LIMITED LIABILITY COMPANY SVEZA-Les

COMPANY STANDARD

FILM-FACED BIRCH PLYWOOD
Technical Specifications

STO 52654419-006-2024

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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FILM-FACED BIRCH PLYWOOD
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RUS: Фанера березовая ламинированная
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 increased water resistance, faced with film based on thermosetting resins (hereinafter referred to as film-faced birch plywood) and intended for use in building structures and transport engineering.

This standard may be applied by manufacturing film-faced birch plywood with the trade names SVEZA Deck 350, SVEZA PAINT, SVEZA TITAN, and SVEZA HEXA.

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 Metal measuring 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 9622-2016 Glued laminated wood. Methods for determination of ultimate strength and modulus of elasticity in tension

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

GOST 9625-2013 Laminated glued wood. Method 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 14614-79 Decorative plywood. Technical Specifications

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

GOST 27820-88 Elements, products of wood and wooden materials. Method for determining resistance to wear of protective and decorative coatings

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 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

GOST R 53920-2010 Veneered plywood. Technical Specifications

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:

Birch plywood for general use – plywood with outer layers of birch veneer and inner layers of birch or other hardwood veneers.

Film-faced birch plywood – plywood with outer layers of birch veneer and inner layers of birch or other hardwood veneers lined with a film based on thermosetting polymers.

Wooden bar - lumber of coniferous or hardwood with a square or rectangular cross-section.

SVEZA Deck 350 plywood – birch plywood faced with film with SVEZA Deck 350/СВЕЗА Дэк 350 logo and layout grid which makes cutting more convenient. Special product for use in civil construction (formwork).

SVEZA PAINT plywood – birch plywood faced with film for further painting.

SVEZA TITAN plywood – birch plywood faced with a film of higher tear-resistance due to corundum crystals included into the paper impregnation compound.

SVEZA HEXA plywood - birch plywood faced with a hexagon pattern film to be used for flooring in light commercial vehicles.

SHOP – film-faced birch plywood with conditional transverse or longitudinal cut up to 300 mm along one edge, panel volume corresponds to that of a full-size panel but with a reduced usable area. The SHOP (conventional cut) area may include defects

listed in Appendix A to this standard, as well as other defects not listed therein. No deviation from squareness and veneer delamination are allowed in the SHOP zone.

4 CLASSIFICATION AND DIMENSIONS

4.1 Depending on the water resistance degree of glue bond, film-faced birch plywood belongs to EXT/FSF type. This plywood with increased water resistance of glue bond is manufactured by using phenol-formaldehyde adhesives and intended both for indoor and outdoor use.

Note: Film-faced birch plywood belongs to the EXT formaldehyde emission group.

4.2 Film-faced birch plywood is divided into grades 1, 2, and 3 depending on its surface appearance.

4.3 Depending on the kind and method of the coating applied, film-faced birch plywood is divided by surface types:

— F – smooth surface;

— W – wire-mesh pattern surface;

— SP – surface with film for further painting;

— UN (UNCOATED) – surface without film-facing.

Notes:

1. Surface types may be combined.

2. By creating orders for film-faced birch plywood and by the stacks labeling, the designation of the face veneer grade is indicated according to STO 52654419-001 for a surface without a film coating.

3. For film-faced birch plywood of grade 1/2 and the surface type F/W, grade 2 always refers to side F.

4.4 Dimensions

4.4.1 Length and width of film-faced birch plywood panels must be as shown in Table 1 below.

Table 1

In millimeters

Length (width) of a panel	Tolerance
1,220/1,250	± 3.0
1,500/1,525	± 4.0
2,440/2,500	± 4.0
3,000/3,050	± 5.0
Notes: 1. Film-faced birch plywood may be manufactured with other dimensions and tolerances as agreed between the manufacturer and the customer 2. Panel length of film-faced birch plywood is measured along the grain of the face veneers	

4.4.2 Film-faced birch plywood thickness must be as shown in Table 2 below.

Table 2

In millimeters

Nominal thickness, mm	Number of plies	Tolerance on nominal thickness, mm	Thickness tolerance within one panel, max mm
6	5	+ 0.4 - 0.5	0.6
6.5	5	+ 0.4 - 0.5	
8	6 and 7	+ 0.4 - 0.5	
9	7	+ 0.4 - 0.6	
10	7 and 8	+ 0.5 - 0.6	
12	9	+ 0.5 - 0.7	
15	11	+ 0.6 - 0.8	
18	13	+ 0.7 - 0.9	
21	15	0.0 - 1.1	
24	17	0.0 - 1.5	
27	19	0.0 - 1.8	
30	21	0.0 - 2.0	
35	25	0.0 - 2.0	
40	28 and 29	+ 1.2 - 1.2	
Notes: 1. Film-faced birch plywood may be manufactured with other thicknesses, number of plies, and tolerances as agreed between the manufacturer and the customer.			

4.4.3 Film-faced birch plywood panels must be cut square.

Tolerance for squareness must not exceed 1 mm per 1 m of the panel edge length when controlled according to 7.4.1.

Difference in the diagonal lengths must not exceed 1 mm per 1 m of the panel edge length when controlled according to 7.4.2.

4.4.4 Tolerance for straightness of edges for film-faced birch plywood edges must not exceed 1 mm per 1 m of the panel edge length.

4.4.5 The deviation from the straightness of the marking grid lines relative to the panel edge (for SVEZA Deck 350 plywood) should not exceed 2 mm per 1 m of the panel edge length, the maximum deviation should not exceed 4 mm.

4.5 The designation of film-faced birch plywood must include the following information:

— product name with indication of wood species;
— type;
— grade;
— surface type;
— emission class;
— dimensions;
— type of film;
— reference to this standard.

