
**Joint-stock company Fanplit
plywood and particleboard production**

**PRODUCT
STANDARD**

00255177-001-2007

APPROVED:
Director general

Fanplit

_____ A.P. Miftakhov
«_____» _____ 2007

**Plywood with outer layers of birch veneer for general use
Specifications**

Kostroma
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approval record list

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preface

Standard information

1 DEVELOPED AND INTRODUCED by joint-stock company OAO Fanplit, plywood and particleboard production.

2 APPROVED AND BROUGHT INTO ACTION by A Fanplit Director general order ___ dated «___»___ 200__

3 The Standard agreed with national standard GOST 3916.1

4 In the Standard brought into action norms of Special Technical Regulations «Safety of woodworking products»

The standard can be used only after written OAO Fanplit permission.

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PRODUCT STANDARD

Plywood with outer layers of birch veneer for general use Specifications

Introduction date «_____»_____ 2007

1 APPLICATION RANGE

The standard is applied to plywood with outer layers of birch veneer for general use.
The standard is not applied to special-purpose and film faced plywood.

2 REFERENCE STANDARDS

The standard contains references to the following standards:

GOST 12.1.044-89 Occupational safety standards system. Fire and explosion hazard of substances and materials. Nomenclature of indices and methods of their determination.

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

GOST 577-68 Clock-type dial indicators graduated in unit divisions of 0,01 mm. Specifications.

GOST 3749-77 Checking 90° squares. Specifications.

GOST 3916.1-96 Plywood with outer layers of deciduous veneer for general use. Specifications.

GOST 6507-90 Micrometers. Specifications.

GOST 7076-99 BUILDING MATERIALS AND PRODUCTS Method of determination of steady-state thermal conductivity and thermal resistance.

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 requirements in testing.

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

GOST 9622-87 Laminated glued wood. Methods for determination of ultimate strengths and modulus of elasticity in tension.

GOST 9624-93 Laminated glued wood method for determination of shear strength.

GOST 9625-87 Laminated glued wood. Method for determination of strength and elasticity module in static bending.

GOST 9626-90 Laminated glued wood. Method for determination of impact viscosity in bending.

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GOST 9627.1-75 Glued plywood. Method for determination of hardness.

GOST 11358-89 Dial-type thickness gauges and dial-type wall thickness gauges graduated in 0,01 and 0,1 mm. Specifications.

GOST 14192-96 Marking of cargoes.

GOST 15612-85 Products of wood and wooden materials. Methods for determining surface roughness parameters.

GOST 16297-80 Sound insulation and sound absorption materials. Methods of testing.

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

GOST 25898-83 Building materials and products. Methods of steam - tightness determination.

GOST 27296-87 Noise protection in building. Sound insulation of enclosures. Methods of measurement.

GOST 27678-88 Wood particle boards. Perforatory method for determining formaldehyde content.

GOST 30244-94 Building materials. Methods for combustibility test.

GOST 30255-95 Furniture, timber and polymers. 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.

Notice: using the standard is appropriate to check if the reference standards are applicable according Information Index of National Standards.

3 TERMS AND DEFINITIONS

Following terms are applicable for the standard:

INTERIOR ó MR glue, plywood for interior application.

EXTERIOR ó WBP glue, plywood for interior and exterior application.

SHOP ó plywood which is cut off along or across the face grain up to 300 mm, panel volume is full, but with decreased commercial area.

4 CLASSIFICATION AND DIMENSIONS

4.1 Plywood is defined according to its outer layers appearance for grades, according to glue water resistance for its type, according to surface finishing: sanded and unsanded.

4.1.1 There are following grades according to outer layers appearance: B+, B, S, BBx, BB, CP, CPW, WGE, WG, C, CC.

4.1.2 There are following types according to glue water resistance:

- FK (INTERIOR) ó MR glue plywood, glued by carbamide-formaldehyde glue, for indoor application;

- FSF (EXTERIOR) ó WBP glue plywood with increased water resistance glued by phenol-formaldehyde glue, for both indoor and outdoor application.

4.1.3 Surface finishing: sanded and unsanded:

- unsanded ó NS;

- outer layers sanded ó S2S.

Plywood can be sanded from one side (S1S) upon contract.

