SVEZA

LIMITED LIABILITY COMPANY SVEZA-Les

COMPANY STANDARD

BIRCH PLYWOOD WITH UV COATING
Technical Specifications

STO 52654419-015-2024

Saint Petersburg
2024

* In case of discrepancies, the Russian version of the organization's standard is to be considered as priority. / В случае возникновения разночтений приоритетной является версия стандарта организации на русском языке

Foreword

Development purposes and objectives, as well as the use of standards of organizations in the Russian Federation are established by Federal Law of December 27, 2002 No. 184-FZ «*On Technical Regulation»* and Federal Law of June 29, 2015, No. 162-FZ «*On Standardization in the Russian Federation».*

Development and presentation rules are specified by GOST R 1.0-2012 «*Standardization in the Russian Federation. Basic provisions»* and GOST R 1.4-2004 «*Standardization in the Russian Federation. Standards of organizations. General»*, taking into account GOST R 1.5-2012 « *Standardization in Russian Federation. National standards. Rules of structure, drafting, presentation and indication».*

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COMPANY STANDARD

BIRCH PLYWOOD WITH UV COATING
Technical Specifications

RUS: Фанера березовая с UV покрытием
Технические условия

Date of introduction «26» April 2024

1 SCOPE OF APPLICATION

This company standard (hereinafter referred to as the standard) applies to birch plywood with UV coating (hereinafter referred to as plywood with UV coating).

Plywood with UV coating is used to manufacture furniture drawer parts, cabinet furniture elements, interiors.

2 NORMATIVE REFERENCES

This standard incorporates normative references to the following standards:

GOST 12.4.011-89 Occupational safety standards system. Means of protection General requirements and classification

GOST 427-75 Measuring metal rules. Basic parameters and dimensions. Specifications

GOST 3749-77 Checking 90° squares. Specifications

GOST 6507-90 Micrometers. Specifications

GOST 7502-98 Measuring metal tapes. Specifications

GOST 8925-68 Flat clearance gauges for machine retaining devices. Design and sizes

GOST 9620-94 Laminated glued wood. Sampling and general requirements in testing

GOST 9621-72 Laminated glued wood. Methods for determination of physical properties.

GOST 9624-2009 Laminated glued wood. Method for determination of shear strength

GOST 9625-2013 Laminated glued wood. Methods for determination of ultimate strength and modulus of elasticity in static bending

GOST 11358-89 Dial-type thickness gauges and dial-type wall thickness gauges graduated in 0.01 mm and 0.1 mm. Specifications

GOST 27678-2014 Wood-based panels and plywood. Perforator method for determination of formaldehyde content

GOST 30255-2014 Furniture, timber and polymers. The method for determination of formaldehyde and other volatile chemicals in the air of climatic chambers

GOST 30427-96 Plywood for general use. Classification of veneer surfaces by appearance

GOST 31149-2014 Paint materials. Determination of adhesive by cross-cut method

GOST 31975-2017 Paint materials. Method for determination of gloss of paint materials at 20°, 60° and 85°

GOST 32155-2013 Wood-based panels and plywood. Determination of formaldehyde release by the gas analysis method

GOST R 50779.12-2021 Statistical methods. Statistical quality control. Item random sampling methods

STO 52654419-001-2024: Birch plywood for general use. Technical Specifications.

Note - While using this standard, it is advisable to check the validity of the standards referenced against the National Standards Reference Index.

3 TERMS AND DEFINITIONS

This standard includes terms as provided below:

UV coating (Ultraviolet coating) is a special multi-layer coating with UV-curable paints and varnishes (hereinafter - PaV) to protect the surface against influence of external factors and to give it unique decorative properties.

The base panel is birch plywood of INT / FK or EXT / ФСФ type, intended for varnish coating.

4 CLASSIFICATION AND DIMENSIONS

4.1 In terms of the water resistance degree of glue bond, plywood with UV coating is manufactured of:

- INT / ФК type - water-resistant plywood glued with urea-formaldehyde adhesives, for indoor use;
- EXT / ФСФ type - plywood with increased water resistance, glued with phenol-formaldehyde adhesives, for indoor and outdoor use.

Note:

INT/ФК plywood belongs to the INT formaldehyde emission group, EXT/ФСФ plywood belongs to the EXT formaldehyde emission group.

4.2 Plywood with UV coating is manufactured with:

- "UV/UV" surface type – coated with paint or varnish on both sides;
- "UV/-" surface type – coated with paint or varnish on one side.

Note – UV coating is not applied onto the panel side of "CP" or "C" grade.

4.3 Plywood with UV coating is manufactured with:

- transparent type of coating - the wood structure is visible;
- opaque type of coating - the wood structure is not visible;

- glaze type of coating – translucent tinted coating that emphasizes the structure of the wood.

Note - the main type of UV plywood coating is transparent. By agreement between the manufacturer and the customer it is possible to use tinted colors.