4.5.1 Example of reference designation for film-faced birch plywood of the EXT/FSF type, 1/1 grade, with a smooth surface (both sides), E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and DB 120/120 film type:

Фанера березовая ламинированная / Film Faced Birch Plywood
EXT / ФСФ, 1/1, F/F, E1, 2440x1220x18, DB 120/120
СТО 52654419-006-2024

4.5.2 Example of reference designation for SVEZA Deck 350 plywood of the EXT/FSF type, 1/1 grade, with a smooth surface on both sides, E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and Deck 350/Deck 350 film type:

Фанера SVEZA Deck 350 / Plywood SVEZA Deck 350
EXT / ФСФ, 1/1, F/F, E1, 2440x1220x18, Deck 350 / Deck 350
СТО 52654419-006-2024

4.5.3 Example of reference designation for SVEZA PAINT plywood of the EXT/FSF type, 1/1 grade, with a film coating for further painting (both sides), E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and TXP KRAFT 214/TXP KRAFT 214 film type:

Фанера SVEZA PAINT / Plywood SVEZA PAINT
EXT / ФСФ, 1/1, SP/SP, E1, 2440x1220x18, TXP KRAFT 214/ TXP KRAFT 214
СТО 52654419-006-2024

4.5.4 Example of reference designation for SVEZA TITAN plywood of the EXT/FSF type, 1/1 grade, with a smooth surface on one side and a wire-mesh pattern

surface on the other, E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and DB 120/TPS 422 film type:

Фанера SVEZA TITAN / Plywood SVEZA TITAN
EXT / ФСФ, 1/1, F/W, E1, 2440x1220x18, DB 120 / TPS 422
СТО 52654419-006-2024

4.5.5 Example of reference designation for SVEZA HEXA plywood of the EXT/FSF type, 1/1 grade, with a smooth surface on one side and a wire-mesh pattern surface on the other side, E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and DB 120/TPS 422 film type:

Фанера SVEZA HEXA / Plywood SVEZA HEXA
EXT / ФСФ, 1/1, F/W, E1, 2440x1220x18, DB 120 / TPS 422
СТО 52654419-006-2024

4.5.6 Example of reference designation for film-faced birch plywood with inner plies of aspen veneer of the EXT/FSF type, As 1/1 grade, with a smooth surface (both sides), E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and DB 120/120 film type:

Фанера березовая ламинированная / Film Faced Birch Plywood
EXT / ФСФ, As 1/1, F/F, E1, 2440x1220x18, DB 120/120
СТО 52654419-006-2024

4.5.7 Example of reference designation for SVEZA Deck 350 with inner plies of aspen veneer of the EXT/FSF type, As 1/1 grade, with a smooth surface (both sides), E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and Deck 350/Deck 350 film type:

Фанера SVEZA Deck 350 / Plywood SVEZA Deck 350
EXT / ФСФ, As 1/1, F/F, E1, 2440x1220x18, Deck 350 / Deck 350
СТО 52654419-006-2024

4.5.8 Example of reference designation for SVEZA PAINT plywood with inner plies of aspen veneer of the EXT/FSF type, As 1/1 grade, with a film coating for further painting (both sides), E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and TXP KRAFT 214/TXP KRAFT 214 film type:

Фанера SVEZA PAINT / Plywood SVEZA PAINT
EXT / ФСФ, As 1/1, SP/SP, E1, 2440x1220x18, TXP KRAFT 214/ TXP KRAFT 214
СТО 52654419-006-2024

4.5.9 Example of reference designation for SVEZA TITAN plywood with inner plies of aspen veneer of the EXT/FSF type, *As* 1/1 grade, with a smooth surface on one

side and a wire-mesh pattern surface on the other, E1 emission class, 2,440 mm length, 1,220 mm width, 18 mm thickness, and DB 120/TPS 422 film type:

Фанера SVEZA TITAN / Plywood SVEZA TITAN
EXT / ФСФ, As 1/1, F/W, E1, 2440x1220x18, DB 120 / TPS 422
СТО 52654419-006-2024

4.5.10 Example of reference designation for SVEZA HEXA plywood with inner plies of aspen veneer of EXT/FSF type, *As* 1/1 grade, with a smooth surface on one side and a wire-mesh pattern surface on the other side, emission class E1, length – 2440 mm, width – 1220 mm, thickness – 18 mm, with DB 120 / TPS 422 type of film:

Фанера SVEZA HEXA / Plywood SVEZA HEXA
EXT / ФСФ, As 1/1, F/W, E1, 2440x1220x18, DB 120 / TPS 422
СТО 52654419-006-2024

5 TECHNICAL REQUIREMENTS

5.1 Characteristics

5.1.1 Birch plywood is used in the manufacture of film-faced birch plywood of the EXT/FSF type, sanded, and graded WGE (III) or higher, per STO-52654419-001.

5.1.2 To coat the outer face of film-faced birch plywood, a paper impregnated with synthetic resins is used (hereinafter face coating or film).

5.1.3 To protect against moisture absorption, film-faced birch plywood butt ends are coated with an acrylic water dispersion paint.

5.1.4 Film-faced plywood is fabricated in grades depending on the appearance quality of the surface as follows: 1/1, 1/2, 2/2, 3/3.

Note: For film-faced birch plywood with inner plies of another hardwood veneer, the grade designation is preceded by two first letters from the Latin name of the hardwood species used (for example, if aspen veneer is used for inner plies, the grade designation is preceded by *As* (Aspen)).

Film-faced birch plywood surface appearance must comply with the requirements set forth in Appendix A.

For terms and definitions of processing defects, see Appendix B.

5.2 Formaldehyde content of plywood and formaldehyde release from film-faced birch plywood into the room air must comply with the value specified in Table 3.

