



**LIMITED LIABILITY COMPANY
SVEZA-Les**

CORPORATE STANDARD

**FILM FACED BIRCH
PLYWOOD SVEZA COLOR
Specifications**

STO 52654419-007-2022

Saint Petersburg
2022

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

Foreword

The goals and objectives of the development, as well as the use of organization standards 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*.

The rules for development and execution are established by GOST R 1.0-2012, *Standardization in the Russian Federation; Fundamentals*, and GOST R 1.4-2004 *Standardization in the Russian Federation. Standards of Organizations. General Provisions*, taking into account GOST R 1.5-2012, *Standardization in the Russian Federation. National Standards. Rules of Structure, Drafting, Presentation and Indication*.

Standard description

- 1 DEVELOPED AND INTRODUCED by Limited Liability Company SVEZA-Les
- 2 APPROVED AND PUT INTO EFFECT by the Order of the CEO of SVEZA-Les LLC dated 2022. No. ORD-P/8150-22-000028
- 3 AGREED with the Marketing Director of SVEZA-Les LLC S. G. Sarson, 10 February 2022
- 4 REPLACEMENT OF STO 52654419-007-2020
- 5 EXPERT OPINION was received from E. Tretyakova, an expert in confirmation of conformity of woodworking products, Head of the Certification Body of NP FANTEST, a member of the Technical Committee for standardization of TC 121, dated 20 November 2020

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

Contents

1 SCOPE OF APPLICATION	1
2 APPLICABLE STANDARDS	1
3 CLASSIFICATION AND DIMENSIONS	2
4 TECHNICAL REQUIREMENTS	4
5 ACCEPTANCE RULES	8
6 CONTROL METHODS	9
7 TRANSPORTATION AND STORAGE	10
8 MANUFACTURER'S WARRANTIES.....	11
9 SAFETY AND ENVIRONMENTAL PROTECTION	11
10 RECOMMENDATIONS FOR USE.....	11
APPENDIX A	14
APPENDIX B.....	17
APPENDIX C.....	19
APPENDIX D	20
APPENDIX E.....	21
Bibliography	22

CORPORATE STANDARD

FILM FACED BIRCH PLYWOOD SVEZA COLOR
Technical specifications**Film Faced Birch Plywood SVEZA COLOR**
Technical specifications

Date of introduction – 24.02.2022**1 SCOPE OF APPLICATION**

This standard applies to film faced SVEZA COLOR plywood with improved water resistance, faced with film based on thermosetting polymers (hereinafter referred to as SVEZA COLOR plywood). It is intended for use in construction, furniture, automotive, railcar industries, as well as for the container construction, and package production. Additionally, it can be used for manufacturing interior elements that require higher decorative characteristics.

2 APPLICABLE STANDARDS

This standard incorporates by reference the following standards:

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. Specifications

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 9622-2016 Laminated glued wood. Methods for determination of ultimate strength and modulus of elasticity in tension

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

GOST 9625-2013 Laminated glued wood. Methods for determination of ultimate 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 14614-79 Plywood plus. Specifications

GOST 18321-73 Statistical quality control. Item random sampling methods

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

GOST 30255-2014 Furniture, wood 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 32155-2013 Wood-based panels and plywood. Determination of formaldehyde release by the gas analysis method

GOST R 53920-2010 Laminated plywood. Specifications

STO 52654419-001-2018 General-purpose plywood with birch-veneer face plies. Specifications

STO 52654419-006-2018 Film-faced birch plywood. 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 CLASSIFICATION AND DIMENSIONS

3.1 By the degree of water resistance of the adhesive joint, SVEZA COLOR plywood is manufactured as plywood of Type EXT / FSF with the higher water resistance of the adhesive joint; it is glued by using phenol-formaldehyde adhesives and intended for internal and external use.

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

3.2 Depending on surface appearance, SVEZA COLOR plywood is divided into grades 1, and 2.

3.3 Depending on film color, SVEZA COLOR plywood can be of different shades, for example: white (WHITE), stone grey (STONE GREY) and others;

3.4 Depending on type and method of coating, SVEZA COLOR plywood is subdivided by surface types:

- F – smooth surface;
- W – surface with wire-mesh pattern;
- UN (UNCOATED) – uncoated surface;
- H – surface with a "HEXA" pattern (regular hexagon).

Notes:

1. A combination of surface types is possible.
2. When placing orders and by marking bundles of SVEZA COLOR plywood, the quality of the uncoated panel side is specified as grade by surface appearance according to STO 52654419-001.
3. On SVEZA COLOR plywood of grade 1/2 and surface type F/W and F/H, grade 2 always refers to side F.
4. By assembling SVEZA COLOR F/W and F/H plywood, the surface with the wire-mesh pattern shall be upwards.

