

**CORPORATE STANDARD**

**SVEZA MONOLITH BIRCH PLYWOOD**  
**Technical Specifications**

**STO 52654419-011-2024**

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**

The goals and objectives of the development, as well as the use of organization standards for products in the Russian Federation, are established by Federal Law No 184-FZ dated 27 December 2002, On Technical Regulation, and Federal Law No. 162-FZ dated 29 June 2015, On Standardization in the Russian Federation.

Development and presentation rules are established by GOST R 1.0-2012, Standardization in the Russian Federation. General provisions, and GOST R 1.4-2004 Standardization in the Russian Federation. Corporate standards. General Provisions, taking into account GOST R 1.5-2012, Standardization in the Russian Federation. National standards. Rules of Structure, Drafting, Presentation and Indication.

This standard may only be used with the written permission of SVEZA-Les LLC.

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## **COMPANY STANDARD FOR PRODUCTS**

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### **Birch Plywood SVEZA MONOLITH Technical requirements**

**RUS: Фанера SVEZA MONOLITH березовая  
Технические условия**

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**Date of introduction – " 23 " April 2024**

#### **1 SCOPE OF APPLICATION**

This standard (hereinafter referred to as the standard) applies to SVEZA MONOLITH birch plywood with high water resistance, with a special multi-layer UV coating for protection against external impact (hereinafter referred to as SVEZA MONOLITH plywood).

SVEZA MONOLITH plywood is used for monolithic construction and form-work systems.

#### **2 NORMATIVE REFERENCES**

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

GOST 427-75 Measuring metal rulers. Specifications.

GOST 3749-77 Checking 90° squares.

GOST 6507-90 Micrometers. Specifications.

GOST 7502-98 Measuring metal tapes. Specifications.

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

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

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

GOST 9624-2009 Laminated glued wood. Ultimate split strength determination method.

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 18321-73 Static quality control. Item random sampling methods.

GOST 25336-82 Laboratory glassware and equipment. Basic parameters and dimensions.

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

GOST 30255-2014 Furniture, wood and polymeric materials. Method for determining the release of formaldehyde and other harmful volatile chemicals in climatic chambers.

GOST 30427-96 Plywood for general use. General rules for classification by appearance.

GOST 31149-2014 Paint and varnishes. Determination of adhesion by cross-sectional notch.

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

GOST 31975-2017 Paint and varnishes. Method for determining the gloss of paint coatings at an angle of 20°, 60° and 85°.

GOST R 53920-2010 Laminated plywood. Specifications.

STO 52654419-001-2024 General-purpose plywood with outer layers of birch veneer. Specifications.

Note: When using this standard, it is advisable to check the validity of the reference standards according to the information index "National Standards".

### **3 TERMS AND DEFINITIONS**

The following terms are used in this standard:

UV coating (Ultraviolet coating) is a special multi-layer coating with UV-curable paint and varnishes (hereinafter referred to as PV) for protection against external influences.

The base board is birch plywood of EXT/FSF type designed for further coating with varnish.

### **4 CLASSIFICATION AND DIMENSIONS**

4.1 By the water resistance degree of the glue bond, SVEZA MONOLITH plywood is of EXT / FSF type – plywood with improved water resistance of the glue bond manufactured by using phenol-formaldehyde adhesives, for indoor and outdoor use.

Note: SVEZA MONOLITH plywood belongs to the EXT formaldehyde emission group.

4.2 SVEZA MONOLITH plywood is made with the UV/UV surface type, that is, with double-sided application of paints and varnishes.

4.3 Depending on the surface appearance, SVEZA MONOLITH plywood is divided into grades: M1, and M2.

4.4 SVEZA MONOLITH plywood is made with a partially opaque (glaze) gray coating RAL 7001 with the wood structure visible.

Note: By agreement of the manufacturer with the customer, it is possible to use other colors.

4.5 SVEZA MONOLITH plywood gloss is 20 % with the tolerance  $\pm 5$  %.

Note: Other gloss degrees are possible as agreed between the manufacturer and the customer.

#### 4.6 Dimensions

4.6.1 The length and width of SVEZA MONOLITH plywood panels should correspond to those specified in Table 1.

Table 1

In mm	
Length (width) of panels	Tolerance
1,220; 1,250	$\pm 3.0$
1,500; 1,525	$\pm 4.0$
2,440; 2,500	$\pm 4.0$
3,000; 3,050	$\pm 5.0$
Notes:	
1. SVEZA MONOLITH plywood may be manufactured with other dimensions and tolerances as agreed between the manufacturer and the customer.	
2. The length of the SVEZA MONOLITH plywood panel is measured along the grain of the face veneers.	

4.6.2 The thickness of SVEZA MONOLITH plywood should correspond to that specified in Table 2.

Table 2

In mm					
Nominal thick-ness, mm	Number of plies	Tolerance on nominal thickness, mm	Minimum thickness, mm	Maximum thickness, mm	Thickness tolerance within one panel, mm
12	9	+/-0.3	11.7	12.3	0.2
15	11		14.7	15.3	
18	13		17.7	18.3	
21	15		20.7	21.3	
Notes: 1. SVEZA MONOLITH plywood may be manufactured with other thicknesses, number of plies, and tolerance limits as agreed between the manufacturer and the customer.					