Table 3

Emission class	Formaldehyde content	Formaldehyde release	
	Perforator method, mg/100g of oven dry board	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 production

5.3 For the physical and mechanical properties of film-faced birch plywood, see Tables 4 and 5.

Table 4

Performance characteristics	Thickness, mm	Values
1 Moisture content, %	6-40	5-12
2 Bending strength: - in length direction, MPa, min. - in width direction, MPa, min.	9-40	 60 30
3 Modulus of elasticity at bending: - in length direction, MPa, min - in width direction, MPa, min	9-40	 7000 3000
4 Tensile strength in length direction, MPa, min	6-6.5	30
5 Adhesion strength of coating	6-40	The coating peels off together with the outer veneer and the cut has sharp edges. A layer of wood fibers can be clearly seen on the underside of the cut edges
6 Steam resistance of film coating	6-40	No swelling. Slight loss of gloss. No bubbles.
7 Resistance of film coating to sodium hydroxide (NaOH)	6-40	The color of the solution is from colorless to light yellow. Slight gloss variation, the film coating is firm and resistant to mechanical stress, a mark from the bottle neck can be seen
8 Resistance of film coating against concrete	6-40	No staining of the concrete. No gloss variation, film coating is firm
9 Film coating resistance to abrasion (Taber-test), on wiremesh pattern facing (W), revolutions, not less	6-40	350

10 Film coating resistance to cracking	6-40	Crack index not exceeding 80
11 Water permeability of film coating (Cobb test), g/m2, not more: - SVEZA Deck 350; - other types of films	6-40	 400

Table 5

Average value of shear strength through adhesive layer (MPa)	Percentage of destruction in wood
Above 0.2 up to 0.4 inclusively	Greater than or equal to 80
Above 0.4 up to 0.6 inclusively	Greater than or equal to 60
Greater than 0.6 but less than 1.0	Greater than or equal to 40
1.0 and more	-

Notes:
1 Film-faced birch plywood shall be prepared for testing using one of these methods:
1.1 boiling in water for 1 hour;
1.2 boiling in water for 6 hours;
1.3 boiling in water for 4 hours, drying in a vented cabinet at (60 ± 3) °C temperature for (16–20) hours, repeated soaking in boiling water for 4 hours and cooling in (20 ± 3) °C water for 1 hour;
1.4 boiling in water for (72 ± 1) hours, cooling in (20 ± 3) °C water for 1 hour - once every 3 months;
1.5 soaking in water at a temperature of (20 ± 3) °C for 24 hours, once quarterly.
Methods 1.3, 1.4, and 1.5 are used to prepare film-faced birch plywood for new resins testing.
The method of preparing samples shall be selected by agreement of the manufacturer with the customer.
2 Percentage of destruction in wood is determined visually
3 The shear test shall be performed in various adhesive layers by agreement between the manufacturer and customer

5.4 Film-faced birch plywood stock is recorded in cubic meters. One panel's volume is calculated without regard to rounding. The volume of assembled film-faced birch plywood stacks and batches is calculated with 0.001 m^3 accuracy. The area of a single film-faced birch plywood panel is calculated with 0.01 m^2 accuracy, and the area of panels in a batch is calculated with 0.5 m^2 accuracy.

5.5 Marking is applied with indelible paint on the edge or on the surface (faced side only) of each film-faced birch plywood panel.

The marking applied automatically onto an edge or face shall contain the following information:

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

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

- manufacturer (number);
- shift;
- date.

It is allowed to apply one stamp on (1-3) panels on film-faced birch plywood with thickness of 6 to 9 mm.

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 film-faced birch plywood

Film-faced birch plywood must be packed in 400, 600, or 900 mm high stacks, separated by grades, surface types, sizes, thicknesses, and film types.

Film-faced birch plywood may be packed in stacks of a height other than that specified upon agreement between the manufacturer and the customer.

5.7 Packing and labeling ready stacks of film-faced birch plywood

5.7.1 Packing for film-faced birch plywood stacks shall ensure their integrity and preserve the stacks during transport.

Main packing methods and types are regulated by LLC SVEZA-Les. Other types and methods of packing film-faced birch plywood may be used upon agreement between the manufacturer and the customer.

5.7.2 Marking of packed plywood stacks shall be performed with labels. The label text shall be in Russian and/or English, placed on two parallel or perpendicular side strips. Both labels shall bear the same information:

— trademark;

— product designation : The product name is Film-faced Birch Plywood/Фанера березовая ламинированная; SVEZA Deck 350 Plywood /Фанера SVEZA Deck 350; SVEZA PAINT Plywood /Фанера SVEZA PAINT; SVEZA TITAN Plywood /Фанера SVEZA TITAN; SVEZA Deck 350 2.0 Plywood /Фанера SVEZA Deck 350 2.0.;

— dimensions, plywood thickness and the thickness tolerance value of film-faced birch plywood (if required);

— grade of film-faced birch plywood;

— type of film-faced birch plywood;

— surface type;

— film type;

— number of panels in a stack;

— working shift;

— film-faced birch plywood production date;

— emission class;

— order No. as per Special Terms and Conditions (by agreement with the customer);

— reference document governing the manufacture of film-faced birch plywood;

— 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 more streamlined storage operations, additional marking may be applied using labels or stencils.

6 ACCEPTANCE REQUIREMENTS

6.1 Film-faced birch plywood must be accepted in lots.

Lot means a certain number of film-faced birch plywood panels with the same product designation, grade, surface finish, film type and dimensions.

For each lot, a single supporting document must be issued, containing the following information:
— trademark;
— manufacturer name and address;
— film-faced birch plywood designation;
— lot size;
— reference document governing the manufacture of film-faced birch plywood.

6.2 Checking the quality and dimensions of film-faced birch plywood panels shall be done through selective sampling and testing. In sampling inspection, panels of film-faced birch plywood are selected as a “random” sampling per GOST 18321 in the quantity stated in Table 6.

Table 6

In panels

Lot size	Checked parameter as per sections herein			
	4.4.1; 4.4.2; 4.4.3; 4.4.4; 4.4.5		5.1.4	
	Sample size	Acceptance number	Sample size	Acceptance number
Up to 500	8	1	13	1
501-1,200	13	1	20	2
1,201-3,200	13	1	32	3
3,201-10,000	20	2	32	3
Note - The definition of sampling scope for items 4 to 11 of Table 4 is as agreed between the manufacturer and the customer.				

6.3 Moisture, strength limit when cleaving through the adhesive layer, strength limit for static bending across and along the outer veneers, and module of elasticity for static bending along and across the grains of the outer veneers should be inspected for each thickness and number of plies of film-faced birch plywood at least once per month.