4.4 Depending on the surface appearance and the type of coating, plywood with UV coating is divided into grades.

Grades with a transparent or translucent coating:

- B/B (I/I), B/BB (I/II), S/BB (I/II), BB/BB (II/II), BBx/BB (II/II), BB/CP (II/III), UVX BB/BB (II/II), UVX C/C (IV/IV);
- LST B/B (I/I), LST B/BB (I/II), LST BB/BB (II/II), LST BB/CP (II/III), LPR B/B (I/I), LPR B/BB (I/II), LPR BB/BB (II/II);
- DR B/B (I/I), DR B/BB (I/II), DR BB/BB (II/II), DR BB/CP (II/III);
- T B/B (I/I), T B/BB (I/II), T BB/BB (II/II), T BB/CP (II/III).

Grades with an opaque coating: I, UVXI.

4.5 Gloss of plywood with UV coating from 5% to 95% is agreed between the manufacturer and the customer:

- for gloss of 5% to 10% inclusive – the tolerance is ± 2%;
- for gloss over 10% - the tolerance is ± 5%.

4.6 Dimensions

4.6.1 The length and width of plywood panels with UV coating must be as shown in Table 1.

Table 1

In millimeters

Length (width) of panels	Tolerance
1,220; 1,250	± 3.0
1,500; 1,525	± 4.0
2,440; 2,500	± 4.0
3,000; 3,050	± 4.0

Note:
1. Plywood with UV coating may be manufactured with other dimensions and tolerances as agreed between the manufacturer and the customer.
2. The length of the plywood panel with UV coating is measured along the grain of the face veneers.

4.6.2 The thickness of plywood with UV coating shall be as specified in Table 2.

Table 2

In millimeters

Nominal thickness, mm	Number of plies	Tolerance on nominal thickness, mm	Minimum thickness, mm	Maximum thickness, mm	Thickness tolerance within one panel, mm
5.5	5	+/-0.2	5.3	5.7	0.2
6	5		5.8	6.2	
6.5	5		6.3	6.7	
8	7		7.8	8.2	
9	7		8.8	9.2	
10	7		9.8	10.2	
12	9		11.8	12.2	
15	11		14.8	15.2	
18	13		17.8	18.2	
19	13		18.8	19.2	
21	15		20.8	21.2	
Note: 1 Plywood with UV coating may be manufactured with other thicknesses, number of plies, and tolerance limits as agreed between the manufacturer and the customer.					

4.6.3 Plywood panels with UV coating must be cut at a right angle.

Tolerance for squareness must not exceed 2 mm per 1 m of the panel edge length.

4.6.4 Tolerance for straightness of edges for plywood with UV coating must not exceed 2 mm per 1 m of the panel edge length.

4.7 The designation of plywood with UV coating must include the following information:

- product name;
- type;
- grade;
- type of surface;
- emission class;
- dimensions;
- reference to this standard.

4.7.1 Example of a reference designation for plywood with transparent or translucent UV coating, of INT/FK type, BB/BB grade, with paint or varnish applied on both sides, E1 emission class, length – 1,525 mm, width – 1,525 mm, thickness - 12 mm:

Фанера береза / Birch Plywood
INT / ФК, BB/BB (II/II), UV/UV, E1, 1525x1525x12
СТО 52654419-015-2024

4.7.2 Example of a reference designation for plywood with a transparent or translucent UV coating, of EXT/ФСФ type, grade BB/BB, with paint or varnish applied on one side, emission class E1, length – 2,500 mm, width – 1,250 mm, thickness - 18 mm:

Фанера береза / Birch Plywood
EXT / ФСФ, BB/BB (II/II), UV/-, E1, 2500x1250x18
СТО 52654419-015-2024

4.7.3 Example of a reference designation for plywood with transparent or transculent UV coating, of INT/FK type, LST BB/BB grade, with paint or varnish applied on both sides, emission class E1, length – 1,525 mm, width – 1,525 mm, thickness - 12 mm:

Фанера SVEZA LASER березовая / Birch Plywood SVEZA LASER
INT / ФК, LST BB/BB (II/II), UV/UV, E1, 1525x1525x12
СТО 52654419-015-2024

4.7.4 Example of a reference designation for plywood with transparent or transculent UV coating, of INT/FK type, DR BB/BB grade, with paint or varnish applied on one side, emission class E1, length – 1,525 mm, width – 1,525 mm, thickness - 12 mm:

Фанера SVEZA DRAWER березовая / Birch Plywood SVEZA DRAWER
INT / ФК, DR BB/BB (II/II), UV/-, E1, 1525x1525x12
СТО 52654419-015-2024

4.7.5 Example of a reference designation for plywood with transparent or transculent UV coating, of INT/FK type, T BB/BB grade, with paint or varnish applied on both sides, emission class E1, length – 1,525 mm, width – 1,525 mm, thickness - 12 mm:

Фанера SVEZA TOY березовая / Birch Plywood SVEZA TOY
INT / ФК, T BB/BB (II/II), UV/UV, E1, 1525x1525x12
СТО 52654419-015-2024

4.7.6 Example of a reference designation for plywood with transparent or transculent UV coating, of INT/FK type, UVX BB/BB grade, with paint or varnish applied on both sides, emission class E1, length – 1,525 mm, width – 1,525 mm, thickness - 12 mm:

Фанера береза / Birch Plywood
INT / ФК, UVX BB/BB (II/II), UV/UV, E1, 1525x1525x12
СТО 52654419-015-2024