4.6.3 SVEZA MONOLITH plywood panels shall be cut at right angles.

When using the control method according to 7.4.1, tolerance for squareness shall not exceed 1 mm per 1 m of the length of the panel edge.

When using the control method according to 7.4.2, the difference in the diagonal lengths shall not exceed 1 mm per 1 m of the panel edge length.

4.6.4 Tolerance for straightness of the panel edges of SVEZA MONOLITH plywood shall not exceed 1mm per 1m of the panel edge length

4.7 The reference designation of SVEZA MONOLITH plywood shall include:

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

4.7.1 Example of a reference designation of SVEZA MONOLITH plywood, EXT/FSF type, M1/1 grade, with double-sided application of coating material, emission class E1, length of 1,220 mm, width of 2,440 mm, and thickness of 18 mm:

*Фанера SVEZA MONOLITH березовая / Birch Plywood SVEZA MONOLITH  
EXT / ФСФ, M1/1, UV/UV, E1, 1220x2440x18,  
СТО 52654419-011-2024*

## 5 TECHNICAL REQUIREMENTS

### 5.1 Characteristics

5.1.1 The following is used for SVEZA MONOLITH plywood production:

– Base plate made according to STO-52654419-001, of EXT/FSF type, of grade not lower than CP (III), sanded on both sides (S2S/III2) with the sanding belt grit of no less than 80 µm.

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

- UV-curable paint and varnishes according to technical specifications.
- Acrylic water-dispersion paint (RAL 7001) to protect against moisture.

5.1.2 The outer and inner layers of SVEZA MONOLITH plywood are made of birch veneer.

5.1.3 Depending on the quality of the surface appearance, SVEZA MONOLITH plywood is produced in the following grades: M1/1, M1/2, M2/2.

5.1.4 The surface appearance of SVEZA MONOLITH plywood shall meet the requirements described in Appendix A.

Terms and definitions of wood defects and processing defects are given in Appendix B.

5.1.5 Veneer inserts of "oval" and "butterfly" shapes are used to repair knots and holes. The inserts must hold firmly and match the wood color and the grain direction of the face veneer of SVEZA MONOLITH plywood.

5.2 The formaldehyde content and the formaldehyde release of SVEZA MONOLITH plywood into the room air shall meet the requirements shown in Table 3.

Table 3

Emission class	Formaldehyde content per 100 g of oven dry board (perforator method), mg	Formaldehyde release	
		Chamber method, mg/m <sup>3</sup> of air	Gas analysis method, mg/m <sup>2</sup> *h
E 0.5	Up to 4.0 inclusive	Up to 0.01 inclusive	Up to 1.5 inclusive
E1	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 SVEZA MONOLITH plywood are given in Tables 4 and 5.

Table 4

Performance characteristics	Thickness, mm	Requirement
1 Moisture content, %, max.	12–21	10
2 Ultimate strength in bending: - in length direction, MPa, min. - in width direction, MPa, min	12–21	60 30
3 Modulus of elasticity in bending: - in length direction, MPa, min. - in width direction, MPa, min.	12–21	6000 3000
4 Adhesion of the UV coating to the base plate	12–21	The UV coating must not peel from the base plate
5 SVEZA MONOLITH plywood gloss: – 20%, tolerance, %	12–21	± 5
6 Resistance of UV coating of SVEZA MONOLITH plywood to water vapour	12–21	No swelling. Slight loss of gloss. No bubbles.



*End of Table 4*

Performance characteristics	Thick- ness, mm	Requirement
7 Resistance of UV coating of SVEZA MONOLITH plywood to sodium hydroxide (NaOH)	12–21	The color of the solution is from colorless to light yellow. Slight gloss change, the coating is firm and resistant to mechanical impacts, a mark from the test cup can be seen
8 Resistance of the UV coating of SVEZA MONOLITH plywood to concrete	12–21	No stains on concrete. No gloss variation, the coating is firm.
9 Resistance of UV coating of SVEZA MONOLITH plywood to cracking	12–21	Cracking index not more than 80
10 Water permeability of UV coating of SVEZA MONOLITH plywood (Cobb test), g/m <sup>2</sup> , maximum	12–21	400

Table 5

Bonding quality, min, MPa	Wood failure, in %
Over 0.2 and up to 0.4	Greater than or equal to 80
Over 0.4 and up to 0.6	Greater than or equal to 60
Over 0.6 but less than 1.0	Greater than or equal to 40
1.0 or more	-

**Notes:**

1 SVEZA MONOLITH EXT/FSF plywood is pre-treated before testing by one of the three methods:

1.1 soaking for 24 hours in water at  $(20 \pm 3)^{\circ}\text{C}$ , soaking in boiling water for 4 hours, drying in a ventilated drying oven for (16–20) hours, repeated soaking in boiling water for 4 hours, and cooling in water for 1 hour;

1.3 soaking for 24 hours in water at  $(20 \pm 3)^{\circ}\text{C}$ ;

1.4 soaking in boiling water for  $(72 \pm 1)$  hours, cooling in water for 1 hour

The method of sample pre-treatment is chosen by agreement between the manufacturer and the customer.