3.5 Dimensions

3.5.1 The length and width of SVEZA COLOR plywood panels will correspond to those specified in Table 1.

Table 1

In millimeters

Length (width) of plywood panels	Tolerance
1220, 1250	± 3.0
1500, 1525	± 4.0
2440, 2500	± 4.0
3000, 3050	± 5.0

Notes:

1. It is permitted to produce SVEZA COLOR plywood with other dimensions and tolerances by agreement between the manufacturer and the client.
2. The length of SVEZA COLOR plywood panel is determined along the woodgrain direction of the outer layers

3.5.2 The thickness of SVEZA COLOR plywood will correspond to that specified in Table 2.

Table 2

In millimeters

Nominal thickness of plywood	Number of layers, min	Thickness tolerance	Thickness variation within one panel, not more than
6	5	± 0.3	0.2
6.5	5		
8	6 and 7		
9	7		
10	7 and 8		
12	9		
15	11		
18	13		
21	15		
24	17		
27	19	± 0.5	0.2
30	21		
35	25		
40	28 and 29		

Note: It is permitted to produce SVEZA COLOR plywood of other thicknesses, number of layer and thickness tolerances by agreement between the manufacturer and the client

3.5.3 SVEZA COLOR plywood panels shall be sawed at right angle.

When using the control method according to clause 6.4.1, the deviation from squareness shall not exceed 1 mm per 1 m of the panel edge length.

When using the control method according to clause 6.4.2, the difference between the diagonal lengths shall not exceed 1 mm per 1 m of the long side of the panel.

3.5.4 The deviation from the edge straightness of SVEZA COLOR plywood shall not exceed 1mm per 1m of the panel edge length.

3.6 The designation of SVEZA COLOR plywood shall include:

- product name with indication of wood species;
- trademark or type;
- grade;
- surface type;
- coating color;
- emission level;
- dimensions;
- film type;
- reference to this document.

Example of marking of film faced birch plywood SVEZA COLOR WHITE, EXT/FSF type, grade 1/1, with a smooth surface on both sides, emission level E1, 2440 mm long, 1220 mm wide, 12 mm thick, coated with WHITE 205/205 film of white color:

*Film Faced Birch Plywood SVEZA COLOR WHITE,
EXT / FSF, 1/1, F / F, E1, 2440 x 1220 x 12, WHT 205/205
STO 52654419-007-2022*

Example of marking of SVEZA COLOR HEXA STONE GREY film faced birch plywood, EXT / FSF type, grade 1/1, with a smooth surface type on one side and with HEXA surface on the other side, emission level E1, 2500 mm long, 1250 mm wide, 18 mm thick, coated with STONE GREY color film:

*Film Faced Birch Plywood SVEZA COLOR HEXA STONE GREY,
EXT / FSF, 1/1, F / H, E1, 2500 x 1250 x 18, HEXA STONE GREY
STO 52654419-007-2022*

4 TECHNICAL REQUIREMENTS

4.1 Characteristics

4.1.1 For manufacturing SVEZA COLOR plywood, general-purpose plywood with outer and inner layers of birch veneer made according to STO 52654419-001-2018, of EXT / FSF type, sanded, min. WGE (III) grade is used.

The veneer thickness used for the outer and inner layers of SVEZA COLOR plywood shall not exceed 2 mm.

4.1.2 To coat the outer surface of SVEZA COLOR plywood, paper impregnated with synthetic resins (hereinafter referred to as the lamination or film) is used.

4.1.3 By agreement between the manufacturer and the client, the edges of SVEZA COLOR plywood can be painted to protect them against moisture ingress.

The color of the edge protection shall imitate the colors of the main film.

4.1.4 Depending on the quality of the surface, SVEZA COLOR plywood shall be manufactured of the following grades: 1/1; 1/2; 2/2.

The surface appearance of SVEZA COLOR plywood shall comply with the standards described in Appendix A.

Terms and definitions of machining defects are given in Appendix B.

4.2. The formaldehyde content in plywood and the formaldehyde emission from SVEZA COLOR plywood into the room air shall correspond to that specified in Table 3.

T a b l e 3

Emission level	Formaldehyde content per 100 g of absolutely dry weight of plywood (perforator method), mg	Emission of formaldehyde	
		Chamber method, mg/m ³ of air	Gas analysis method, mg/m ² *h
E 0.5	up to 4.0	up to 0.01	up to 1.5
E1	over 4.0 up to 8.0	over 0.01 up to 0.124	over 1.5 up to 3.5 or less than 5.0 within 3 days after production