Checking of each lot is allowed as agreed by the manufacturer with the customer, and for this purpose 0.1% of panels shall be selected from the lot, but at least one panel.

6.4 The frequency and scope of testing for items 4 to12 of Table 4 – by agreement between the manufacturer and the customer.

6.5 One film-faced birch plywood panel shall be sampled from any sampling volume to determine the formaldehyde release.

The formaldehyde release shall be determined at least once every 30 days.

6.6 Results of formaldehyde content or releases tests, as well as physical and mechanical tests of a plywood lot manufactured per STO 52654419-001, may be applied to film-faced birch plywood manufactured within the same lot.

6.7 The lot is considered compliant to the applicable requirements of the standard and is accepted, provided that in the samples:

— the number of film-faced birch plywood panels in non-compliance with the standard requirements for dimensions, squareness, straightness, and processing defects must be less than or equal to the acceptance number shown in Table 6;

— the physical and mechanical properties are in conformity with the values established in Tables 4 and 5;

— the formaldehyde content and/or release is compliant with limits set forth in Table 3.

7 CONTROL METHODS

7.1 Sampling procedure — per GOST 9620, GOST 27678, GOST 30255, and GOST 32155, [1] – [2].

7.2 Film-faced birch plywood length and width are measured with a metal measuring tape at two points parallel to the edges, at least 100 mm from the edges, according to GOST 7502, with a tolerance of 1 mm. The arithmetic mean value of the two measurements is considered the actual length (width) of the panel.

7.3 The thickness shall be measured at least 25 mm from the edges, in the middle of each panel's face.

The arithmetic mean value of the four measurements is considered the actual thickness of the panel.

The following devices are used for thickness measurement:

— thickness gauge as per GOST 11358 with a scale division not exceeding 0.1 mm;

— micrometer as per GOST 6507 with a scale division not exceeding 0.1 mm.

Thickness difference in one film-faced birch plywood panel is defined as the difference between the maximum and minimum thickness of the four measurements.

7.4 Out-of-squareness of film-faced birch plywood panels

7.4.1 Out-of-squareness of film-faced birch plywood shall be measured per GOST 30427. Out-of-squareness shall be measured with an L-square as per GOST 3749 and defined by measuring the maximum deviation of the panel edges from the L-square surface using a metal ruler in accordance with GOST 427 with an error of 1 mm.

7.4.2 Out-of-squareness may be also determined by the difference of diagonal lines of the panel measured by metal measuring tape as per GOST 7502 with a scale division 1 mm.

7.5 Out-of-straightness

7.5.1 Out-of-straightness of a film-faced birch plywood panel edge shall be determined by using a probe to measure the maximum gap between the panel's edge and the edge of the metal ruler, according to GOST 8925, with a tolerance of 0.2 mm.

7.5.2 Deviation of the layout grid lines parallel to the edge of the film-faced birch plywood is determined by using a metal measuring tape to measure the maximum offset of the layout grid line from the edge, in accordance with GOST 7502, with a division value of 1 mm.

7.6 Warping — as per GOST 30427.

7.7 Moisture — as per GOST 9621, [3].

7.8 Strength limit for cleaving through adhesive layer — as per GOST 9624, [4].

7.9 Modulus of elasticity in static bending and strength limit as per GOST 9625, [5].

7.10 Tensile strength along the grain — as per GOST 9622.

7.11 Measurement of processing defects — as per GOST 30427.

7.12 Durability of the face coating bond with the veneer — as per GOST 14614.

7.13 Face coating resistance to steam — as per GOST R 53920.

7.14 Face coating resistance to sodium hydroxide (NaOH) – as per GOSTR 53920.

7.15 Face coating resistance to concrete — as per Appendix C.

7.16 Face coating resistance to abrasion (Taber test) — as per Appendix F (determination of number of abrading cycles) according to GOST 27820.

7.17 Face coating resistance to cracking — as per Appendix D.

7.18 Formaldehyde content as per GOST 27678; formaldehyde release into the environment as per GOST 30255, GOST 32155 and [1].

7.19. Water permeability of the coating ("Cobb" test) — in accordance with Appendix G.

8 TRANSPORTATION AND STORAGE

8.1 Film-faced birch plywood shall be transported in enclosed vehicles, in accordance with the haulage rules applicable to the respective means of transport.

During transportation, it is essential to avoid severe humidification of film-faced birch plywood to avoid swelling at the edges, panel warping, significant indentation from the packing straps or other deterioration.

8.2 Storage of film-faced birch plywood

Film-faced birch plywood must be stored in indoor premises that protect the plywood from atmospheric precipitation in stacks placed horizontally on pallets or on wooden shims, at a temperature between −40 °C and +50 °C and relative humidity up to 80%.

9 MANUFACTURER'S WARRANTY

The manufacturer guarantees conformance of the film-faced birch plywood to the quality requirements of this standard if transportation and storage conditions are met.

Film-faced birch plywood has a guaranteed shelf life of 5 years from the day of receipt by the customer.

For film-faced birch plywood used for further processing, contacting the manufacturer for more details about the properties and specifications of the plywood is recommended.

10 SAFETY AND ENVIRONMENTAL REQUIREMENTS

10.1 The content of hazardous chemicals emitted into the air of residential or public buildings during use of film-faced birch plywood products shall not exceed the requirements of [6], [7], and [8].

10.2 Film-faced birch plywood must be produced using materials and components approved by the national sanitary and epidemiological inspection authorities.

10.3 Only persons aged 18 and older with a clean bill of health are allowed to work in film-faced birch plywood production. Medical examinations are conducted according to the applicable instructions from the Ministry of Health of the Russian Federation.

10.4 Personnel engaged in the manufacture of film-faced birch plywood must be provided with personal protection equipment, according to the applicable regulations under GOST 12.4.011.

10.5 The specific activity of cesium-137 in film-faced birch plywood must not exceed the health-based exposure limits set forth in [9].