2 The percentage of wood failure is determined visually.

3 Shear tests are made in different glue lines by agreement between the manufacturer and the customer.

5.4 SVEZA MONOLITH plywood is counted in cubic meters. The volume of one panel is calculated without rounding. The volume of formed bundles of SVEZA MONOLITH plywood and the batch volume is done with an accuracy of 0.001 m<sup>3</sup>.

The area of SVEZA MONOLITH plywood panel is counted with an accuracy of up to 0.01 m<sup>2</sup>, the area of panels in a batch – with an accuracy of 0.5 m<sup>2</sup>.

#### 5.5 SVEZA MONOLITH plywood packaging.

SVEZA MONOLITH plywood shall be formed into bundles with a height of 400, 600, 900 mm separately by grades, dimensions, and thicknesses.

By agreement between the manufacturer and the customer, it is allowed to pack SVEZA MONOLITH plywood in bundles of other height.

#### 5.6 Packaging and marking of bundles of SVEZA MONOLITH plywood.

5.6.1 Bundles of SVEZA MONOLITH plywood shall be packed to ensure their integrity and safety during transportation.

The main methods and types of package are regulated by LLC SVEZA-Les. By agreement between the manufacturer and the customer, other methods and types of SVEZA MONOLITH plywood packaging are allowed.

5.6.2 Packed bundles of SVEZA MONOLITH plywood shall be marked with self-adhesive 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 description: Фанера SVEZA MONOLITH березовая / Birch Plywood SVEZA MONOLITH;
- dimensions, thickness of SVEZA MONOLITH plywood and thickness tolerances (if applicable);
- SVEZA MONOLITH plywood grade;
- SVEZA MONOLITH plywood type;
- surface type (UV/UV);
- number of panels in a bundle;
- shift;
- SVEZA MONOLITH plywood production date;
- emission class;
- order number for special requirements (applied by agreement between the manufacturer and the customer);
- technical specification according to which SVEZA MONOLITH plywood is produced.
- manufacturer's name and address;
- certification signs and quality control mark;
- 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 RULES

6.1 SVEZA MONOLITH plywood shall be accepted in batches.

A batch is a certain number of of SVEZA MONOLITH plywood of the same grade, thickness and dimensions.

The batch must be accompanied by a common document containing:

- trademark;
- manufacturer's name and address;
- SVEZA MONOLITH plywood designation;
- batch size;
- reference document for manufacturing SVEZA MONOLITH plywood.

6.2 The quality and dimensions of SVEZA MONOLITH plywood panels are checked by random sampling. During random inspection, SVEZA MONOLITH plywood panels are sampled randomly according to GOST 18321 in the quantity specified in Table 6.

Table 6

In panels

Batch size	Controlled parameter by items			
	4.6.1; 4.6.2; 4.6.3; 4.6.4		5.1.4	
	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 Moisture content, bonding strength, ultimate strength in bending in length and width direction, modulus of elasticity in bending in length and width direction, are controlled for each thickness and number of layers of SVEZA MONOLITH plywood at least once a month.

Inspection of each batch is permitted by agreement between the manufacturer and the customer; for this purpose, 0.1% of the panels in a batch are sampled, but not less than one panel.

6.4 To control the content and/or release of formaldehyde, one panel of SVEZA MONOLITH plywood is taken from any sample volume.

The formaldehyde content is controlled at least once every 30 days for the EXT formaldehyde emission group.

The formaldehyde release is determined at least once every 7 days for the EXT formaldehyde emission group.

6.5 The results of formaldehyde content or release and physical and mechanical tests of a batch of plywood produced according to STO 52654419-001 may be applied to SVEZA MONOLITH plywood produced from the same batch.

6.6 A batch is considered to meet the requirements of this standard and is accepted if the sample contains:

- number of SVEZA MONOLITH plywood panels that do not meet the requirements of this standard to dimensions, squareness, edge straightness, wood and machining defects is less than or equal to the acceptance number specified in Table 6;
- physical and mechanical properties correspond to the values specified in Tables 4 and 5;
- the content and/or release of formaldehyde meets the requirements set out 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 SVEZA MONOLITH plywood are measured at two points parallel to the edges at a distance of min 100 mm from the edges with a metal tape measure according to GOST 7502 with an accuracy of 1 mm. The arithmetic mean value of two measurements results 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 mean value of the four measurements is taken as the actual panel thickness.

The following tools are used to measure 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.

Thickness tolerance within one panel of SVEZA MONOLITH plywood is determined as the difference between the largest and the smallest thickness of four measurements.