4.7.7 Example of a reference designation for plywood with the opaque type of UV coating, of EXT/ФСФ type, I/I grade, with paint or varnish applied on both sides, emission class E1, length – 1,525 mm, width – 1,525 mm, thickness - 12 mm:

Фанера береза / Birch Plywood
EXT / ФСФ, I/I, UV/UV, E1, 1525x1525x12
СТО 52654419-015-2024

4.7.8 Example of a reference designation for plywood with transparent UV coating, of EXT/ФСФ type, BBx/BB grade, with paint or varnish applied on both sides, emission class E1, length – 2,440 mm, width – 1,220 mm, thickness – 12 mm:

Фанера береза / Birch Plywood
EXT / ФСФ, BBx/BB (II/II), UV/UV, E1, 2440x1220x12
СТО 52654419-015-2024

5 TECHNICAL REQUIREMENTS

5.1 Characteristics

5.1.1 Plywood with UV coating is manufactured of:

- base plate, sanded on both sides (S2S/Ш2) by using a sanding belt with grain size not less than 80 microns.

The minimum thickness of the outer veneer layers after sanding should not be less than a half of the initial thickness of the outer layer.

- UV-curable paints and varnishes according to technical documentation.

5.1.2 The outer and inner layers of plywood with UV coating are made of birch veneer.

5.1.3 The surface appearance of plywood with transparent and translucent UV coating must meet the requirements specified in Appendix A.

The surface appearance of plywood with the opaque UV coating must meet the requirements specified in Appendix B.

Terms and definitions of wood-inherent and manufacturing defects are given in Appendix C.

Requirements to wood defects and manufacturing defects for the CP side are specified in STO 52654419-001.

5.1.4 Composed veneers should not be used for outer layers.

5.1.5 Oval- or butterfly-shaped veneer inserts are used to repair knots and holes. The inserts shape is agreed between the manufacturer and the customer. The inserts must hold firmly and match the wood color and the grain direction of the outer layer of plywood with UV coating.

5.1.6 The edges of the plywood with UV-coating are painted at the customer's request.

5.2 The formaldehyde content in plywood with UV-coating and the release of formaldehyde from plywood with UV coating into the room air must comply with those specified in Table 3.

Table 3

Emission class	Formaldehyde content	Formaldehyde emission	
	Perforator method, mg/100g absolutely dry weight of plywood	Chamber method, mg / m^3 of air	Gas analysis method, mg / m^2*h
E 0.5	Up to 4.0 inclusive	Up to 0.01 inclusive	Up to 1.5 inclusive
E1	Over 4.0 and up to 8.0 inclusive	Over 0.01 and up to 0.124 inclusive	Over 1.5 and up to 3.5 inclusive or less than 5.0 within 3 days after manufacture

5.3 The physical and mechanical properties of plywood with UV coating are shown in Table 4.

Table 4

Indicator name	Thickness, mm	Physical and mechanical parameters
1 Moisture, %, max.	5.5–21	10
2 Ultimate strength of the glue line, MPa, not less	5.5–21	1.0
3 Static bending strength:	9-21	
- along the fibers of the outer layers, MPa, min.		
INT / FK birch plywood		45
EXT / ФСФ birch plywood		60
- across the fibers of the outer layers, MPa, min.		
INT / FK birch plywood		30
EXT / ФСФ birch plywood		30
4 Modulus of elasticity in static bending:	9-21	
- along wood fibers, MPa, min.		
INT / FK birch plywood		5,000
EXT / ФСФ birch plywood		6000
- across wood fibers, MPa, min.		
INT / FK birch plywood		3000
EXT / ФСФ birch plywood		3000

End of Table 4

Indicator name	Thickness, mm	Physical and mechanical parameters
5 Adhesion of the UV coating to the base plate	5.5–21	The UV coating must not peel from the base plate
6 Gloss of plywood with UV coating: - 5 % to 10 % inclusive, tolerance, % - over 10%, tolerance, %	5.5–21	 ± 2 ± 5
Note: Tests on the ultimate strength at the glue line of INT/FK plywood with UV coating are carried out after exposure the samples for 24 hours in water at (20 ± 3) °C. 2. Preparation for the test of ultimate strength on the adhesive layer of EXT/ФСФ plywood with UV coating is carried out by one of the ways: 2.1 boiling in water for 1 hour; 2.2 boiling in water for 6 hours; 1.3 boiling in water for 4 hours, drying in a ventilated cabinet at a temperature of (60 ± 3) °C for (16-20) hours, repeated soak in boiling water for 4 hours, cooling in water at a temperature of (20 ± 3) °C for 1 hour; 1.4 boiling for (72 ± 1) hours, cooling in water at a temperature of (20 ± 3) °C for 1 hour – once per quarter; 2.5 exposure for 24 hours in water at (20 ± 3) °C - once per quarter. Methods 2.3, 2.4, 2.5 are used to prepare plywood EXT/ФСФ for testing in case of testing of new resins. The method of sample preparation is chosen by agreement of the manufacturer with the customer. 3. The percentage of destruction for wood is determined visually. Tests on the ultimate strength of the glue line is carried out in different glue lines by agreement between the manufacturer and the customer.		