10.6 Film-faced birch plywood composition does not include raw materials or components classified as hazardous waste.

10.7 Film-faced birch plywood usually has a long service life, and there are a number of ways to recycle it. Film-faced birch plywood must be recycled according to the requirements regarding recycling in the effective laws of various countries.

11 RECOMMENDATIONS FOR USE

11.1 Film-faced birch plywood is designed for multiple use. Adherence with plywood application and storage regulations will make it possible to increase its service life.

11.2 A slight variation due to moist air during transport in film-faced birch plywood thickness along the edge and for a distance up to 50 mm from the edge is allowed.

11.3 Sawing film-faced birch plywood

Sawing film-faced birch plywood into pieces must be performed with band or circular saws.

To obtain a clean cut, the sawing shall be performed correctly - first, the sawing shall be done transversely to the face side of the grain direction, and then lengthwise. This method makes it possible to avoid splitting the corners and to decrease face chip size and quantity.

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

To prevent plywood from absorbing moisture while sawing, the film-faced birch plywood butt ends must be treated with special types of water-based emulsion paint or another sealant.

11.4 Drilling film-faced birch plywood

In order to prevent moisture penetration into the film-faced birch plywood during installation work, all holes must be filled with water-based emulsion paint or other sealants, and it is recommended to treat the panel surface with a water-repellent compound.

To obtain a hole with even edges, a sufficiently sharp drill fitted with a front cutter shall be used.

Drilling should start from the face side. Using a padding panel is recommended to avoid splitting on the reverse face of the film-faced birch plywood.

To avoid splitting the film-faced birch plywood layers, using threaded nails or special wood screws is recommended. A distance from the panel edge to nail of (12-15) mm is considered as recommended.

11.5 Rippling is common, wave-shaped convexities on the surface of the film-faced birch plywood. It is related to the wood processing technology and material properties of the wood, and is up to approximately 0.8 mm height and varies in length. They appear due to water absorption in the film-faced birch plywood (see Photo 1).

Photo 1

This is observed especially often when the film-faced birch plywood is used in conditions with direct contact of the plywood with water.

For use in open premises, sudden climate change during the day and/or seasonal precipitation conditions (for example, spring and autumn months) may also contribute to the appearance of the ripple effect.

The waviness formation continues until complete saturation with moisture up to approximately 28% through cut edges, edges without additional sealant protection, drilled holes, installed rivets or face coating damage not seen during visual examination with the naked eye (see Photo 2).

Photo 2

After complete saturation, the waviness on a film-faced birch plywood panel surface disappears almost completely. Typically, this takes place after 2-3 cycles of film-faced birch plywood making contact with water and drying after each contact.

11.6 Before formwork, film-faced birch plywood surface should be coated with emulsifiers to prevent tearing off the paint from the edges when dismantling.

Upon completion of formwork, concrete mixture residues should be cleaned up from the film-faced plywood surface and the panels must be dried horizontally under a shelter. Failure to comply with this recommendation causes panels warping and reduces their service life.

11.7 After long-term use, the moisture content in the film-faced plywood increases significantly, which decreases the plywood’s structural performance.

Therefore, film-faced plywood must be dried between cycles. To avoid external deformations, the plywood shall be dried under natural conditions.

11.8 LLC SVEZA-Les has performed numerous tests using film-faced birch plywood with a concrete mixture of Portland cement, sand, crushed stone and water. Test results have confirmed the high quality of the resulting concrete surfaces.

Due to the diversity and rapid development of concrete mixture production technologies (the introduction of different additives, such as hardening agents, separating liquids, etc.), it is recommended to test concrete pouring to assess possible concrete color change before using film-faced birch plywood to obtain the concrete surface.

11.9 Recommendations for use of SVEZA PAINT plywood

11.9.1 Preparations for painting:

— SVEZA PAINT plywood does not require any sanding, priming or use of biocidal coatings before painting;

— it is recommended to clean the surface of dust and slightly sand the butt ends to chamfer sharp edges.

11.9.2 Painting:

— SVEZA PAINT plywood should be painted on all sides;

— use of alkyd or acrylic paints is recommended for indoor and outdoor work with wood;

— use of alkali paints and acrylate putty is not recommended;

— we recommend testing the paint compatibility with the SVEZA PAINT plywood in each case;

— while painting, it is recommended to maintain consistent air humidity.

11.9.3 Installation:

— workplace must be dry;

— minor changes (shrinkage or swelling) of SVEZA PAINT plywood due to air humidity variation are allowable;

— small (1-2 mm) gaps should be left between SVEZA PAINT plywood panels during installation;

— holes formed on the surface of SVEZA PAINT plywood during installation should be filled with sealant to avoid water penetration.

APPENDIX A
(mandatory)

Limit Standards for Defects of Film-faced Birch Plywood Grades

For limit standards on defects of film-faced birch plywood grades, see Table A.1

Table A.1

Description of defects	Defects limits for plywood grades		
	1	2	3
1. Printing of wood grain structure, sound knots, inserts	allowable		
2. Film detaching, ruptures, absence, peeling	allowable: on a single edge, up to 3 mm, provided it is coated with moisture-resistant paint	allowable: no more than 2% of panel area provided it is coated with moisture-resistant paint	allowable
3. Temperature-related stains	not allowable	allowable: without face coating integrity loss	allowable
4. Film overlaps (riffles, wrinkles)	allowable: no more than 10 mm wide, no more than 500 mm long, and no more than 1 per m^2	allowable	
5. Sticking of film fragments	allowable: up to 30x30 mm, no more than 1 per m^2 or up to 10x100 mm or no more than 1 per m^2	allowable	

Appendix A — continued

Description of defects	Defects limits for plywood grades		
	1	2	3
6a. Burned film (burnout) due to outer ply defects: cracks, damages, detached knots	not allowable	allowable	
6b. Burned film (burnout) due to outer ply defects: rough peeling	allowable: up to 2% of the panel area, provided there is a durable film bond	allowable	
6c. Burned film (burnout) due to outer ply defects: stripes and spots from sanding	not allowable	allowable: up to 25% of panel area	allowable
7a. Traces from inner ply defects: detached knots, holes	allowable: in the form of spots up to 25x25 mm, not more than 1/m^2	allowable	
7b. Traces of inner ply defects: open split, cracks	allowable: no more than 5 mm wide, no more than 300 mm long, and no more than 1 per running meter	allowable	
8. Trace of glued or edge-jointed veneer	allowable: without face coating damage	allowable	
9. Stripes and spots from press platens	allowable		