7.4 Squareness of a SVEZA MONOLITH plywood panel

7.4.1 The squareness of SVEZA MONOLITH plywood panel is measured according to GOST 30427. The squareness is measured by a checking square in accordance with GOST 3749 and determined by measuring the greatest deviation of the panel edge from the checking square by using a metal ruler in accordance with GOST 427 with an error of 1 mm.

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

7.5 Edge straightness

The edge straightness of the SVEZA MONOLITH plywood panel is determined by measuring the maximum gap between the panel edge and the edge of the metal ruler by using a feeler gauge according to GOST 8925 with an error of 0.2 mm.

7.6 Warping is measured according to GOST 30427.

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

7.8 Bonding strength – according to GOST 9624, [4].

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

7.10 Measurement of machining defects is done according to GOST 30427.

7.11 Adhesion of UV coating to the base plate – according to GOST 31149.

7.12 The gloss of SVEZA MONOLITH plywood is tested with a gloss meter according to GOST 31975.

7.13 Resistance of the UV coating of SVEZA MONOLITH plywood to water vapour is tested according to GOST R 53920.

7.14 Resistance of the UV coating of SVEZA MONOLITH plywood to sodium hydroxide (NaOH) is tested according to GOST R 53920.

7.15 Resistance of the UV coating of SVEZA MONOLITH plywood to concrete is tested in accordance with Appendix C.

7.16 Resistance of the UV coating of SVEZA MONOLITH plywood to cracking is tested in accordance with Appendix D.

7.17 Water permeability of the UV coating of SVEZA MONOLITH plywood (Cobb test) is tested in accordance with Appendix E.

7.18 Formaldehyde content – according to GOST 27678, formaldehyde release – according to GOST 30255, GOST 32155 and [1].

## **8 TRANSPORTATION AND STORAGE**

8.1 SVEZA MONOLITH plywood is transported in covered vehicles in accordance with the cargo transportation rules applicable to this type of transport.

During transportation, it is required to avoid strong moistening of SVEZA MONOLITH plywood to prevent swelling at the edges, warping of panels, strong indentation of the packing straps or other quality losses.

### **8.2 SVEZA MONOLITH plywood storage**

SVEZA MONOLITH plywood is stored in the package as horizontally stacked bundles on pallets or wooden spacers in enclosed spaces protecting the plywood from 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 that the quality of SVEZA MONOLITH plywood complies with the requirements of this standard, provided that the conditions of transportation and storage are met.

The guaranteed shelf life of SVEZA MONOLITH plywood is 5 years from the date of its receipt by the customer.

When using SVEZA MONOLITH plywood for further processing, it is advisable to contact the manufacturer to clarify the properties and characteristics of the plywood.

## **10 SAFETY AND ENVIRONMENTAL REQUIREMENTS**

10.1 The content of harmful chemicals released during the operation of SVEZA MONOLITH plywood products into the air of residential premises and public buildings shall not exceed the limits [6], [7], [8].

10.2 SVEZA MONOLITH plywood shall be produced using materials and components permitted for their use by the national sanitary and epidemiological authorities.

10.3 Persons not younger than 18 years old and with no medical contraindications are allowed to produce SVEZA MONOLITH plywood. 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 SVEZA MONOLITH plywood 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 SVEZA MONOLITH plywood shall not exceed the hygienic standards established in the requirements [9].

10.6 SVEZA MONOLITH plywood does not contain raw products, materials, and components classified as hazardous waste.

10.7 As a rule, SVEZA MONOLITH plywood has a long service life, and shall be disposed of by several ways. Disposal of SVEZA MONOLITH plywood shall be carried out taking into account the requirements for disposal of the current legislation of different countries.

## **11 RECOMMENDATIONS FOR USE**

11.1 SVEZA MONOLITH plywood is designed for multiple use. Compliance with the rules for use and storage of SVEZA MONOLITH plywood will increase its service life.

11.2 SVEZA MONOLITH plywood shall be protected against contact with water and exposure to sunlight. For this purpose, SVEZA MONOLITH plywood panels shall be stored indoors or covered with a reliable waterproof coating (material).

SVEZA MONOLITH plywood panels shall be stored horizontally on a flat area free of any dirt and puddles to prevent damage by transport or other equipment.

Always avoid storing SVEZA MONOLITH plywood panels in very hot or dry places as this may cause their warping.

11.3 Due to the influence of moist air during transportation, an insignificant deviation in thickness of SVEZA MONOLITH plywood is possible along the panel edges at a distance of up to 50 mm.

#### 11.4 Cutting of SVEZA MONOLITH plywood

SVEZA MONOLITH plywood shall be cut into parts by using band or circular saws.

In order to obtain a clean cut, sawing shall be carried out correctly: first, sawing is performed across the grain direction of the face veneer, then along the grain. This method allows avoiding splitting on the corners and reducing the size and number of chips on the face.

When sawing with a circular saw, a high speed and a low feed rate are advisable.