5.4 Plywood with UV coating is counted in cubic meters. The volume of one panel is calculated without rounding. The volume of formed packages of plywood with UV coating and the batch size - with an accuracy of 0.001 m^3. The area of plywood panel with UV coating is counted with an accuracy of 0.01m^2, the area of panels in the batch - with an accuracy of 0.5m^2.

5.5 Two methods are used to apply marking onto each panel:

- automatic application - with the help of the marker;
- manual application - with the help of hand stamps.

The marking applied automatically shall contain the following information:

- manufacturer oft he base panel (number or name);
- type;
- thickness.
- grade;
- shift and/or sorter number;
- date and/or time of manufacture.

The marking applied manually (stamp) should include the following information:

- manufacturer of the base panel (number);
- shift.

A plywood panel with UV coating may have marked automatically and/or manually.

Panel marking is applied with indelible paint on to the edge of the long side of each plywood panel with UV coating.

Marking is applied in the following colors:

- for birch plywood of INT/ФК type - in green or black
- for birch plywood of EXT/ФСФ type – in purple or black.

For plywood with UV coating with a thickness of 5.5 to 9 mm it is allowed to apply one hand stamp per 1 to 3 panels.

By agreement between the manufacturer and the customer, it is allowed:

- not to mark birch plywood panels;
- to add additional information to the mandatory marking.

5.6 Packing plywood with UV coating

Plywood with UV-coating must be formed into packages of 400, 600, 900 mm high separately by types, surface types, dimensions, thicknesses.

It is allowed by agreement of the manufacturer with the customer to pack plywood with UV coating in stacks of a different height.

Plywood panels with UV coating in a stack should be stacked higher type up.

5.7 Packing and labeling of finished plywood stacks with UV coating

5.7.1 Stacks of plywood with UV coating must be packed to ensure its integrity and safety during transportation.

The main methods and types for bundling are regulated by LLC SVEZA-Les. By agreement of the manufacturer and the customer, other methods and types for packaging of plywood with UV coating are allowed.

5.7.2 The labeling of the packed stacks of plywood with UV coating is made with labels. The inscription is applied in Russian and / or English on two side plates parallel or perpendicular to each other. The content of the inscription on both covers is the same:

- trademark;
- Product name - Birch Plywood, SVEZA LASER Birch Plywood, SVEZA DRAWER Birch Plywood, SVEZA TOY Birch Plywood;
- geometric dimensions, thickness of plywood with UV coating and thickness tolerance value (if required);
- type of plywood with UV coating;
- grade of plywood with UV coating;
- surface type (UV/UV or UV/-);
- number of panels in a stack;
- working shift;
- date of production of plywood with UV coating;
- emission class;

- order number for special requirements (applied by agreement between the manufacturer with the customer);
- normative and technical document, according to which plywood with UV coating is produced;
- manufacturer name and address;
- certification signs and quality control marks;
- handling signs: “Keep Dry” and “Use No Hooks”;
- barcode (if a data collection terminal (scanner) is available).

For convenience of work in the warehouse, it is allowed to apply additional marking in the form of a label or using a stencil.

6 ACCEPTANCE REQUIREMENTS

6.1 Plywood with UV coating is accepted in batches.

A batch is a certain number of plywood panels with UV coating of the same product name, type, surface type and dimensions.

The batch must be formalized by a single document containing:
- trademark;
- manufacturer name and address;
- designation of plywood with UV coating;
- batch size
- normative and technical document, according to which plywood with UV coating is produced.

6.2 Check the quality and dimensions of plywood panels with UV coating by spot check. During the random inspection panels of plywood with UV coating are sampled randomly in accordance with GOST 18321 in the quantity specified in Table 5.

Table 5

In panels.

Batch size	Controlled parameter for items			
	4.6.1; 4.6.2; 4.6.3; 4.6.4		5.1.3, 5.1.4, 5.1.5	
	Sample size	Acceptance number	Sample size	Acceptance number
Up to 500	8	1	13	1
501 to 1200	13	1	20	2
1201 to 3200	13	1	32	3
3201 to 10000	20	2	32	3

6.3 The results of the formaldehyde content and/or release tests and the physical and mechanical tests of the batch of baseboard may be extended to plywood with UV coating produced from the same batch.

6.4 To control the formaldehyde emission, one panel of plywood with UV coating is taken from any sample size.

The formaldehyde emission index is monitored at least once every 7 days for each formaldehyde emission group.

6.5 Adhesion of UV coating with the base plate is controlled at least once per working shift.

6.6 The gloss control is carried out:

- with registration of results - at least 5 times per shift;
- without registration of results - at least 3 times per hour.

6.7 A batch is considered to meet the requirements of this standard and is accepted if the samples include:

- the number of plywood panels with UV coating that do not meet the requirements of this standard in terms of dimensions, bevel, straightness, manufacturing defects, is less than or equal to the acceptance number set in Table 5;
- physical and mechanical properties correspond to the values specified in Table 4;
- formaldehyde emission corresponds to the standards specified in Table 3.

7 CONTROL METHODS

7.1 Sampling – according to GOST 9620, GOST 27678, GOST 30255, GOST 32155, [1] – [2].

7.2 The length and width of plywood with UV coating is measured in two points parallel to the edges at a distance of at least 100 mm from the edges with a metal tape measure according to GOST 7502 with an accuracy of 1 mm. The arithmetic value of the results of two measurements is taken as the actual length (width) of the panel.