4.3 The performance characteristics of SVEZA COLOR plywood are given in Tables 4 and 5.

T a b l e 4

Parameter	Thick-ness, mm	Physical and mechanical value
1 Moisture content, in %	6 – 40	5 – 12
2 Ultimate bending strength: - along the grains of outer veneer, MPa, min - across the grains of outer veneer, MPa, min	9 – 40	60 30
3 Modulus of elasticity at bending: - along the grains, MPa, min - across the grains, MPa, min	9 – 40	6000 3000
4 Ultimate tensile strength along the grains of the outer veneer, MPa, min	6 – 6.5	30
5 Strength of lamination-to-veneer adhesion	6 – 40	The lamination shall not flake off at the point of intersection of the two notch lines.
6 Steam resistance of lamination	6 – 40	No swelling. Slight loss of gloss. No bubbles.
7 Lamination resistance to sodium hydroxide (NaOH)	6 – 40	The solution color the after the test (NaOH) is from light yellow to colorless.
8 Water resistance of lamination	6 – 40	Stains and swelling are not allowed
9 Surface waviness of SVEZA COLOR plywood (ripping test)	6 – 40	Average beam length is no more than 20 mm

Parameter	Thick-ness, mm	Physical and mechanical value
10 Resistance of lamination to hydrochloric acid (HCl) – for melamine films	6 – 40	Slight gloss variations are permitted. The lamination is solid and not subject to mechanical stress.
<p>Notes:</p> <ol style="list-style-type: none"> Parameters from items (4-10) are chosen by agreement between the manufacturer and the client. Based on practical requirements of clients, it is possible to apply other test methods to assess the suitability of SVEZA COLOR plywood for its intended end use. 		

Table 5

Mean shear strength, Mpa	Wood failure, %
Over 0.2 up to 0.4	Min 80
Over 0.4 up to 0.6	Min 60
Over 0.6 but less than 1.0	Min 40
1.0 or more	-
<p>Notes:</p> <ol style="list-style-type: none"> SVEZA COLOR plywood test pieces are pre-treated before testing by one of the following ways: <ol style="list-style-type: none"> boiling in water for 1 hour; boiling in water for 6 hours; boiling in water for 4 hours, drying in a ventilated cabinet at a temperature of $(60 \pm 3) ^\circ\text{C}$ for (16-20) hours, repeated soak in boiling water for 4 hours, cooling in water at a temperature of $(20 \pm 3) ^\circ\text{C}$ for 1 hour; boiling for (72 ± 1) hours, cooling in water at a temperature of $(20 \pm 3) ^\circ\text{C}$ for 1 hour – once a quarter; soaking for 24 hours in water at $(20 \pm 3) ^\circ\text{C}$ - once a quarter. Pre-treatment methods 1.3-1.5 are used in case of testing new resins. The method of test pieces pre-treatment is selected by agreement between the manufacturer and the client. The percentage of wood failure is determined visually. Shear tests are done for different glue-lines by agreement between the manufacturer and the client. 	

4.4 SVEZA COLOR plywood is accounted in cubic meters. The volume of one panel is calculated without round-up. A bundle and a batch volume of SVEZA COLOR plywood is calculated with an accuracy of 0.001 m^3 . The area of SVEZA COLOR plywood panel is given with an accuracy to 0.01 m^2 , the area of panels in a batch – with an accuracy of 0.5 m^2 .

4.5 Edge marking is applied with indelible paint on each panel of SVEZA COLOR plywood, no marking is applied onto the panel's face.

The marking shall include:

- plywood brand name SVEZA COLOR;
- plywood grade;

- short designation of product in accordance with the Declaration of Performance according to [10] (by agreement between the manufacturer and the client);
- manufacturer (number or name);
- thickness and / or sorter number.

It is allowed to apply one stamp per (1-3) panels on SVEZA COLOR plywood with a thickness of 6 to 9 mm.

If agreed between the manufacturer and the client:

- SVEZA COLOR plywood panels can have no edge marking;
- additional information can be added to the mandatory marking.

4.6 SVEZA COLOR plywood stacking into bundles

SVEZA COLOR plywood shall be stacked in bundles with a height of 400, 600, or 900 mm separately by grade, surface type, dimensions, thickness, and film type.

By agreement between the manufacturer and the client, it is permitted to pack SVEZA COLOR plywood in bundles of different height.

4.7 Packaging and marking of finished bundles of SVEZA COLOR plywood.

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

To avoid warping of panels, SVEZA COLOR plywood with a thickness of up to 15 mm shall be packed on a substrate panel with a minimum thickness of 18 mm.

The main methods and types of packaging are regulated by SVEZA-Les LLC. By agreement between the manufacturer and the client, other methods and types of SVEZA COLOR plywood packaging are possible.