To prevent moisture absorption during sawing, the edge surfaces of SVEZA MONOLITH plywood shall be coated with special types of acrylic waterborne paints or other sealants.

#### 11.5 Drilling of SVEZA MONOLITH plywood

To prevent moisture ingress into SVEZA MONOLITH plywood, all the drills made during installation shall be filled with waterborne acrylic paint or other sealants, and it is advisable to treat the panel surfaces with a hydrophobic composition.

In order to obtain a drilled hole with smooth edges, it is necessary to use a drill sharp enough and having a front cutter.

Drilling shall start from the face side. To avoid splitting on the reverse side of SVEZA MONOLITH plywood, it is recommended to use a backing panel.

In order to avoid splitting of SVEZA MONOLITH plywood layers when using nails, it is recommended to use threaded nails or special screws. The recommended distance from the panel edge to the nail is 12 to 15 mm.

11.6 Prior to formwork work, the surface of SVEZA MONOLITH plywood shall be treated with a release agent.

Upon completion of the formwork work, SVEZA MONOLITH plywood surface must be cleaned of residual concrete mixture and dried in a horizontal position under a shelter. Failure to comply with this rule causes plywood warping and reduces the service life of SVEZA MONOLITH plywood.

11.7 With prolonged use, the moisture content in SVEZA MONOLITH plywood increases significantly, which reduces its strength characteristics.

Due to this, it is necessary to dry SVEZA MONOLITH plywood. To avoid external deformations, plywood shall be dried naturally.

11.8 Formwork forms shall be stored so that their face side is protected from the sun. Direct sun exposure leads to rapid drying of the outer veneer layer and damage of the UV coating.

11.9 It is recommended to repair minor scratches with appropriate mastic, wax crayons, or putty.

11.10 Deep scratches, nail or screw holes shall be repaired with mastic or epoxy putty. Wooden inserts shall be used to repair wider damage.

**APPENDIX A**  
(mandatory)

**Restrictions on defects for SVEZA MONOLITH plywood by grades**

Restrictions on defects for SVEZA MONOLITH plywood grades are given in Table A.1.

Table A.1

Defects	Restrictions on defects by grades	
	M1	M2
1. Pin knots	allowed	
2. Sound knots, intergrown, light and dark	allowed	
3. Knots partially intergrown, subject to puttying	allowed of a diameter up to 15 mm, and not more than 10 pcs/m <sup>2</sup> in total with intergrown knots	allowed
4. Non-adhering knots, falling out, knot holes (without bark inclusions), if repaired by putty	are allowed in diameter up to 6 mm unlimited in number	allowed
5. Closed cracks	allowed	
6. Open splits if repaired by putty	is allowed up to 600 mm in length and 2 mm in width in an amount not exceeding 2 pcs/m of the panel width	
7. Irregularities in the wood structure (angle grain, curly grain, spiral grain, dots)	allowed	
8. Wood structure defects (inbark: intergrown, light and dark)	light inbark is allowed, dark inbark is allowed in the size of intergrown knots	
9. Wood structure defects (open inbark)	allowed, totaled with the requirements for non-adhering knots	
10. Sound discoloration (false heartwood)	allowed	
11. Sound discoloration (spotting, veins, vein marks)	allowed	
12. Sound discoloration (group veins)	allowed	



Table A.1 (continued)

Defects	Restrictions on defects by grades	
	M1	M2
13. Chemical coloring; sap-wood fungal discoloration (blue stain, colored sapstain), discoloration during wood storage	allowed	
14. Industrial stains (traces of beams, streaks)	allowed	
15. Gradient spots (color differences, dark veneer)	allowed	
16. Biological damage (worm holes)	allowed in the total number with non-adhering knots	
17. Discoloration which is partially wood destroying	not allowed	
18. Repair of knots and holes with wood inserts	allowed	
19. Double insert	allowed	
18. Pad rolls (pad marks)	not allowed	
20. Overlap (traces of veneer overlapping, cracks in inner layers)	not allowed	
21. Veneer particles glued into the outer layer	not allowed	allowed
22. Glue penetration	allowed up to 5% of the panel surface	allowed
23. Mechanical damage, punctures, cuts, scars, bumps, and crests	not allowed	
24. Dents	allowed with diameter of up to 6 mm, maximum 1 pc/m <sup>2</sup> provided that the UV coating is intact	allowed with max. depth of 0.5 mm provided that the UV coating is intact
25. Scratches	not allowed	allowed provided that the UV coating is intact
26. Bubbles, delamination, bark pockets	not allowed	
27. Local swelling on the panel surface	not allowed	allowed with a diameter of max 100 mm, max 1 pc/m <sup>2</sup>

Table A.1 (continued)