Appendix A — continued

Description of defects	Defects limits for plywood grades		
	1	2	3
10. Stripes and spots from film	allowable: up to 15% of panel area	allowable	
11. Local swellings on the film-faced birch plywood surface	not allowable	allowable: no more than 100 mm, no more than 1/m^2	allowable
12. Veneer particles glued into the face ply	not allowable	allowable	
13. Press platen indents	allowable: up to 5% of the panel area	allowable	
14. Dents	allowable: up to 6 mm in diameter, no more than 1 per m^2, provided there is a durable film bond	allowable: no more than 0.5 mm depth without face coating damage	allowable
15. Scratches	not allowable	allowable: without face coating damage	allowable
16. Trimming defects, edge splintering	allowable: no more than 3 mm long provided it is coated with moisture-resistant paint	allowable: no more than 10 mm long provided it is coated with moisture-resistant paint	allowable
17. Paint streaks	allowable: no more than 5 mm	allowable	

Appendix A — end

Description of defects	Defects limits for plywood grades		
	1	2	3
18. Absence of veneer	not allowable	allowable: on single edge, no more than 5 mm depth	allowable
19. Local veneer delamination in inner plies of film-faced birch plywood (concealed blister)	not allowable		allowable
20. Warping	for film-faced plywood up to 6.5 mm thick, inclusively- not considered; for film-faced plywood thickness of more than 6.5 mm, it is allowable, with up to 15 mm deflection per 1 m of the plywood panel diagonal length		
21. Deviations from allowable dimensions	dimensions as per Sections 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5		allowable
22 Missing face layer with film (delamination)	not allowed		allowed if not more than 25% of panel surface area
23 Mechanical damage (traces of chains, of forklift forks, damaging of thin plywood during pressing, sizing and sanding, plywood breakage or other damage by a metal object)	not allowed		allowed

Note: Any defects not specified in Appendix A are not allowed.

APPENDIX B
(mandatory)

Terms and definitions of processing defects

The terms and definitions of processing defects are presented in Table B.1

Table B.1

Processing defects designation	Definition
Printing of wood grain structure, healthy knots, inserts	Contour of sound knots, wood grain structure, substrates on the surface of the birch face filmed plywood
Film detaching, ruptures, absence, peeling	Areas of the birch face filmed plywood surface not coated with film
Temperature-related stains	Alteration of film color (with loss of face coating integrity and/or without such loss) due to premature film hardening without pressure
Film overlaps (riffles)	Local thickening due to film overlap on the film-faced birch plywood surface
Film wrinkles	A surface defect in the form of a group of alternating longitudinal depressions and protrusions, with irregular shape and arbitrary direction (resembling wrinkles or riffles) resulting from improper operation of the film deposition station and / or defective film
Sticking of film fragments	Glued film fragments deposited on the film-faced birch plywood face surface during the filming process
Burned film (burnout) due to outer ply defects	Loss of film integrity due to outer ply defects
Traces from inner ply defects	Loss of film integrity due to inner ply defects
Stripes and spots from press platens	Stripes and spots on the film-faced birch plywood surface due to dirty press platens

Appendix B — end

Processing defects designation	Definition
Stripes and spots from film	Abnormally colored areas on film-faced birch plywood surface due to the release of volatile film substances during pressing
Local swellings on the film-faced birch plywood surface	Partial delamination of film from the film-faced birch plywood surface
Veneer particles glued into the face ply	Veneer particles glued into the face veneer before the face-filming
Press platen indents	Local convexities on the film-faced birch plywood surface, formed due to defects on the face filming press platens
Dents	Local indentation of outer ply with damage of lining surface
Scratches	Damage from a sharp object on the film-faced birch plywood surface in the form of a long, narrow recession or local indentation of the face ply with face coating damage
Trimming defects, edge splintering	Defects involving the absence of the face coating along the film-faced birch plywood panel edge
Paint streaks	Paint intrusion on the film-faced birch plywood panel face
Absence of veneer	Defect characterized by lack of inner ply veneer, except butt knots and cracks
Local veneer delamination in film-faced birch plywood inner plies (concealed blister)	Separation of two adjacent plywood plies along the adhesive layer
Delamination	Separation of face veneer from the rest of the panel

APPENDIX C
(mandatory)

Method of Determining a Face Coating Resistance to Concrete

Equipment, instruments, tools, chemical glassware, materials

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

Sampling and test pieces preparation

Two 100x100 mm samples shall be taken from a panel of film-faced birch plywood to perform the test. Tests must be performed on both faces of the sample (upper and lower) with smooth surface (F). Conditioning of samples is not required.

Test performance and evaluation of results.

Prepare concrete solution with following proportions:

- cement of M500 grade – 1 part;
- construction sand – 2 parts;
- 5% NaOH solution – 1/4 part;
- water – 0.5 to 1 part (added till a homogenous mixture is obtained).

1/3 of a plastic cup is filled with the concrete mortar, covered with the film-faced side of the plywood sample, turned 180° and placed onto a horizontal surface.

After three days (after the mortar has completely hardened), the cup with cured concrete is removed from the plywood surface in cured condition and left to dry for three days. On the fourth day, the color change of the cured concrete and the surface structure change of the coating are inspected visually.

To accelerate the concrete curing process, a UV lamp may be used. The UV lamp should be placed 40 cm from the concrete. Drying will take 5 hours. At the sixth hour, the color change of the cured concrete and the surface structure change of the coating are inspected visually.

Face coating resistance to concrete is assessed on a three-point scale in accordance with Table C.1, based on the change of the cured concrete color and the tested surface structure.