4.7.2 Packaged bundles of SVEZA COLOR plywood shall be marked with self-adhesive A3 labels (378x264 mm).

The information is printed in Russian and / or English, and the labels are placed on two side plates parallel or perpendicular to each other. The content of the labels on both sides is the same:

- trademark;
- product name - Film Faced Birch Plywood SVEZA COLOR
- geometric dimensions, thickness of SVEZA COLOR plywood and thickness tolerances (if necessary);
- SVEZA COLOR plywood grade and surface type;
- SVEZA COLOR plywood trademark;
- type of film;
- number of panels in a bundle;
- shift;
- SVEZA COLOR plywood production date;
- emission level;
- order number for special requirements (applied by agreement between the manufacturer and the client);
- reference to the standard or regulation according to which SVEZA COLOR plywood is manufactured;
- manufacturer's name and address;

- certification marks and technical inspection mark;
- handling signs: keep dry and use no hooks;
- bar code - if there is a data collection terminal (scanner).

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

4.8 The directions of use of SVEZA COLOR plywood are specified in Appendix C.

5 ACCEPTANCE RULES

5.1 SVEZA COLOR plywood shall be accepted in batches.

A batch is a certain number of SVEZA COLOR plywood panels of the same grade, surface type, film type and dimensions.

The batch shall be registered in one document containing:

- trademark;
- manufacturer's name and address;
- SVEZA COLOR plywood designation;
- batch size;
- reference to the regulatory document that SVEZA COLOR plywood complies with.

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

Table 6

In pieces

Batch size	Controlled parameter for items			
	3.5.1; 3.5.2; 3.5.3; 3.5.4		4.1.4	
	Volume of sampling	Acceptance number	Volume of sampling	Acceptance number
To 500	8	1	13	1
501 to 1200	13	1	20	2
1201 to 3200	13	1	32	3
3201 to 10,000	20	2	32	3

Determination of the sample size for items (4 – 10) of Table 4 is to be agreed between the manufacturer and the client.

5.3 Moisture content, ultimate shear strength, ultimate bending strength and modulus of elasticity at bending along and across the grains of the outer layers, are tested for each thickness and number of layers of SVEZA COLOR plywood not less than once a month.

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

5.4 To control the formaldehyde release, one panel of SVEZA COLOR plywood is tested from any sample size.

The formaldehyde release is monitored no less than once every 30 days, as well as when the resin and / or glue formulation is changed.

5.5 The need for tests, their frequency and scope of control for items (4-10) of Table 4 shall be agreed between the manufacturer and the client.

5.6. The results of formaldehyde release tests and physical and mechanical tests of a batch of plywood manufactured according to STO 52654419-001 may be applied to SVEZA COLOR plywood manufactured from the same batch.

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

- the number of SVEZA COLOR plywood panels that do not meet the requirements of this standard in terms of dimensions, squareness, edge straightness, manufacturing 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;
- formaldehyde emission complies with the standards set in Table 3.

6 CONTROL METHODS

6.1 Sampling - according to GOST 9620, GOST 27678, GOST 30255, GOST 32155 [1] - [2].

6.2 The length and width of SVEZA COLOR 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 of two measurements results is taken as the actual length (width) of the panel.

6.3 The thickness is measured at a distance of min 25 mm from the edge in the middle of each side of the panel.

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

The following instrumentation is used to measure the panel 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 variation in one panel of SVEZA COLOR plywood is determined as the difference between the largest and the smallest thickness of four dimensions.

6.4 SVEZA COLOR plywood panel squareness

6.4.1 The squareness of SVEZA COLOR plywood panel is measured according to GOST 30427. The squareness is measured with a checking square as per GOST 3749. The squareness is determined by measuring the maximum deflection of the panel edge from the surface of the reference square by using a metal ruler according to GOST 427 with an accuracy to 1 mm.

6.4.2 It is allowed to check the squareness by measuring difference of the lengths of the panel diagonals, measured by a metal tape measure according to GOST 7502 with a graduation value of 1mm.

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

6.6 Warping is determined according to GOST 30427.

6.7 Moisture content is determined according to GOST 9621, [3].

6.8 Ultimate shear strength of the glue line is determined according to GOST 9624, [4].

6.9 Ultimate bending strength and modulus of elasticity at bending are tested according to GOST 9625, [5].

6.10 Ultimate tensile strength along the grains is tested according to GOST 9622.

6.11 Machining defects are measured according to GOST 30427.

6.12 Strength of lamination-to-veneer adhesion – according to GOST 14614.

6.13 Steam resistance of lamination – according to GOST R 53920.

6.14 Lamination resistance to sodium hydroxide (NaOH) – according to GOST R 53920.

6.15 Water resistance of the lamination – according to GOST 14614.

6.16 Surface waviness of SVEZA COLOR plywood, (Ripping test) is done in accordance with Appendix D.

6.17 Resistance of the lamination to hydrochloric acid (HCl) (for melamine films) is done in accordance with Appendix E.

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

7 TRANSPORTATION AND STORAGE

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

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

7.3 To avoid warping of panels, SVEZA COLOR plywood with a thickness of up to 15 mm shall be packed on a substrate panel with a min thickness of 18 mm.