Defects	Restrictions on defects by grades	
	M1	M2
28. Non-sanded spots (non-uniform sanding)	not allowed	
29. Sanding through outer layers on the panel surface	not allowed	
30. Sanding through outer layers on the edge area	not allowed	
31. Metallic inclusions	not allowed	
32. Cutting defects, chips on the edge	allowed with a length of max 3 mm, provided that they are coated with a waterproof paint	allowed with a length of max 10 mm, provided that they are coated with a waterproof paint
33. Lack of veneer in the inner layers	not allowed	allowed on one edge with a depth of not more than 5 mm
34. Weak angle	not allowed	allowed
35. Rough peeling	not allowed	
36. Waviness, fleecy surface, ripples	not allowed	
37. Pocket (without bark inclusions)	allowed	
38. Paint smudges	allowed, a width of no more than 5 mm	allowed
39. Varnish streaks	not allowed	
40. Black streak (burnout from UV lamps)	not allowed	
41. Uncured (wet)	not allowed	
42. Lack of varnish	not allowed	
43. Varnish influx on the edge	not allowed	
44. Whitish spots on the surface or partial absence / deficiency of PV	not allowed	
45. "Orange peel" on the panel surface	not allowed	
46. "Orange peel" on the edge	not allowed	
47. Streaks from conveyors/chains/rollers on the UV coating	not allowed	allowed
48. A "sanded" varnish streak on the plate	not allowed	allowed

*Table A.1 (continued)*

Defects	Restrictions on defects by grades	
	M1	M2
49. Streaks from sanding/graphite belts	not allowed	allowed
50. Mark of a dropped insert in the inner layers	not allowed	allowed
51. Knot hole (not repaired)	not allowed	allowed
52. Sanded-through streaks from the sanding / rolling shaft	not allowed	allowed
53. Warping	allowed with a deflection of not more than 15 mm per 1 m of the diagonal length of the plywood panel	
54. Deviations from the permissible dimensions	geometric dimensions in accordance with 4.4.1, 4.4.2, 4.4.3, 4.4.4	

Note: Defects not listed in Appendix A are not allowed.

**APPENDIX B**  
(mandatory)

**Terms and definitions of manufacturing defects**

Terms and definitions of manufacturing defects are given in Table B.1

Table B.1

<b>Manufacturing defects</b>	<b>Definition</b>
Dents	Local indentation of the outer layer without damaging the UV coating
Scratches	Damaging of the UV coating of SVEZA MONOLITH plywood by a sharp object in the form of a narrow long depression or local indentation of the outer layer with damage to the UV coating
Local swelling on the plywood surface	Partial peeling of the UV coating from the surface of the SVEZA MONOLITH plywood
Cutting defects, chips on the edge	Defects characterized by a lack of UV coating on the edge of SVEZA MONOLITH plywood panel
Lack of veneer in the inner layers	A defect characterized by a partial absence of veneer in an inner layer, except for edge knots and cracks
Paint smudges	Paint on SVEZA MONOLITH plywood panel surface
Varnish streaks	A defect characterized by a streak of varnish on SVEZA MONOLITH plywood caused by the shut-down of the rollers
Black streak (burnout from UV lamps)	A defect characterized by the presence of a black streak with damaged UV coating caused by UV lamps
Uncured (wet)	A defect characterized by the presence of uncured (wet) varnish on the surface of SVEZA MONOLITH plywood
Lack of varnish	Defect characterized by a partial lack of UV coating
Varnish influx on the edge	A defect characterized by a thickening on the panel edge, caused by an influx of varnish
Whitish spots on the panel surface or partial absence/deficiency of PV	A defect characterized by whitish spots on the panel surface caused by the absence / deficiency of PV
“Orange peel” on the panel surface	A defect characterized by alternating indentations and irregular protrusions on SVEZA MONOLITH plywood due to varnish coating of the base board with sanding defects / traces of manual rework

*Table B. 1 (continued)*

<b>Manufacturing defects</b>	<b>Definition</b>
“Orange peel” on the edge	A defect characterized by alternating indentations and irregular protrusions on SVEZA MONOLITH plywood edge areas due to varnish 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 SVEZA MONOLITH plywood
A "sanded" varnish streaks on the plate	A defect characterized by the presence of a sanded varnish streak on SVEZA MONOLITH plywood
Streaks from sanding / graphite belts	A defect characterized by the presence of streaks formed from sanding/graphite tapes on SVEZA MONOLITH plywood
Mark of a dropped insert in the inner layers	A defect characterized by the presence of a visual swelling/bloating effect on SVEZA MONOLITH plywood
Knot hole (not repaired)	A defect characterized by the presence of a recess on SVEZA MONOLITH plywood that is not filled with primer
Streaks from the sanding / rolling shaft	A defect characterized by the presence of streaks on SVEZA MONOLITH plywood formed by sanding/rolling shaft

APPENDIX C  
(mandatory)

**Method for determination of resistance of UV coating of SVEZA MONOLITH  
plywood to concrete**

1.1 The following is used for testing:

- container for the preparation of concrete mortar;
- M 500 grade cement;
- construction sand;
- 5% NaOH solution;
- paper/plastic cups;
- UV lamp.