4.2 Sizes

4.2.1 Length and width of plywood panels shall comply with Table 1.

Table 1

mm

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Length (width) of plywood sheets, mm	Tolerance, mm
1220, 1250	±3.0
1500, 1525	±4.0
2440, 2500	±4.0
3000, 3050	±5.0
Note: 1. Other sizes are available upon contract. 2. Length of plywood panels is defined along the grain of outer layers. 3. It is permitted to make plywood with along of across grain cut up to 300 mm (SHOP).	

4.2.2 Thickness and number of layers shall comply with Table 2.

Table 2

Nominal plywood thickness, mm	Layers	Sanded plywood		Unsanded plywood	
		Tolerance, mm	Difference in 4 measurements, mm	Tolerance, mm	Difference in 4 measurements, mm
3	3	+ 0.3 - 0.4	0.6	+ 0.4 - 0.3	0.6
4	3	+ 0.3 - 0.5		+ 0.8 - 0.4	1.0
5	4 and 5	+ 0.4 - 0.5		+ 0.8 - 0.4	
6	5	+ 0.4 - 0.5		+ 0.9 - 0.4	
8	6 7	+ 0.4 - 0.5		+ 1.0 - 0.5	
9	7	+ 0.4 - 0.6		+ 1.0 - 0.5	

continued Table 2

Nominal plywood thickness, mm	Layers	Sanded plywood		Unsanded plywood	
		Tolerance, mm	Difference in 4 measurements, mm	Tolerance, mm	Difference in 4 measurements, mm
10	7 and 8	+ 0.5 - 0.6	0.6	+ 1.0 - 0.5	1.0
12	9	+ 0.5 - 0.7		+ 1.1 - 0.6	
15	11	+ 0.6 - 0.8		+ 1.2 - 0.7	1.5
18	13	+ 0.7 - 0.9		+ 1.3 - 0.8	
21	15	- 0.1		- 0.1	

		- 1.1		- 1.1	
24	17	- 0.3 - 1.5		- 0.3 - 1.5	
27	19	- 0.2 - 1.8	1.0	- 0.2 - 1.8	2.0
30	21	- 0.4 - 2.0		- 0.4 - 2.0	
35	25	- 0.4 - 2.0		- 0.4 - 2.0	
40	27	- 0.4 - 2.0		- 0.4 - 2.0	
Note: Plywood with other thickness, number of plies and tolerances are available upon contract. Other sizes are manufactured to fill custom orders.					

4.2.3 Plywood panels are cut with right angle. Panels shall be square within 2 mm per 1 m panel length.

4.2.4 Panels shall be manufactured so that panel edge straightness fall into 2 mm per 1 m of panel length.

4.3 The marking shall include:

- product name with information on outer layer wood species;
- grade;
- combination of outer layers veneer;
- emission class;
- surface class;
- sizes;
- the present standard reference.

Example of marking: birch plywood MR glue outer layers veneer combination / , emission class 1, both side sanded, length 1525 mm, width 1525 mm, thickness 10 mm:

Birch plywood, FK, / , 1, S2S, 1525 1525 10
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5 SPECIFICATIONS

5.1 Parameters

5.1.1 Outer layers of plywood shall be made of birch veneer. Inner layers are made of other species.

Plywood which is made of one wood species is solid, plywood made of various species is combined.

If layers number is even, two middle layers shall have parallel grain. Symmetrically placed layers shall be of the same species and thickness.

Veneers for inner and outer plywood layers shall be a maximal thickness of 4 mm.

5.1.2 Outer layers shall be solid, free from defects and conform to the limitations given in Appendix A.

5.1.3 Inner layers can have defects, which do not influence its quality and sizes, defined in the Standard.

5.1.4 Plywood shall be manufactured: outer layers of veneer grade B+, B, S, BBx, BB, CP, CPW, WGE, WG, C, CC; inner layers of grade 1,2,3.

5.1.5 Plywood can be manufactured from any combination of above mentioned grades depending on outer layer quality.

5.1.6 It is permitted to combine outer layers of grades B+, B, S, BBx, BB from two or three veneer bands of the same width and color. It is permitted to combine outer layers of grades CPW, WGE, WG, C, CC from unlimited number of veneer bands.

5.1.7 To repair veneer defects shall be used veneer plugs of various shape with sizes: 32 18, 40 25, 60 32, 60 35, 60 40, 80 40 mm, round with diameter 35 mm. To repair defects with width less 30 mm shall be used rectangular veneer plugs with width not more 30 mm and length according to the defect..

Veneer plugs shall fit surface, have good adherence and match with outer layer grain direction. Veneer plugs for grades S, shall match the wood color.