7.4 Storage of SVEZA COLOR plywood

7.4.1 SVEZA COLOR plywood is stored in stacks in packaging in the form of horizontally stacked bundles on pallets and wooden pads / bars located in the same vertical plane and at a distance of 150-250 mm from the bundle edges.

7.4.2 SVEZA COLOR plywood is stored in closed rooms that protect plywood from atmospheric precipitation, at a temperature of minus 40 °C to plus 50 °C and a relative humidity of no more than 80%.

8 MANUFACTURER'S WARRANTIES

The manufacturer guarantees that the quality of SVEZA COLOR plywood complies with the requirements of this standard provided the conditions of transportation and storage are met.

The guaranteed shelf life of SVEZA COLOR EXT / FSF plywood is 5 years from the date of receipt by the client.

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

9 SAFETY AND ENVIRONMENTAL PROTECTION

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

9.2 SVEZA COLOR plywood shall be manufactured using materials and components permitted for their use by the national sanitary and epidemiological authorities.

9.3 Persons who are at least 18 years of age and have no medical contraindications are allowed to produce SVEZA COLOR plywood. Medical examinations are carried out in accordance with the current orders of the Ministry of Health of the Russian Federation.

9.4 Persons involved in the production of SVEZA COLOR plywood shall be provided with personal protective equipment in accordance with GOST 12.4.011.

9.5 The value of the specific activity of cesium 137 in SVEZA COLOR plywood shall not exceed the hygienic standards established in the requirements [9].

9.6 The composition of standard SVEZA COLOR plywood does not contain raw products, materials, and components classified as hazardous waste.

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

10 RECOMMENDATIONS FOR USE

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

10.2 Insignificant deviation in thickness of SVEZA COLOR plywood is allowed under the influence of moist air during transportation along the edge at a distance of up to 50 mm from the edge.

10.3 Sawing of SVEZA COLOR plywood

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

In order to obtain a clean cut, sawing shall be carried out correctly: first, sawing is performed across the direction of the grains of the front side, then along. This

method allows avoiding splitting of 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 recommended.

In case of sawing, to prevent moisture absorption, the ends of SVEZA COLOR plywood shall be treated with special types of acrylic waterborne paint or other sealant.

10.4 Drilling of SVEZA COLOR plywood

To prevent moisture from entering SVEZA COLOR plywood, all holes made during installation shall be filled with waterborne acrylic paint or other sealants, and it is recommended to treat the panel surfaces with a hydrophobic compound.

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

Drilling shall start from the front side. In order to avoid splitting on the back side of the board, it is recommended to use a backing panel.

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

10.5 Rippling is the usual undulating bumps on the surface of SVEZA COLOR, which are up to about 0.8 mm high and of various lengths, due to the wood processing technology and the properties of the wood material. They occur due to the absorption of water by plywood (photo 1).



Photo 1

These phenomena are especially often observed when using SVEZA COLOR plywood in conditions of direct contact with water.

When used indoors, sudden changes in climate during the day and / or seasonal precipitation conditions (for example, spring and autumn months) may also affect the appearance of the rippling effect.

The formation of waviness continues until full saturation with moisture to approximately 28% through cut edges, edges without additional protection with sealants, drilled holes, installed rivets or damage to the lamination invisible to naked-eye inspection (photo 2).

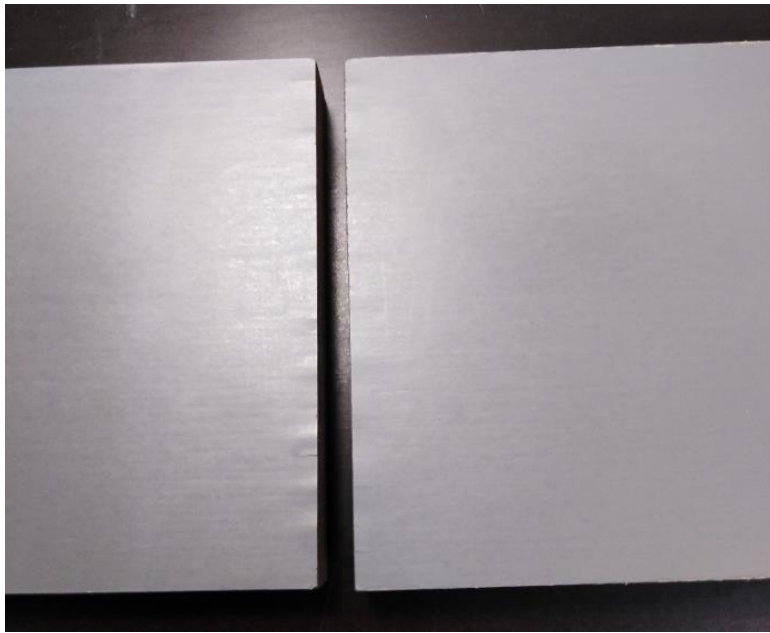


Photo 2

After complete saturation, undulation from the surface of SVEZA COLOR plywood panels almost completely disappears. As a rule, this occurs after (2-3) cycles of plywood contacts with water with drying between each contact.

