	24	12	5
	ШК, ПК, ГК, МК	12	6	4
	ДП	6	2	2
	ВК	5	3	3
Jars	КП, КФ, СП	24	12	5
	КР	6	5	5
	ДП	6	2	2

10.4 After expiration of the storage terms for the goods it is allowed to conduct re-inspection according to the requirements 6.2.17, 6.2.18 and 6.3.20. Providing that the results are positive, and upon agreement with the customer a decision shall be taken concerning extension of the storage terms and/or use of the products.

Amendment: 6	Date:	06.06.2016	<i>p. 9.1 (Revision)</i>
Amendment: 5	Date:	05.11.2015	<i>p. 9.1 (Revision)</i>
Amendment: 4	Date:	01.12.2014	<i>p. 9.1, Table 20 (Revision) pp. 9.3, 9.4 (Deleted)</i>
Amendment: 3	Date:	01.04.2014	<i>Table 20 (Revision)</i>
Amendment: 1	Date:	01.04.2013	<i>Table 20 (Revision)</i>

11 USAGE GUIDELINES

11.1 Conditions of usage of the articles shall conform to GOST 30288.

11.2 In cold season the articles should be stored indoors before use at the temperature not less than 15 °C, until they warm up to the temperature of the premises.

11.3 On all stages of technological procedure of their use the articles should not be exposed to temperature differences exceeding the value fixed for them.

11.4 At all handling sections in the process of their use the articles should be moved in such a way as to exclude impacts leading to their damage and destruction.

Amendment: 5	Date:	05.11.2015	<i>(Clerical error correction)</i>	
Amendment: 4	Date:	01.12.2014	<i>(Republication. Added additionally)</i>	18a