Putty shall match wood color and allow to glue facing materials, not to crumble out and cracking during mechanical treatment and bending.

5.2 Formaldehyde content and formaldehyde emission in room air depending on emission class shall not exceed given in Table 3.

Table 3

Emission class	Formaldehyde content in 100 g of plywood, dry weight (perforatory method), mg	Formaldehyde emission gas analytical procedure, mg/m ² *hr.
1	up to 8.0 inclusive	up to 3.5 inclusive or not less 5.0 during 3 days after manufacturing
2	from 8.0 to 30 inclusive	from 3.5 to 8.0 inclusive and from 5.0 to 12.0 during 3 days after manufacturing

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5.3 Physical and mechanical parameters of plywood are given in Tables 4 and 5.

Table 4

Parameter name plywood grade FK FSF	Thickness, mm	Value
1. Moisture content, %	3 - 30	5 - 10
2. Ultimate strength in static bending along the outer layer grain, MPa, not less	7 - 30	25
3. Ultimate strength in tension along the grain, MPa, not less	3 to 6.5	30
4. Elasticity module in static bending along the grain, MPa, not less	9 - 30	7000
5. Method for determination of impact viscosity in bending, KJ/m ²	9 - 30	34
6. Hardness, MPa	9 - 30	20
7. Thermal conductivity coefficient, Wt/(m), average density, kg/m ³		
300	3 - 30	0.09
500		0.13
700		0.17

1000		0.24	
8 Tightness determination to water steam, testing in wet dishes with average density, kg/m ³	3 - 30		
300		50	
500		70	
700		90	
1000		110	
to water steam, testing in dry dishes with average density, kg/m ³			
300		150	
500		200	
700	220		
1000	250		
9 Sound absorption, dB, in range, Hz	3 - 30		
250 ó 500		0.10	
1000 - 2000		0.30	
10 Sound insulation, dB	6.5 - 30	23.0	
11 Biological resistance, danger class	3 - 30	5fDa, St	
12 Combustibility	3 - 30	According GOST 30244	
Note: parameters of items 5 ó 12 can be chosen upon contract.			

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Table 5

Sampling preparation before testing	Plywood sort	Ultimate shear strength on glue layer, MPa, plywood with inner plies from species ve- neer, not less		
		Birch	Pine, spruce	Aspen
After soaking in water for 24 hours	FK	1.5	1.0	0.6
After boiling in water: - during 1 hr.	FSF	1.5	1.0	0.6
- during 6 hr.		1.2	0.8	0.6
Note: 1 Plywood testing after boiling during 6 hours can be done upon contract. 2 Shear strength testing in various glue layers can be done upon contract.				

5.4 Plywood shall be measured in square meters. One panel volume shall be defined with precision up to 0,00001 m³, plywood bundle volume ó with precision up to 0,01 m³. Plywood panel area shall be measured with precision up to 0,01 m², panel area in bundle with precision up to 0,5 m².

5.5 The plywood is marked with indelible paint on face or edge of every panel by stamping or writing without margin. The marking shall contain the following information:

- type,
- grade,
- manufacturer number;
- sorter number.

Face is stamped in right corner of plywood panel back. Back side is the side with lower grade. The distance from the panel edges to the stamp center must not exceed 40 mm.

Edge is stamped in the corner along or across the grade edge.

Marking shall be the following color:

- MR glue plywood ó green;
- WBP glue plywood ó violet.

Other color is permitted if the plywood type is present in marking.

5.6. Plywood bundling

Plywood shall be packed in bundles with height 400, 600, 900 mm. separately according species, grade, type, size, surface class and emission class.

Other heights of bundles are packed to fill custom orders.

5.7. Packing and marking of the ready plywood bundles

5.7.1. Plywood bundles are to be packed to ensure its wholeness and safety during transporting.

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Various packaging methods are allowable.

The bundles are to be bind by bailing band.

5.7.2. All bundles shall be identified by labels or stencils in Russian and/or English on two opposite sides with the same marks giving the following information:

- brand name;
- plant number;
- manufacturing country (if marked by stencils), contact information (if marked by labels);
- certification information;
- product name with species of outer layers;
- panel sizes;
- plywood type;
- plywood grade;
- plywood surface class;
- emission class;
- bundle weight (if marked be labels), recommended loader carrying capacity (if marked by stencils);
- numbers of panels in the bundle;
- manufacturing date;
- working shift number.

It is permitted to make additional marking by labeling for warehouse operation.