1.2 Two test pieces of SVEZA MONOLITH plywood with the dimensions 100x100 mm are sampled for the test. Both sides of the test pieces (top and bottom) shall be tested. Conditioning of the test pieces is not required.

1.3 Testing and evaluation of the results

Prepare a concrete mortar according to the following ratios:

- M 500 grade cement: 1 part;
- construction sand: 2 parts;
- 5% NaOH solution: 1/4 part;
- water: (0.5–1) part (added until a homogeneous paste is obtained).

Fill 1/3 of a cup with concrete mortar, cover it with the UV coated test piece surface down, turn over by 180° and put the cup on a horizontal surface.

In three days (after the final curing of the mortar), remove the cup with the hardened concrete from the surface of SVEZA MONOLITH plywood in the cured state and dry for three more days. On the fourth day, visually assess the change of the hardened concrete color and the change of the surface structure of SVEZA MONOLITH plywood.

To accelerate the concrete curing process, it is allowed to use a UV lamp. Put the UV lamp at a distance of 40 cm from the concrete, and dry for 5 hours. Sixth hour of the testing, visually assess the change of the hardened concrete color and the change in the surface structure of SVEZA MONOLITH plywood.

The resistance of the UV coating of SVEZA MONOLITH plywood to concrete is evaluated according to a three-point scale by the color change of the cured concrete and the change of the test surface structure in accordance with Table B.1.

*Appendix C (continued)*

Table B.1

Test result	Color rating of cured concrete	Assessment of change in UV coating
1 Complete (normal) curing of the UV coating	No concrete staining	No gloss change; UV coat- ing is firm.
2 Partial under-curing of the UV coating	Partial staining of concrete edges	Slight gloss change, loss of UV coating color
3 Complete under-curing of the UV coating	All concrete edges are stained	Gloss absence, surface sof- tening and swelling, com- plete loss of color

## APPENDIX D (mandatory)

### Method for determination of resistance of the UV coating of SVEZA MONOLITH plywood to cracking

#### 1.1 Apparatus, instruments, tools, chemical utensils, materials:

The following is used for testing:

- ventilated drying cabinet;
- stencil for notching;
- device for notching (chisel);
- hammer/mallet for punching notches.

#### 1.2 Sampling and test pieces preparation

Test piece dimensions are 250 mm x 250 mm.

The number of test pieces is 3.

Test pieces conditioning is not required.

The ends of the test pieces are not treated.

#### 1.3 Testing

Make notches on the surface of the test pieces by using a special stencil and a hammer. The notches are 10 mm long and made at a distance of at least 50 mm from the edges and parallel to the grain direction of the face veneer. The film and the face veneer layer must be punched through.

The notches should be arranged in two parallel lines, with three punches in each, with a slight offset to avoid connecting of cracks from different punches.

Notches should be made on both sides of the test pieces, 6 notches on each side, and a total of 12 notches should be done on each test piece.

A stencil is used for convenient notching (Fig. D.1). The stencil is placed on the sample surface so that the length of the notches coincides with the grain direction of the face veneer layer.

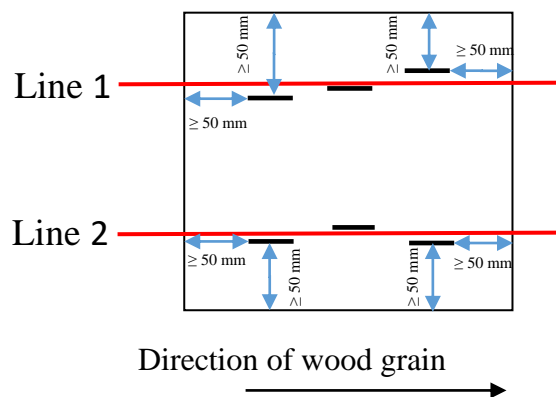


Figure D.1



*Appendix D (continued)*

The test pieces are stored in a ventilated drying cabinet at 110°C for 16 hours.

After drying, they are conditioned at room temperature for 4 hours.

An assessment is made by counting the number of cracks on the plywood surface. Only cracks at the notches are to be considered. Each notch can have no more than two cracks.

#### 1.4 Processing of the result

The resulting cracks are divided into two groups:

- Group A: cracks of length of 15 to 50 mm inclusive;
- Group B: cracks longer than 50 mm, (if the cracks extend to the edge they are counted as longer than 50 mm);

Cracks up to 15 mm long are not counted.

The maximum total number of cracks on three test pieces (six surfaces) must not exceed 72.

All Group B cracks larger than 50 mm are counted twice. Group A cracks having length from 15 to 50 mm are added to the result of group B. The cracking index is determined by the total sum of cracks and is calculated by formula E.1:

$$I_{\text{cracking}} = (\Sigma A + 2 \times (\Sigma B)) \times 1.39 \quad (\text{D.1})$$

Where:

$I_{\text{cracking}}$  is the cracking index;

$\Sigma A$  is the sum of all cracks of group A (pcs.);

$\Sigma B$  is the sum of all cracks of group B (pcs.).