7.3 The thickness is measured at a distance of at least 25 mm from the edges in the middle of each side of the panel.

The arithmetic value of the four measurements is taken as the actual panel thickness.

The following instrumentation are used to measure the thickness:

- thickness gauge according to GOST 11358 with a graduation of no more than 0.1 mm;
- micrometer according to GOST 6507 with a graduation value of no more than 0.1 mm.

The thickness variation in one plywood panel thickness with UV coating is defined as the difference between the largest and smallest thicknesses of four measurements.

7.4 Bevel of plywood panel with UV coating

7.4.1 Bevel of plywood panel with UV coating is measured according to GOST 30427. The bevel is measured by a square in accordance with GOST 3749 and determined by measuring the greatest deviation of the panel edges from the surface of the square metal ruler in accordance with GOST 427 with an accuracy of 1 mm.

7.4.2 It is allowed to determine the size of the slant by the difference of the lengths of the panel diagonals measured with a metal tape measure according to GOST 7502 with a division value of 1 mm.

7.5 The deviation from the straightness of the edges of plywood panels with UV coating is determined by measuring the maximum gap between the panel edge and the metal ruler edge according to GOST 427, with a feeler gauge according to GOST 8925 with an error of 0.2 mm.

7.6 Warping of plywood panel with UV coating

7.6.1 Warping of plywood panels with UV coating (except for SVEZA LASER birch plywood) is determined on a horizontal Table of at least the length and width of the panel.

Initially, visually assess the warping shape P or W by placing plywood panel with UV coating on a table.

Plywood with UV coating:

- with the warping shape P should be fixed at points 1 and 2, the measurement should be carried out at point 3 using a metal ruler in accordance with GOST 427 or tape measure in accordance with GOST 7502, as shown in Fig. 1;

- with the warping shape W should be firmly pressed and fixed to the horizontal Table at points 1, 2 and 3, the measurement should be carried out at point 4, using a metal ruler according to GOST 427 or tape measure according to GOST 7502, as shown in Fig. 1.

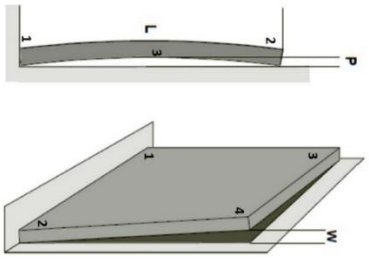

Fig.1

7.6.2 For SVEZA LASER birch plywood with UV coating, the warping is determined on a special vertical stand of at least the length and width of the plywood panel.

Initially, the shape of the W or P panel warping is visually assessed by placing it on the edge against a vertical stand.

SVEZA LASER birch plywood with UV coating:

- with the warping shape W must be installed on a vertical stand: 5x5 transverse edge to the floor, 8x4x8 long edge to the floor. Fix the panel at points 1, 2 and 3.

The measurement should be made at point 4 using a metal ruler according to GOST 427 or tape measure according to GOST 7502, as shown in Figure 2;

- with the warping shape P must be installed on a vertical stand: 5x5 transverse edge to the floor, 8x4x8 long edge to the floor. Fix the panel at points 1 and 2.

The measurement should be made at point 3 using a metal ruler according to GOST 427 or tape measure according to GOST 7502, as shown in Figure 2.

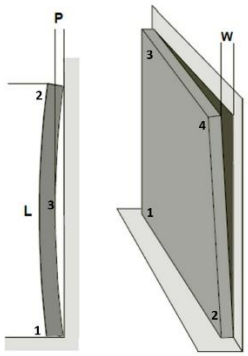

Fig.2

7.7 Moisture – according to GOST 9621, [3].

7.8 Ultimate strength of the glue line — according to GOST 9624, [4].

7.9 Ultimate strength and modulus of elasticity in static bending — according to GOST 9625, [5].

7.10 Measurement of machining defects according to GOST 30427.

7.11 Formaldehyde content — according to GOST 27678(this method is used as an arbitration method), formaldehyde release into the environment — according to GOST 30255, GOST 32155 and [1].

7.12 Adhesion of UV coating with the base plate — according to GOST 31149.

7.13 The gloss of plywood with UV coating is controlled by a gloss meter (device for measuring gloss) according to GOST 31975.

7.14 Presence of burnt or weak edge is evaluated visually, by comparing with the reference sample.

8 TRANSPORTATION AND STORAGE

8.1 Plywood with UV coating is transported in covered vehicles in accordance with the cargo transportation rules applicable to this type of transport.

When transporting plywood with UV coating, avoid excessive moisture to avoid swelling at the edges, warping of the panels, heavy indentation of the packing straps or other loss of quality.

8.2 Storing plywood with UV coating

Plywood with UV coating is stored in the package in the form of horizontally stacked packages on pallets or wooden spacers in closed rooms protecting the plywood from atmospheric precipitation at temperatures from minus 40 ° C to plus 50 ° C and relative air humidity of no more than 80%.

9 MANUFACTURER'S WARRANTIES

The manufacturer guarantees the quality of plywood with UV coating complies with the requirements of this standard if the transportation and storage conditions are met.