If marked by stencils transport marking (manipulation signs) shall be made on sides according to GOST 14192. If marked by labels the marking is indicated in the label field.

6 ACCEPTANCE RULES

6.1 Plywood shall be accepted in lots.

A lot is the defined plywood number of the same type, grade, emission class, surface class and size. The lot shall be followed by one document giving the following information:

- brand name;
- manufacturing country;
- name and (or) trade mark of manufacturer and its address;
- symbolic plywood notation;
- lot volume;
- product standard reference.

6.2 Quality and size control shall be done by test sampling. Panels for sampling are chosen blindly according GOST 18321 in quality indicated in Table 6.

Table 6

Number of panels

Lot volume	Tested parameter, items			
	4.2.1; 4.2.2; 4.2.3; 4.2.4		5.1.2; 5.1.6; 5.1.7	
	sampling amount	acceptance value	sampling amount	acceptance value
up to 500	8	1	13	1
from 501 to 1200	13	1	20	2
from 1201 to 3200	13	1	32	3
from 3201 to 10000	20	2	32	3

Sampling amount for items 5 ó 12 table 4 ó upon contract.

6.3 Ultimate shear strength in glue, in static bending and in tension along the grain shall be tested for each type, thickness and number of layers not less than once in a month. It is permitted to test each lot upon contract, thereto are to be taken 0.1% of panels in lot, but not less than one panel.

6.4 Formaldehyde content shall be tested once in 30 days for WBP glue plywood and once in 15 days for MR glue plywood.

To test for formaldehyde content one panel to be chosen from any lot. It is permitted to test for formaldehyde once in 7 days upon contract.

6.5 The lot to be considered conforming to the present standard if in samples:

- number of plywood panels that does not meet the standard requirements for sizes, squareness, straightness, wood and manufacturing defects is less or equal to acceptance number, defined in Table 4;
- none of the panels has blisters, delamination and wane;
- formaldehyde content complies with values, given in Table 3.

7 SPECIMEN PREPARATION AND TESTING

7.1 Specimen preparation shall be done according to GOST 9620, GOST 27678, [1] - [3].

7.2 Length and width shall be measured in two points parallel to the edges at the distance not less 100 mm from edges by metal measuring tape according to GOST 7502 with tolerance 1 mm. Accepted actual length (width) of the panel equals average arithmetic value of two measurements.

7.3 The thickness shall be measured on corners and in the middle of every edge of the panel at the distance not less than 25 mm from edges. The thickness is measured by thickness gauge according to GOST 11358 or micrometer according to GOST 6507 with unit divisions not more than 0.1 mm.

Thickness variation in one panel shall be defined as difference between maximal and minimal thickness in series of eight measurements.

7.4 Squareness shall be measured by checking 90° square according to GOST 3749. The squareness equals to maximal difference between panel edge and checking square, measured by metal ruler according to GOST 427 with tolerance 1 mm.

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7.5 Edges straightness shall be defined by measuring maximal gap between the edge and metal ruler. The measure shall be taken by gage probe according to GOST 8925 with tolerance 0.2 mm.

7.6 Plywood panel warpage shall be defined by applying rule diagonally and measuring maximal gap by dial indicator -10 according to GOST 577, fixed on the ruler runner.

7.7 Moisture content according to GOST 9621.

7.8 Ultimate glue layer shear strength according to GOST 9624.

7.9 Ultimate strength in static bending according to GOST 9625.

7.10 Ultimate strength in tension according to GOST 9622.

7.11 Formaldehyde content according to GOST 27678 (the method is used for arbitration testing), formaldehyde emission according to GOST 30255, [1].

7.12 Surface roughness according to GOST 15612.

7.13 Wood and manufacturing defects according to GOST 30427.

7.14 Sound absorption coefficient according to GOST 16297.

7.15 Method for determination of impact viscosity in bending according to GOST 9626.

7.16 Sound insulation according to GOST 27296.

7.17 Hardness according to GOST 9627.1.

7.18 Biological resistance according [2].

7.19 Combustibility class according to GOST 30244 and GOST 12.1.044.

7.20 Thermal conductivity according to GOST 7076.

7.21 Steam-tightness determination according to GOST 25898, [3].

8 TRANSPORTING AND STORAGE

8.1 Transport plywood in sheltered vehicles according to transporting rules.

8.2 Plywood storage

Store plywood in horizontally placed butches on pallets or bunks in closed rooms at temperature from minus 40° to plus 50° and relative humidity up to 80 %.