APPENDIX A
(mandatory)

Manufacturing Defects Limits by Grades of SVEZA COLOR Plywood

Manufacturing defects permitted for the grades of SVEZA COLOR plywood are shown in Table A.1

Table A. 1

Description of defects	Limits for manufacturing defects by grades			
	1	1 (for HEXA surface / web pattern)	2	2 (for HEXA surface / web pattern)
1. Impression of wood grain structure, sound knots, inserts, burrs	Permitted			
2. Film peeling, tears, shedding; missing film	Not permitted		No more than 2% of the panel surface area is allowed, provided that it is coated with a moisture-proof paint of the same color as the color of the main film coating	
3. Temperature stains	Not permitted		Permitted without violating the integrity of the lamination	
4. Film overlaps (folds, wrinkles)	Not permitted		Permitted	
5. Sticking of film fragments (double laminate)	Allowed with a total area of max 60 mm ² of the panel surface area		Permitted	
6a. Burnt film (burnout) from defects of the outer layer: cracks, damage, knot holes	Not permitted		Permitted	
6b. Burnt film (burnout) due to defects of the outer layer: burrs	Not permitted		Permitted	
6c. Burnt film (burnout) due to defects of the outer layer: stripes and spots from sanding	Not permitted		Max 25% of the panel surface area is allowed	
7a. Marks of defects of the inner layer: non-adhering knots, holes	Allowed in the form of spots without damage to the lamination with a size of no more than 20x20 mm, in an amount of no more than 1 pc. / M2		Permitted	

Description of defects	Limits for manufacturing defects by grades			
	1	1 (for HEXA surface / web pattern)	2	2 (for HEXA surface / web pattern)
7b. Marks of defects of the inner layer: open joints, cracks	Permitted without damage to the lamination with a width of no more than 5 mm, a length of no more than 300 mm, in the amount of no more than 1 pc / rm		Permitted	
8. Traces of composed or joint veneers	Permitted without damage to the lamination		Permitted	
9. Streaks and stains left by press plates	Not permitted		Permitted	
10. Film streaks and stains	Not permitted	Not permitted on the panel side of HEXA / web pattern; Permitted on the smooth side of the panel without damage to the lamination	Permitted	
11. * Stripes left by equipment	Max 20% of panels in a bundle are allowed on one side of a plywood panel		Permitted	
12. Local blisters on plywood surface	Not permitted		Permitted with a diameter of max 100 mm in an amount of max 1 pc. / m ²	
13. Veneer pieces glued into the outer layer	Not permitted		Permitted	
14. Press plate imprints	Not permitted		Permitted	
15. Dents	Single ones of no more than 2 mm in size are allowed without damaging the lamination on one side of the panel		Permitted to be no more than 0.5 mm deep without damaging the lamination	
16. Waviness after sanding of the plywood substrate	Not permitted		Permitted	
17. Scratches	Not permitted		Permitted without damage to the lamination	
18. Dark spots of natural origin (insect marks)	Max 1 piece per 1 running meter is allowed with a total area of max 10 mm ² on one side of the panel		Permitted	
19. Defects at the edges and corners of the panel due to sanding or sawing	Permitted up to 1 mm, taking into account the refinement (sanding) when ordering plywood without painted edges. Permitted up to 3 mm, taking into account the refinement (sanding) when ordering plywood with painted edges		Permitted with a length of max 10 mm, provided that they are coated with a waterproof paint	
20. Paint smudges (after edge painting)	Permitted with a width of max 3 mm		Permitted	

Description of defects	Limits for manufacturing defects by grades			
	1	1 (for HEXA surface / web pattern)	2	2 (for HEXA surface / web pattern)
21. Lack of veneer	Not permitted		Permitted along one edge with a depth of max 5 mm	
22. Local veneer delamination in the inner layers of plywood (hidden blisters)	Not permitted			
23. Deviations of the permissible geometric dimensions	Geometric dimensions in accordance with items 3.5.1, 3.5.2, 3.5.3, 3.5.4			
24. Sticking of panels to each other	Not permitted			
25. Deviation of the pattern alignment against the panel edge	Not applicable	Max 3 mm per 1 m of panel edge length is allowed	Not applicable	Permitted
26. Misprint of the pattern structure	Not applicable	Not permitted	Not applicable	Permitted
27. Warpness	In plywood with a thickness of up to 6.5 mm, it is not taken into account, in plywood with a thickness of more than 6.5 mm, it is allowed with a deflection of no more than 20 mm per plywood panel when measured on a horizontal flat surface.			
28. Surplus and fringes of the coating, film displacement and lacking, cracks, tear-outs and delamination of the coating	Not permitted			
Notes: 1. Defects not listed in Appendix A are not permitted; 2. Panels that do not comply with grades 1 and 2 are downgraded to grade 3 according to STO 52654419-006; 3. For the 1st grade coating, the total number of defect types per a panel shall not exceed three; 4. * If a defect from i.11 is detected, the equipment has to be stopped and the defect reason eliminated. 5. The surface quality shall be assessed against the reference sample.				