The warranty storage period of plywood with UV coating of INT/FK grade — 3 years, EXT/ФСФ grade — 5 years from the date of receipt by the customer.

When using plywood with UV coating for further processing, it is recommended to contact the manufacturer to clarify the properties and characteristics of the plywood.

10 SAFETY AND ENVIRONMENTAL PROTECTION

10.1 The content of harmful chemical substances released during the operation of products made of plywood with UV coating in the air of residential premises and public buildings should not exceed the limits [6].

10.2 Plywood with UV coating must be manufactured using materials and components approved for their use by the national health authorities.

10.3 Persons at least 18 years of age and with no medical contraindications are allowed to produce plywood with UV coating. Medical examinations are carried out in accordance with the current orders of the Ministry of Health of the Russian Federation.

10.4 Persons involved in the production of plywood with UV coating shall be provided with personal protective equipment in accordance with GOST 12.4.011.

10.5 The value of the specific activity of cesium-137 in plywood with UV coating shall not exceed the hygienic standards established in the requirements [7].

10.6 The composition of plywood with UV coating does not contain raw materials, materials and components classified as hazardous waste.

10.7 Plywood with UV coating generally has a long service life, and there are several ways to dispose of it. Plywood with UV coating must be disposed of in accordance with the disposal requirements for the applicable laws of the various countries.

APPENDIX A
(mandatory)

Limitation standards of wood defects and manufacturing defects for plywood types with transparent and translucent UV coatings

Limitation standards of wood defects and manufacturing defects for plywood types with transparent and translucent UV coatings are shown in Table A.1

Table A.1

Name of wood and manufacturing defects	Limitation standards for defects by plywood grades						
	B, LST B, LPR B, DR B, T B	**S**	**LPR BB**	**BBx**	**BB, LST BB, DR BB, T BB**	**UVX BB/BB**	**UVX C/C**
1. Pin knots	allowed						
2. Sound knots, intergrown, light and dark are allowed	allowed of light color up to 15 mm in diameter, with a split up to 0.5 mm, max. 5 pcs./m^2	allowed up to 15 mm in diameter, with a split up to 0.5 mm, max. 5 pcs./m^2	allowed up to 15 mm in diameter with a split up to 1 mm, max. 2 pcs./m^2	up to 25 mm in diameter with a split up to 1 mm, max. 10 pcs./m^2			allowed
3. Knots partially intergrown, if sealed with putty	allowed within the limits of par. 4 of this appendix with a diameter of up to 6 mm, max. 3 pcs/m^2	allowed within the limits of par. 4 of this appendix with a diameter of up to 6 mm, max. 2 pcs/m^2	allowed within the limits for intergrown knots up to 15 mm in diameter, not more than 2 pcs./m^2	allowed within the limits for intergrown knots up to 15 mm in diameter, not more than 10 pcs./m^2			allowed
4. Non-adhering and partially adhearing knots, knot holes, (without inbarks), if sealed with putty	allowed within the limits for intergrown knots with diameter up to 6 mm, max. 3 pcs./m^2		allowed within the limits for intergrown knots up to 6 mm in diameter, not more than 2 pcs./m^2	allowed within the limits for intergrown knots up to 6 mm in diameter, not more than 3 pcs./m^2	allowed within the limits for intergrown knots up to 6 mm in diameter, not more than 6 pcs./m^2	allowed within the limits for intergrown knots up to 10 mm in diameter, not more than 3 pcs./m^2	allowed
5. Closed splits	allowed up to 200 mm in length, not more than 1 pc./m of the panel width		allowed up to 300 mm in length, max. 1 pc. per 1 m of the panel width				allowed

Appendix A — continued

Name of wood and manufacturing defects	Limitation standards for defects by plywood grades						
	B, LST B, LPR B, DR B, T B	S	LPR BB	BBx	BB, LST BB, DR BB,T BB	UVX BB/BB	UVX C/C
6. Open splits, if sealed with putty	not allowed	allowed up to 200 mm in length and up to 1 mm in width, max. 2 pcs. per 1 meter of the panel width	allowed up to 250 mm in length and up to 2 mm in width, max. 3 pcs. per 1 meter of the panel width	allowed up to 200 mm in length and up to 2 mm in width, max. 3 pcs. per 1 meter of the panel width	allowed up to 250 mm in length and up to 2 mm in width, max. 3 pcs. per 1 meter of the panel width	allowed up to a length of 350 mm and a width of up to 15 mm, max. 2 pcs./panel	allowed
7. Irregularities in the wood structure (angle grain, curly grain, interlocked grain, buds)	allowed						
8. Wood structure defects (inbark: intergrown, light and dark)	light inbark is allowed, dark inbark is allowed with the size and total number limitations for loose knots		light inbark is allowed, dark inbark is allowed with the size limits for intergrown knots				
9. Wood structure defects (open inbark)	allowed within the limits for loose knots						
10. Sound discoloration (false core)	not allowed		allowed up to maximum 25 % of the panel surface				allowed
11. Sound discoloration (spotting, veins, vein marks)	not allowed	allowed if light colored, up to 175 mm in length and up to 4 mm width, max. 5 pcs./m^2	allowed up to 250 mm in length and 10 mm in width, max. 10 pcs./m^2		allowed		
12. Sound discoloration (group veins)	allowed of light color, not more than 15% of the panel surface	allowed if light colored with size up to 30x30 mm, not more than 1 pc/m^2	allowed with size to 60x40 mm, not more than 1 pcs./m^2		allowed		