APPENDIX C (continued)

Table C.1

Result	Assessment of cured concrete color	Assessment of face coating alteration
1. Complete (normal) curing of film	No concrete discoloration	No gloss alteration, the face coating is hard.
2. Partial non-curing of the film	Partial coloring on the edges of the concrete	Minor gloss alteration, partial loss of face coating color
3. Total non-curing of film	All concrete edges are colored	Absence of gloss, surface softening and swelling, complete discoloration

APPENDIX D
(mandatory)

Methods for determination of film coating resistance to cracking (film manufacturers' test)

Apparatus, instruments, tools, chemical utensils, materials

The following items are used for testing:

– ventilated drying oven;
– stencil for notching;
– device for notching (chisel);
– hammer/mallet for punching notches;
– measuring tape or ruler with accuracy to 0.1 mm.

Sampling and test pieces preparation

Sample dimensions are 250 mm x 250 mm.

Number of test pieces – 3 pieces when the plywood panel is faced with film from the same supplier and having the same density.

Number of test pieces – 6 pieces when the plywood panel is faced with films from different suppliers or having different density.

When preparing test pieces, it is necessary to take into account the film suppliers and film density. If the plywood panel was faced with films of different density (120/220) or from different suppliers (Germany/Finland/Samara, etc.), 6 test pieces should be sampled and tested.

Conditioning of the test pieces is not required.

The test pieces' edges are not processed.

Testing

By using a hammer with a chisel, make notches 10 mm long on the test pieces' surfaces at a distance of at least 50 mm from the edges and parallel to the grain direction of the outer layer. The film and the outer layer must be punched.

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

6 notches should be made on each surface of the test piece, and each test piece should have a total of 12 notches.

A stencil is used for easy notching (Fig. D.1). The stencil is placed on the test piece surface so that the length of the notches coincides with the grain direction of the outer veneer.

APPENDIX D (continued)

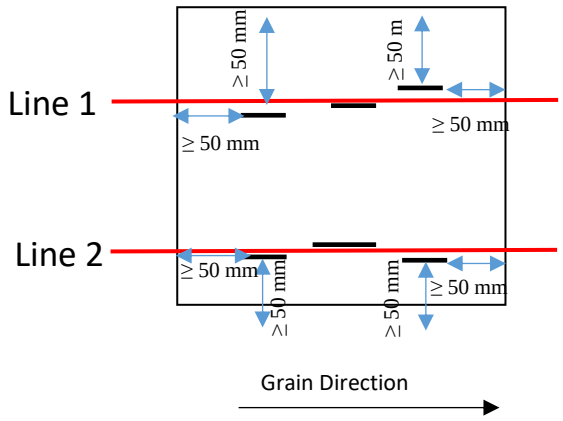

Figure D.1

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

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

An assessment is done by counting the number of cracks on the plywood surface. Only cracks at the notches are to be taken into account. The number of cracks at each notch should not exceed two.

Processing of the results

The cracks formed on the film 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 reach the edge they are considered over 50 mm);

Cracks up to 15 mm long are not taken into account.

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

By testing 6 test pieces, processing of the results (crack index calculation) must be carried out for each side of the test pieces separately.

All Group B cracks, i.e. cracks longer than 50 mm, are counted twice. Group A cracks, 15 to 50 mm long, are added to the result of group B. The crack index is determined by the total number of cracks and is calculated by formula D.1:

$$I_{crack} = (\Sigma A + 2 \text{ x } (\Sigma B)) \text{ x } 1.39 \qquad (D.1)$$

Where: I_{crack} is the crack index;

ΣA is the number of all cracks of group A (pcs.);

ΣB is the number of all cracks of group B (pcs.).

An example of cracks counting is shown in Table D.2

APPENDIX D (continued)

Evaluation of the results

Film coating resistance to cracking is evaluated by the calculated **Crack index** $\boldsymbol{I_{crack}}$, by using Table D.1.

Table D.1

Crack index	**Result evaluation**
Under 10	Excellent
11 to 40	Good
41 to 60	Sufficient
61 to 80	Satisfactory
Over 80	Unsatisfactory

A recommended example of cracks counting is given in Table D.2.

Table D.2

Crack size	1st test piece;		2nd test piece;		3rd test piece;		Total	Points
	Upper side	Bottom side	Upper side	Bottom side	Upper side	Bottom side		
Under 15	2	0	1	1	0	1	5	0
Under 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:
* Absent cracks at the notches are counted by the total crack counting, so as not to lose the total possible number of cracks in the test pieces. They are not included in the calculation of the crack index.

$$I_{crack} = 41+(17*2)*1.39=104.25$$

Crack index is 104.25. Result evaluation — unsatisfactory.

APPENDIX E
(mandatory)

Method for determining water permeability of the coating ("Cobb" test)

Apparatus, instruments, tools, chemical utensils, materials

The following items are used for testing:

- scales with an accuracy of up to 0.01 g;
- cylindrical crystallization cup (CCC 2-100) with diameter 72 mm, and height – 40 mm, not less than 100 ml in capacity, according to GOST 25336;
- air conditioning chamber;
- aluminum tape;
- ashless filters.

Sampling and test pieces preparation

Test pieces must have smooth edges, parallel and perpendicular to each other, they must not have any defects on the faced surface.

Before testing, test pieces are conditioned at a temperature of (20±2) ° C and a relative air humidity of (65±5) % during the period of not less than 72 hours.

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

Testing

The conditioned test pieces with sealed edges are weighed with an accuracy of 0.01 g. 100 ml of distilled water is poured into the cup, the cup is covered by the faced side of the test piece, turned 180° and placed on a horizontal surface. The test should be performed on both smooth surfaces (F) of the test piece (upper and lower).

Test pieces with the cups are placed in the conditioning chamber and kept there for 7 days.

After the time has elapsed, the test pieces with the cups are taken out of the conditioning chamber, turned 180°, the test pieces are removes from the cups; any residual water is removed from the surfaces of the test pieces by filter paper; and the test pieces are weighed on the scales not later than in 10 minutes.