APPENDIX B
(mandatory)

Terms and definitions of manufacturing defects

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

Table B.1

Name of manufacturing defects	Definition
Impression of wood grain structure, sound knots, patches, burrs	Outlines of sound knots, wood grain structure, inserts on the surface of film faced plywood, burrs, without changing the structure and color of the film coating
Film peeling, tears, shedding; missing film	Film faced plywood surface areas not covered
Temperature stains	Film color change (with disruption of the lamination and / or without disruption) due to premature curing of the film without pressure
Film overlaps (folds, wrinkles)	Local thickening caused by the film overlap on the plywood surface
Wrinkles	A surface defect in the form of a group of alternating longitudinal depressions and protrusions of irregular shape and arbitrary direction (resembling wrinkles or folds), which is formed as a result of improper operation of the film applying station and / or poor-quality film
Sticking of film fragments (double laminate)	Glued film fragments caught on the outer surface of plywood during lamination
Burned films (burnout)	Violation of the film integrity due to defects of the outer layer
Marks due to the inner layer defects	Change in the color of the film or its disruption due to defects of the inner layer
Marks due to veneer composing and jointing	A stripe on the surface of a plywood panel without damage or discoloration of the film, determined visually at different angles
Streaks and stains from press plates	Streaks and stains on the surface of film faced plywood due to contamination of the press plates
Film streaks and stains	Abnormally colored areas of the film faced plywood surface from the release of film volatile substances during pressing
Streaks from equipment	Glossy stripes running along or across the plywood surface as a result of the impact of the equipment transport mechanisms or as a result of control checks of the plywood quality
Local blisters on the plywood surface	Partial peeling of the film from the surface of the film faced plywood
Veneer pieces glued into the outer layer	Veneer particles glued into the outer layer of plywood before lamination
Press plate imprints	Local bulges on the surface of film faced plywood, formed

Name of manufacturing defects	Definition
	due to the presence of defects on the lamination press plates
Dents	Local indentation of the outer layer without damage to the lamination
Waviness after sanding of the plywood substrate	The presence of longitudinal or transverse stripes over the entire surface of the plywood with a uniform spacing
Scratches	Damage to the lamination of film faced plywood in the form of a narrow long recess or local indentation of the outer layer with damage to the lamination
Dark spots of natural origin (insect marks)	Dark spots on the surface are mainly from insects
Defects at the edges and corners of the panel due to sanding or sawing	Defects characterized by the absence of a lamination on the edge of a film faced plywood panel
Paint smudges (when painting the edges)	Paint getting on the face of film-faced plywood panel
Lack of veneer	A defect characterized by the absence of a part of the veneer of the inner layer, except for end knots and cracks
Local veneer delamination in the inner layers of plywood (hidden blisters)	Separation of two adjacent veneer layers by the adhesive layer
Deviations of the permissible geometric dimensions	The geometric dimensions of plywood are larger or smaller than the permissible dimensions and their tolerances.
Sticking of panels to each other	Persistent adhesion of film-faced plywood panels to each other along the face caused by paint smudges
Deviation of the pattern alignment against the panel edge	The defect relates to HEXA coated plywood, deviation of the hexagonal pattern along the plywood edge line
Misprint of the pattern structure	The defect relates to HEXA- / web pattern-coated plywood, non-printing (abrasion) of the hexagonal pattern, web
Warpness	Plywood panel plane deviation exceeding the values
Surplus and fringes of the coating, film displacement and lacking, cracks, tear-outs and delamination of the coating	Process exceeding the size of the cured film format over the dimensions of the base plywood, shortcoming film on the edges of the slabs

APPENDIX C
(mandatory)

Intended applications of SVEZA COLOR plywood

The intended applications of SVEZA COLOR plywood are given in Table B.1

Table B.1

Intended application	Element purpose	Note
Light commercial vehicles	Open elements of wall sheeting of trailers, boggies, bodies	For additional protection against the effects of water after cutting, elements and parts require edge protection (painting, protection with sealants, etc.)
Buses	Open elements of cabins, luggage compartments	
Boats, speedboats, ships, etc.	Open elements of the wall sheeting of cabins and other premises of ships. Open elements of inflatable boats and boats – transoms, seats, decks, rack decks, floorboards, slides	
Concert equipment package	External and internal elements of cases, trunks, suitcases, boxes	
Interiors	Finishing material for residential and public premises	
Other	Furniture elements for residential and public premises. Structural elements for outdoor use all year round, subject to additional processing of technical holes and / or structural joints and compliance with the rules of operation under aggressive exposure to sunlight, rain, snow and temperature differences from plus 40 °C to minus 50 °C (for playgrounds, benches, etc.)	