Appendix A — continued

Name of wood and manufacturing defects	Limitation standards for defects by plywood grades						
	B, LST B, LPR B, DR B, T B	S	LPR BB	BBx	BB, LST BB, DR BB, T BB	UVX BB/BB	UVX C/C
13a. Chemical coloring; fungi sap stains (blue wood, colored sap stains), discoloration during the wood storage	allowed up to 30% of the panel surface		allowed within the limits for sound discoloration (false core), not more than 50% of the panel surface area		allowed		
13b. Industrial stains (traces of beams, streaks)	not allowed		allowed up to 10% of the panel surface			allowed	
13c. Gradient spots (color variations, dark veneer)	not allowed						allowed
14. Biological damage (wormhole)	allowed within the limits for loose knots						
15. Discoloration with partial wood disintegration	not allowed						
16. Patching of knots and holes with wood inserts	not allowed	allowed max. 1 pc/m^2	allowed, max. 8 pcs./m^2	not allowed	allowed, max. 8 pcs./m^2	allowed, max. 10 pcs./m^2	allowed
17. Double insert	not allowed		allowed, max. 1 pcs./m^2	not allowed	allowed, max. 1 pcs./m^2	allowed, max. 2 pcs./m^2	allowed
18. Pad rolls (pad marks)	not allowed						allowed

Appendix A — continued

Name of wood and manufacturing defects	Limitation standards for defects by plywood grades						
	B, LST B, LPR B, DR B, T B	S	LPR BB	BBx	BB, LST BB, DR BB, T BB	UVX BB/BB	UVX C/C
19. Overlap (traces of overlapping veneer, splits in inner layers)	not allowed					allowed up to 400 mm in length and up to 10 mm width, max. 2 pcs./panel	allowed
20. Glue penetration	not allowed	allowed up to 1% of the panel surface	allowed not more than 2% for FK plywood with UV coating; not allowed for FSF plywood with UV coating				allowed
21. Mechanical damages, nicks, chips, scratches, scars, bumps, dents, crests	not allowed					allowed, not more than 25% of the panel surface	allowed
22. Bubbles, delamination, resin pockets	not allowed						allowed
23. Non-sanded spots (non-uniform sanding)	not allowed					allowed up to 50 mm in diameter, max. 3 pcs./panel	allowed
24. Sanding through the outer layers on the panel surface	not allowed					allowed, not more than 25% of the panel surface	allowed
25. Sanding through the outer layers on the edge area	not allowed					allowed on one side, up to a length of 400 mm and a width of 20 mm, max. 2 pcs./panel	allowed
26. Metal inclusions	not allowed						non-ferrous brackets are allowed
27. Edge defects due to sanding, sawing, lack of veneer	not allowed					allowed up to 10 mm wide along the edge	allowed

Appendix A — continued

Name of wood and manufacturing defects	Limitation standards for defects by plywood grades						
	B, LST B, LPR B, DR B, T B	S	LPR BB	BBx	BB, LST BB, DR BB, T BB	UVX BB/BB	UVX C/C
28. Rough peeling	not allowed					allowed up to 50 mm in diameter, max. 3 pcs./panel	allowed
29. Waviness (for sanded plywood), hairiness, wrinkles	not allowed						allowed
30. Pocket (without bark)	not allowed		allowed with the size limits for group veins, not more than 60x40 mm, max. 1 pcs./m^2	allowed			
31. Glued-in veneer pieces	not allowed					allowed up to 300 mm in length and up to 10 mm in width, max. 2 pcs./panel	allowed
32. Varnish streaks	not allowed						allowed
33. Black streaks (burnout from UV lamps)	not allowed						allowed
34. Uncured (wet)	not allowed						
35. Lack of varnish (uncoated spots)	not allowed					allowed up to 5 mm wide along the edge	allowed
36. Varnish influx on the edge	not allowed					allowed up to 5 mm wide along the edge	allowed
37. Whitish spots on the surface or partial absence / deficiency of coating material	not allowed						allowed
38. Non-smoothness (“orange peel”) on the surface	not allowed					allowed up to 50 mm in diameter, max 3 pcs./panel	allowed

Ending of Appendix A

Name of wood and manufacturing defects	Limitation standards for defects by plywood grades						
	B, LST B, LPR B, DR B, T B	S	LPR BB	BBx	BB, LST BB, DR BB,T BB	UVX BB/BB	UVX C/C
39. Non-smoothness (“orange peel”) on the edge	not allowed					allowed up to 400 mm in length, max. 2 pcs./panel	allowed
40. Streaks from conveyors/chains/rollers on paint coating	not allowed						allowed
41. A "sanded" varnish streak on the plate	not allowed						allowed
42. Streaks from sanding / graphite belts	not allowed					allowed, not more than 25% of the panel surface	allowed
43. Trace from dropped out insert in the inner layers	not allowed					allowed up to 50 mm in diameter, max. 3 pcs./panel	allowed
44. Knot hole (not repaired)	not allowed					allowed up to 35 mm in diameter, max. 3 pcs./panel	allowed
45. Sanded-through streak from sanding / polishing shaft	not allowed						allowed
46. Weak angle	not allowed					allowed on one side up to 400 mm in length and up to 20 mm in width, max. 1 pc./panel	allowed
47. Warping	for 5x5 format — P and W not more than 5 mm per 1 r.m. in any direction; for 8x4 and 5x10 format — P and W not more than 4 mm per 1 r.m. in any direction						allowed

Notes:

1) Defects inherent in wood and manufacturing defects not listed in Appendix A are not allowed**.**
2) The surface quality assessment shall correspond to the reference sample.