9 WARRANTY POLICY

Manufacturer guarantee that the plywood quality comply with the present standard if properly transported and stored.

Guarantee storage period for MR glue plywood is 3 (three) years, WBP plywood ó 5 (five) years since customer reception date.

Appendix
(obligatory)

Wood and manufacture defects limitation norms for outer layers

WOOD AND MANUFACTURING DEFECTS	+		S	BBx		C	CPW	WGE	WG		
1. Pin knots	permitted										
2. Live sound knots (light and dark)	permitted light up to 15 mm diameter with crack width up to 0.5 mm, 5 per m ²	permitted diameter up to 15 mm with crack up to 0,5 mm, up to 5 per m ²	permitted diameter up to 25 mm with crack up to 1 mm., 10 per m ²	allowable with crack width up to 1 mm				permitted			
3. Partially inter-grown knots	permitted in size and number of falling out knots		permitted in number of live knots with diameter up to 15 mm, 10 per m ²					allowable with diameter up to 40 mm without number limitation	allowable with diameter up to 70 mm without number limitation		
4. Dead, falling out knots, their holes (without wane)	permitted in number of live knots with diameter up to 6 mm 3 per m ²				allowable with diameter up to 6 mm without number limitation			allowable with diameter up to 15 mm, 7 per m ²	allowable with diameter up to 40 mm without number limitation (permitted wane near knots with width 5 mm)	allowable with diameter up to 70 mm without number limitation (permitted wane near knots with width 5 mm)	
5. Closed cracks	permitted up to 200 mm, 2 per m of the panel width	permitted up to 200 mm, 5 per m of the panel width	permitted up to 300 mm, 5 per m of the panel width	permitted at edges and in the middle							

Continued Appendix

WOOD AND MANUFACTURING DEFECTS	+		S	BBx		C	CPW	WGE	WG		
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URING DEFECTS												
6. Open splits, open seam on spliced veneer	not permitted		allowable with length up to 200 mm with width up to 1 mm, 2 per m. of the panel width	permitted with length up to 200 mm with width up to 2 mm, 3 per m. of the panel width	permitted with length up to 250 mm with width up to 2 mm, 3 per m. of the panel width	permitted with length up to 600 mm with width up to 2 m, 2 per m. of the panel width + permitted with length up to 600 mm with width up to 5 mm on conditions of putty repair	permitted with length up to 600 mm with width up to 5 mm without repair + permitted open cracks with width not more than 2 mm, 1 per m. of the panel width	permitted with length up to 600 mm with width up to 2 mm, 2 per meter of the panel width + permitted with length up to 600 mm with width up to 5 mm on conditions of putty repair	permitted with length up to 600 mm with width up to 5 mm, 2 per m. of the panel width	permitted with length up to 800 mm with width up to 10 mm without number limitation	permitted with width up to 15 mm without number limitation	
7. Wood defects (slope of grain, cross grain, curl, eye)	permitted, except black eyes	permitted										
8. Wood defects (sound inwane light and dark)	only light inwane permitted			light inwane permitted, dark inwane permitted in number of sound knots								
9. Wood defects (open inwane)	permitted in number of dead knots											
10. Sound color changes (false core)	not permitted			permitted up to 25 % panel area			permitted up to 75 % panel area				permitted	

Continued Appendix

WOOD AND MANUFACTURING DEFECTS	+		S	BBx		C	CPW	WGE	WG		
11. Sound color changes (mottles, veins, vein traces)	permitted light with length up to 100 mm with width up to 2 mm,	permitted light with length up to 175 mm with width up to 4	permitted light with length up to 175 mm with width up to 4 mm,	permitted with length up to 250 mm with width up to 10 mm, 10 per m ²		permitted					

	3 per m ²	mm, 3 per m ²	5 per m ²		
12. Sound color changes (veins groups)	not permitted	permitted light 30 30 mm., 1 per m ²	permitted 60 40 mm., 1 per m ²	permitted	
13. Mineral streaks; secret stains (blue satin, color laburnum stains), storage color changes	permitted up to 5 % panel area	permitted up to 30 % panel area	permitted up to 50 % panel area (together with false heart)	permitted up to 75 % panel area (together with false heart)	permitted
14. Biological defects (wormholes)	permitted in the number of dead knots				