Two parallel tests are performed on each side of each test piece.

APPENDIX E (continued)

Processing of test results

Water permeability is determined by measuring the amount of water soaked through the surface and calculated by Formula 1:

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

where:

m is the weight of the test piece before placing the cup with water onto the face coating, g;

m_1 –weight of the test piece after the removal of the cup with water from the face coating, g;

S – area of contact between water and surface, m^2.

The test result is rounded to two decimal places.

The arithmetic mean value of the two measurements obtained on each surface is taken as the result of the test.

APPENDIX F
(mandatory)

Method for determining wear resistance of the coating (Taber test) based on GOST 27820

Apparatus, instruments, tools, chemical utensils, materials

The following items are used for testing:

– TABER® Abrasion Tester, including turntable platform, dual abrading arms with fixed abrading wheels, two auxiliary weights 500 g each and cycle counter;
– abrasive paper, grit S-33, having a sticky surface on the back side;
– magnifying glass with 4-5x magnification;
– calibration zinc plate (to check the abrasive ability of the abrasive paper).

Sampling, abrasive paper and test pieces preparation

Sampling and test pieces cutting is done according to sections 3.1, 3.2, and 3.3 of the present procedure.

4 test pieces having F/W surfaces are prepared (one test piece is arbitrary). A through hole with dia. 6 to 11 mm is drilled in the center of each test piece.

Test pieces and abrasive paper are conditioned for not less than 72 hours at temperature (23 ± 2) °C and relative humidity (55-70) %.

Checking abrasive ability of the abrasive paper

Every batch of the abrasive paper is tested to determine the abrasive ability of the abrasive paper for determining suitability of the abrasive paper for testing.

Before testing, the abrasive paper and the calibration zinc plate are conditioned for not less than 72 hours at temperature (23 ± 2) °C and relative humidity (55-70) %.

Note – If the calibration plate is used for the first time, it should be preliminary polished on the tester during 500 roundtable cycles; the abrasive paper used for this is not then used for further testing.

The calibration zinc plate is weighed with accuracy of ±0.001 g (m_1), and then fixed on the turntable platform, the abrading wheels with the stuck abrasive paper are lowered to its surface, the cycle counter is set for 500 cycles, the tester is switched on and the plate is ground. Auxiliary weights 500 ± 10 g on each abrading arm are used. After 500 cycles, the calibration zinc plate is weighed again (m_2), after removing the abrasive dust.

The weight loss of the calibration zinc plate (Δm) is calculated in grams using formula F.1.

$$(\Delta m) = m_1 - m_2, \text{ g} \qquad \text{(F.1)}$$

where: m_1 – calibration plate weight before abrading, g
m_2 – calibration plate weight after abrading, g

APPENDIX F (continued)

The average result of at least three tests (*Δm*) is considered the test result.

The plate weight loss should amount to (120±20) mg.

If the plate weight loss is not within the specified range, the abrasive paper batch should not be used for testing. If the plate weight loss is within the specified range, the checked batch is suitable for further testing.

Testing

A prepared test piece is fixed onto the turntable platform of the tester with W surface upwards. The abrasive paper is stuck onto the abrading wheels, at that the paper ends should be tightly connected. The abrading arms with the auxiliary weights of 500±10 g each are lowered to the test piece surface, the cycle counter is set for 25 cycles, and then the tester is switched on.

After every 25 cycles, the surface wear degree is evaluated visually, without changing the position of the test piece and the abrading wheels.

The abrading cycles are continued until the initial abrasion point **IP** is reached, the number of cycles/ turntable revolutions is registered.

The initial abrasion point (IP) is the point when the first clearly visible wear through a coating (mesh pattern) can be noted, printed pattern or single color. The initial abrasion point is considered reached when a substrate layer (substrate or face veneer of the plywood) appears in ¾ of the wear segment, in form of spots not exceeding 0.5 mm in size, as shown in Figure F.1. To determine the **IP** a magnifying glass should be used.

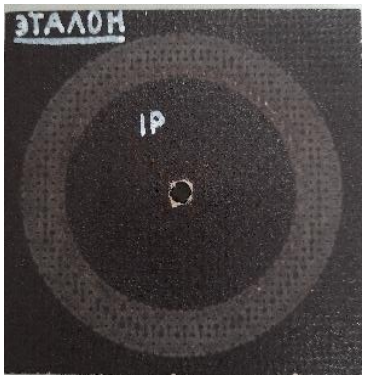

Figure F.1

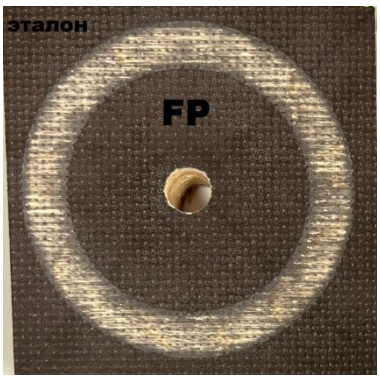

Figure F.2

After the initial wear point **IP** is determined, the abrading process is continued until the final wear point **FP** is reached (Figure F.2); at that the cycle counter is set to 25 cycles and after every 25 revolutions the surface wear degree is evaluated visually not changing the position of the test piece and abrading wheels.

APPENDIX F (continued)

Final wear point FP is the number of cycles corresponding to the end point of the coating wear (the moment when more than 95% of the coating is abraded).

Processing of test results

The wear resistance of the coating / resistance to abrasion is determined by the number of abrading cycles (*n)* using formula F.2:

$$n = \frac{(IP + FP)}{2}, \text{revolutions (F. 2)}$$

where: n – number of turntable platform revolutions;
IP – initial wear pont;
FP – final wear point.

Three test pieces are subject to testing.

The average value of the results obtained on three test pieces is considered the test result; the value is rounded to the nearest whole number.

The coating appearance of the tested test pieces is compared to the standard and evaluated based on this comparison.

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Keywords: corporate standard, film-faced birch plywood, dimensions, technical requirements, packaging, labeling, quality control methods, transportation, storage, warranty.

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