APPENDIX D

(mandatory)

SVEZA COLOR plywood surface waviness method (ripping test)

The following is used for testing:

- drill with a diameter of 1 mm;
- aluminum tape, waterborne acrylic paint, wax.

2 samples of SVEZA COLOR plywood with the size of 100x100 mm are taken for the test. It is allowed to use other dimensions of the samples, provided that the dimensions will not affect the test result. Both sides of the sample (top and bottom) shall be tested. No sample conditioning is required. Before testing, the ends of the samples are sealed with aluminum tape, paint or wax.

Testing and evaluation of results

1. On the surface of SVEZA COLOR plywood samples, punctures are made with a drill to the depth of the thickness of the lamination and outer layer of plywood in the amount of 9 pieces according to Figure 1.

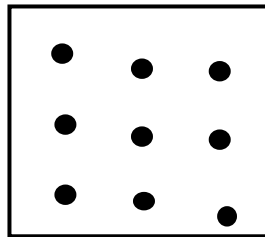


Figure 1

2. Samples with punctures are covered with a damp cloth and left for 2 hours, periodically wetting the cloth.

3. The test surface is subjected to visual inspection and measurements of waviness (rays) at the punctures using a measuring ruler or a tape measure according to GOST 7502.

The test result is the arithmetic mean of the results of 9 measurements.

APPENDIX E
(mandatory)

**Lamination resistance determination method
hydrochloric acid (HCl) – for melamine films**

The following is used for testing:

- glass cap or weighing bottle with a diameter of (30-40) mm;
- 5% HCl solution;
- a pipette;
- timer;
- ash-free filters.

2 samples of SVEZA COLOR plywood with the size of 100x100 mm are taken for the test. It is allowed to use other dimensions of the samples, provided that the dimensions will not affect the test result. Both sides of the sample (top and bottom) shall be tested. No sample conditioning is required. Before testing, the samples are kept for at no less than 24 hours. The sample temperature shall not exceed 20 °C.

Testing and evaluation of results

1. Take a 5% HCl solution into a pipette, pour it onto the sample, cover the poured solution with a glass cap and record the time.

2. After 20 minutes, the glass cap is removed, the residues of the HCl solution are removed from the surface of the sample with filter paper (ash-free filters).

3. Having scratched the sample with a sharp object, perform a visual inspection.

Note: This test can be made at the production site of plywood veneering, after its cooling (express test). In this case, a 4-normal HCl solution is used with a holding time of 20 minutes.

4. The lamination resistance to hydrochloric acid is assessed on a three-point scale according to the change in the structure of the tested surface in accordance with Table E.1.

Table E.1

Obtained result	Surface change assessment
1. Film re-curing	No gloss variation, firm lamination.
2. Full (normal) curing of the film	Slight gloss variation, the lamination is firm and not subject to mechanical stress.
3. Complete undercuring of the film	Lack of gloss and leaching of resin, softening and swelling of the surface, the film detaches of the veneer, the film peels off after scratching.

Bibliography

- [1] DIN EN ISO 12460-3 Wood-based materials – Determination of formaldehyde release. Part 3. Gas analysis method
- [2] EN 326-1-1994 Wood slabs. Sampling, cutting and inspection. Part 1: Sampling and cutting of test pieces and expression of test results
- [3] EN 322:1993 Wood materials. Determination of moisture content
- [4] EN 314-1:2004 Plywood. Bonding quality. Part 1. Test methods
- [5] EN 310:1993 Wood slabs. 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 levels of exposure (SRLI) 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 levels of exposure (SRLI) 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
- [10] DIN EN 13986 Wood-based panels for use in construction
(German edition of EN 13986-2004 + A1-2015)
Characteristics, evaluation of conformity and marking

UDC 674-415: 006.354

MKS 79.060.10

OKPD 2 16.21.12.113

Keywords: company standard, SVEZA COLOR laminated birch plywood, dimensions, technical requirements, packaging, marking, control methods, transportation, storage, guarantee.

Originator
LLC SVEZA-Les

Head of Developer:
General director
LLC SVEZA-Les

_____ A.S. Frishman

Development Lead:
Technology development and quality
assurance area manager
LLC SVEZA-Les

_____ O.R. Kukut

Responsible
Head of quality department
SVEZA Ural'skiy NAO

_____ E.B. Vershinina