APPENDIX B
(mandatory)

Limitations of wood defects and manufacturing defects for plywood types with the covering kind of UV coating

Limitations of wood and manufacturing defects for plywood types with the covering kind of UV coating are shown in Table B.1

Table B.1

Name of wood and manufacturing defects	Limitation standards for types	
	I	UVXI
1. Varnish streaks	not allowed	allowed
2. Black streak (burnout from UV lamps)	not allowed	allowed
3. Uncured (wet)	not allowed	allowed
4. Unpainted varnish	not allowed	allowed
5. Varnish influx on the edge	not allowed	allowed
6. White spots on the plate or partial absence / deficiency of PV	not allowed	allowed
7. Orange peel on the plate	not allowed	allowed
8. Orange peel on the edge	not allowed	allowed
9. Streaks from conveyors/chains/rollers on paint coating	not allowed	allowed
10. A "sanded" varnish streak on the plate	not allowed	allowed
11. Streaks from grinding / graphite belts	not allowed	allowed
12. Streaks from the sanding / roll grinding	not allowed	allowed
13. Weak angle	not allowed	allowed
14. Printed wood fiber structure	not allowed	allowed
15. Printed knots	not allowed	allowed
16. Traces of inner layer defects	not allowed	allowed
17. Traces of veneer splicing	not allowed	allowed
18. Local swellings on the plywood surface	not allowed	allowed
19. Dents, mechanical damage	not allowed	allowed
20. Local veneer delamination in the inner layers of plywood (hidden bubble)	not allowed	allowed
21.Peeling of the coating	not allowed	allowed
22. Warping	for 5x5 format — P and W not more than 5 mm per 1 p.m. in any direction; for 8x4 and 5x10 formats — P and W not more than 4 mm per 1 p.m. in any direction	allowed

Notes:

1) Wood defects and manufacturing defects not specified in Appendix B are not allowed.
2) The surface quality assessment shall correspond to the reference sample.

APPENDIX C
(mandatory)

Terms and definitions of machining defects

The terms and definitions of machining defects are given in Table B.1

Table B.1

Name of manufacturing defects	Definition
Glued veneer fractions	The presence of glued (pressed) particles of veneer on the surface of birch plywood
Rough peeling	The presence on the surface of birch plywood often located shallow depressions formed as a result of local removal of wood during peeling
Peck	The cavity inside the wood or between annual layers, filled with resin or gums.
Varnish streaks	A defect characterized by a streak of varnish on plywood with UV coating, caused by the shutdown of the rollers
Black streak (burnout from UV lamps)	A defect characterized by the presence of a black band with a violation of the UV coating formed by UV lamps
Uncured (wet)	A defect characterized by the presence of uncured (wet) varnish on the surface of plywood with UV coating
Unpainted varnish	Defect characterized by a lack of UV coating
Varnish influx on the edge	A defect characterized by a thickening on the panel edge, caused by a influx of varnish
White spots on the plate or partial absence / deficiency of PV	A defect characterized by whitish spots on the panel plate caused by a absence / deficiency of PV

End of Appendix B

Name of manufacturing defects	Definition
Orange peel on the plate	A defect characterized by alternating indentations and irregular protrusions on plywood with UV coating, due to varnish coating of the baseboard with sanding defects / traces of manual rework
Orange peel on the edge	A defect characterized by alternating indentations and irregular protrusions on the edge of plywood with UV coating, due to lacquer coating of the baseboard with sanding defects / traces of manual rework
Streaks from conveyors/chains/rollers on the paint coating	A defect characterized by the presence of streaks formed from conveyors, chains, rollers on plywood with UV coating
A "sanded" varnish streaks on the plate	A defect characterized by the presence of a sanded varnish streak on plywood with UV coating
Streaks from grinding / graphite belts	A defect characterized by the presence of streaks formed from grinding / graphite tapes on plywood with UV coating
Gradient spots (color differences, dark veneer)	A defect characterized by the presence of color differences on plywood with UV coating, dark veneer
Streaks from the sanding / roll grinding	A defect characterized by the presence of streaks on plywood with UV coating, formed by sanding / roll grinding
Trace of a dropped out insert in the inner layers	A defect characterized by the presence of a visual bubble/bloat effect on plywood with UV coating
Knot hole (not repaired)	A defect characterized by the presence of a recess on plywood with UV coating that is not filled with soil
Weak edge	A defect in form of an edge area with protruding/torn-out wood fiber bundles characterized by decreased density
Burnt edge	A surface area darkened by partial charring as a reaction to high temperature arising by the increased friction of cutting tools on wood

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