An example of a crack count is shown in Table D.2

#### 1.5 Assessment of the result

Resistance of the UV coating to cracking is evaluated by the calculated cracking index and rated in accordance with Table D.1.

Table D.1

Cracking index	Measurement evaluation
Up to 10	Great
11 to 40	Good
41 to 60	Enough
61 to 80	Satisfactory
Over 80	Unsatisfactory

## Appendix D (continued)

Table D.2

Crack length	1 <sup>st</sup> test piece;		2 <sup>nd</sup> test piece;		3 <sup>rd</sup> test piece;		Total	Points
	Top	Bottom	Top	Bottom	Top	Bottom		
Up to 15	2	0	1	1	0	1	5	0
Up to 50	5	8	6	7	8	7	41	41
Over 50	2	4	2	1	4	4	17	17
No cracks at the notches *	3	0	3	3	0	0	9	0
Total number of cracks	12	12	12	12	12	12	72	

Note: \*missing cracks at the notches are counted in the total crack count, so as not to lose the total possible number of cracks in the test pieces. They are not included in the calculation of the cracking index.

$$I_{\text{cracking}} = 41 + (17 \times 2) \times 1.39 = 104.25$$

Cracking index is 104.25; the result is unsatisfactory.

## APPENDIX E (mandatory)

### **Method for determination of water permeability of the UV coating of SVEZA MONOLITH plywood (Cobb test)**

#### 1.1 Apparatus, instruments, tools, chemical utensils, materials.

The following is used for testing:

- scales with an accuracy of weighing up to 0.01 g;
- cylindrical crystallisation cup (ChKTs 2-100) with a diameter of 72 mm, a height of 40 mm, with a capacity of minimum 100 ml, according to GOST 25336;
- air conditioning chamber;
- aluminum tape;
- ashless filters.

#### 1.2 Sampling and test pieces preparation

Test pieces are sampled and prepared in accordance with the documented procedures of each mill of the SVEZA group. Test pieces must be made with smooth parallel and mutually perpendicular edges, without defects on the surface.

Before testing, the test pieces are conditioned for at least 72 hours in a conditioning chamber at a temperature of  $(20 \pm 2)^{\circ}\text{C}$  and a relative humidity of  $(65 \pm 5)\%$ .

After conditioning, the edges of the test pieces are sealed with aluminum tape.

#### 1.3 Testing

Conditioned test pieces with sealed edges are weighed with an accuracy of not more than 0.01 g. Pour 100 ml of distilled water into a cup, cover the cup with the UV-coated test piece, turn it  $180^{\circ}$  and put it on a horizontal surface. Both sides of the test piece (top and bottom) shall be tested.

Place the test pieces with cups into the conditioning chamber and leave for 7 days.

After the time has passed, remove the test pieces with the cups from the conditioning chamber, turn them back by  $180^{\circ}$ , remove the test pieces from the cups, remove the water residue from the surface of the test pieces, and weigh the test pieces on the scales no later than 10 minutes after.

Two parallel tests are performed on each side of the sample.

*Appendix E (continued)*

## 1.4 Processing of test results

Water permeability is determined by measuring the volume of water seeped through the surface and calculated by formula E.1:

$$\Delta W_{perm} = \frac{(m_1 - m)}{S}, \text{ g/m}^2 \quad (\text{E.1})$$

Where:

$m$  is the mass of the test piece before placing the cup with water onto the plywood coating, g;

$m_1$  is mass of the test piece after removal of the cup with water from the plywood coating, g;

$S$  is area of water contact with the surface of the test piece,  $\text{m}^2$ .

The test result is rounded to two decimal places.

The arithmetic mean of two measurements results of each surface is considered the result of the test.

## Bibliography

- [1] DIN EN ISO 12460-3 Wood-based panels – Determination of formaldehyde release – Part 3: Gas analysis method
- [2] EN 326-1-1994 Wood-based panels – Sampling, cutting and inspection. Part 1: Sampling and cutting of test pieces and expression of test results
- [3] EN 322:1993 Wood-based panels – Determination of moisture content
- [4] EN 314-1:2004 Plywood – Bonding quality – Part 1: Test methods
- [5] EN 310:1993 Wood-based panels – Determination of modulus of elasticity in bending and of bending strength
- [6] GN 2.1.6.3492-17 Maximum permissible concentrations (maximum permissible concentration) of pollutants in the atmospheric air of urban and rural settlements
- [7] GN 2.1.6.2309-07 Approximate safe exposure levels (SEL) of pollutants in the atmospheric air of populated areas. Hygienic standards
- [8] GN 2.1.6.2328-08 Supplement to GN 2.1.6.2309-07 Approximate safe exposure levels (SEL) of pollutants in the air of populated areas. Hygienic standards
- [9] Uniform sanitary and epidemiological and hygienic requirements for goods subject to sanitary and epidemiological supervision (control), approved by the decision of the Customs Union Commission dated May 28, 2010 No. 299

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