continued Appendix

WOOD AND MANUFACTURING DEFECTS	+	S	BBx	C	CPW	WGE	WG	
15. Color defects with partial wood defects	not permitted							permitted as strip bands not more than 30 mm with length up to 200 mm, 2 per meter of the panel length
16. Plug repair	not permitted	permitted, one per m ² , shall be matched for grain	not permitted	permitted up to 8 per m ² , shall be matched for grain	permitted with 1 mm gap from one side or 0,5 mm from 2 sides	permitted dropped out plugs, one plug on one panel side	permitted with gap 1 mm from one side or 0.5 mm from 2 sides	permitted
17. Double plug repair	not permitted			permitted one per m ²	permitted			
18. Split repair Putty or plug repair permitted if agreed	not permitted			splits opened more than 2 mm should be repaired by glued	splits opened more than 5 mm should be repaired by glued	permitted	splits opened more than 5 mm should be repaired by glued veneer patches and be well matched for color and grain	permitted

with customer			veneer patches and be well matched for color and grain	veneer patches and be well matched for color and grain			
19. Beads from patch piece, sanding beads	not permitted	permitted with length up to 200 mm width 10 mm, 3 per panel	permitted with length up to 600 mm, width 10 mm, 5 per panel	permitted with width up to 10 mm	permitted		

continued Appendix

14	WOOD AND MANUFACTURING DEFECTS	+	S	BBx	C	CPW	WGE	WG		
	20. Overlapping	not permitted		permitted with length up to 100 mm with width up to 2 mm., one per meter of the panel width	permitted with length up to 300 mm with width up to 2 mm, two per meter of the panel width	permitted with length up to 600 mm with width up to 4 mm, two per meter of the panel width	permitted			
	21. Manufacturing stains (beam traces, water stains)	not permitted		permitted not more than 10% panels in a bundle	permitted					
	22. Glue seepage	not permitted	permitted up to 1 % panel area	permitted up to 2 % panel area (for width from 3 to 21 mm) permitted up to 5 % panel area (for width 24 mm and more)	permitted up to 5 % panel area (for width from 3 to 21 mm) permitted up to 10 % panel area (for width 24 mm and more)	permitted up to 10 % panel area (for width from 3 to 21 mm), permitted up to 15 % panel area (for width 24 mm and more)	permitted			
	23. Mechanical damage (splits, kerfs)	permitted in number with dead knots								
	24. Scratches, scars, pimples, low spots, ridges	not permitted			permitted up to 0.5 mm height (depth) with	permitted up to 0.5 mm height (depth) with	permitted up to 0.5 mm height (depth) with	permitted with length up to 120 mm	permitted	

		length up to 120 mm with width up to 10 mm	length up to 120 mm with width up to 30 mm	length up to 120 mm with width up to 10 mm		
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continued Appendix

WOOD AND MANUFACTURING DEFECTS	+	S	BBx	C	CPW	WGE	WG		
25. Warp	in plywood up to thickness 6.5 mm ignored, more then 6.5 mm permitted not more then 15 mm per one meter of the panel diagonal length								
26. Glue thread	not permitted				permitted				
27. Blisters, delamination, wane	not permitted								
28. Sander skips (nonuniform sanding)	not permitted	permitted 5 mm from the edge			permitted up to 5 % panel area			permitted up to 50 % panel area	permitted
29. Grinding of outer layers	not permitted				permitted up to 1 % panel area (for width from 3 to 21 mm) permitted up to 2 % panel area (for width 24 mm and more)			permitted up to 5 % panel area	
30. Metal inclusions	not permitted				permitted staples from nonferrous metal				
31. Edge defects because of grinding, cuts, veneer shortage	not permitted	permitted with width up to 5 mm on edge					permitted with width up to 10 mm	permitted with width up to 25 mm	
32. Fiber tear	not permitted				permitted in number of dead knots			permitted	
33. Corrugation (ripples, hairiness)	not permitted		permitted up to 5 % panel area		permitted				
34. Rough edges	Roughness R_m according GOST 7016, micron, not more then: sanded plywood - 100, unsanded - 200								
35. Pockets (without wane)	not permitted		permitted in size of group veins (60 40 mm) 1 per m ²			permitted			

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- [1] EN 717-2-1995 Particleboards. Formaldehyde emission testing. Part 2. Gas analysis method of formaldehyde emission testing
- [2] ENI 1099-1997 Plywood. Biological resistance. Guidelines on plywood estimation for usage in various danger classes.
- [3] ISO 12572:2001 Hygrothermal performance of building materials and products - Determination of water vapor transmission properties

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