GOST : 14613-69

TITLE : FIBRE-BOARD SHEET

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USSR STATE STANDARD

Fibre-board Sheet Technical Specifications	GOST 14613-69
OKP 54 5810 (OKП)	This supersedes GOST 6910-54 and GOST 3335-46
Valid upto 01.01.1985	

1. GRADES AND SIZES

1.1. The following grades of fibre-board should be manufactured:

ФСВ (FSV) - Special, heavy duty fibre-board for the manufacture of extra strong articles;

ФТ (FT) - Technical fibre-board for the manufacture of components used in machine-building, electrical machine-building and instrument-making;

ФЭ (FE) - Electro-technical fibre-board for the manufacture of electro-insulating components;

ФП (FP) - General purpose fibre-board for the manufacture of suitcases, cans, different types of containers and other articles;

ФПК (FPK) - Oxygen resistant packing fibre-board for the manufacture of components in contact with oxygen;

ФК (FK) - Fibre-board for the manufacture of the peak of peaked caps

КГФ (KGF) - Castor-glycerine fibre-board used as sealing material to prevent leakage of water, oil, kerosene and petrol and

ФКДГ (FKDG) - Multi-ply fibre-board sheets for the manufacture of sealing rings used in hydraulic systems of presses.

1.2. Thickness of fibre-board sheets should conform to norms given in Table 1.

mm

Thickness of sheets for fibre-board of grades							Permissible deviations for fibre-board of grades		
FSV	FT	FE	FP	FPK	K F	FKDG	FT, FE, FP, FPK, and FKDG	KGF	FSV
—	0,4	—	—	—	—	—	±0,05	—	—
—	0,5	—	—	—	—	—	±0,06	—	—
—	0,6	0,6	0,6	0,6	0,6	—	±0,10	±0,09	—
—	0,7	0,7	0,7	0,7	—	—	±0,10	—	—
—	0,8	0,8	0,8	0,8	0,8	—	±0,10	±0,12	—
—	0,9	0,9	0,9	0,9	—	—	±0,15	—	—
1,0	1,0	1,0	1,0	1,0	1,0	—	±0,15	±0,12	±0,1
—	1,1	1,1	1,1	1,1	—	—	±0,15	—	—
—	1,2	1,2	1,2	1,2	—	—	±0,20	—	—
—	1,3	1,3	1,3	1,3	—	—	±0,20	—	—
—	1,4	1,4	1,4	1,4	—	—	±0,20	—	—
1,5	1,5	1,5	1,5	1,5	1,5	—	±0,25	±0,15	±0,15
—	1,7	1,7	1,7	1,7	—	—	±0,25	—	—
2,0	2,0	2,0	2,0	2,0	2,0	—	±0,25	±0,20	±0,15
—	2,2	2,2	2,2	2,2	—	—	±0,25	—	—
2,5	2,5	2,5	2,5	2,5	2,5	—	±0,25	±0,25	±0,15
3,0	3,0	3,0	3,0	3,0	—	—	±0,25	—	±0,2
—	3,5	—	—	3,5	—	—	±0,25	—	—
—	4,0	—	—	4,0	—	—	±0,50	—	—
—	4,5	—	—	4,5	—	—	±0,50	—	—
—	5,0	—	—	5,0	—	—	±0,50	—	—
—	6,0	—	—	—	—	—	—	±0,50	—
—	7,0	—	—	—	—	—	—	±0,50	—
—	8,0	—	—	—	—	—	—	±0,50	—
—	9,0	—	—	—	—	—	—	±0,50	—
—	10,0	—	—	—	—	10,0	—	±0,50	—
—	11,0	—	—	—	—	—	—	±0,50	—
—	12,0	—	—	—	—	—	—	±0,50	—
—	13,0	—	—	—	—	—	—	±0,75	—
—	14,0	—	—	—	—	—	—	±0,75	—
—	15,0	—	—	—	—	15,0	—	±1,00	—
—	16,0	—	—	—	—	—	—	±1,00	—
—	17,0	—	—	—	—	—	—	±1,00	—
—	18,0	—	—	—	—	—	—	±1,25	—
—	19,0	—	—	—	—	—	—	±1,25	—
—	20,0	—	—	—	—	20,0	—	±1,50	—
—	22,0	—	—	—	—	—	—	±1,50	—
—	25,0	—	—	—	—	25,0	—	±2,00	—
—	—	—	—	—	—	30,0	—	±2,00	—
—	—	—	—	—	—	35,0	—	—	—

1.3. Fibre-board of FK grade should be manufactured in 1.0 mm thickness with permissible deviation of ± 0.20 mm for the batch. Thickness variation in one sheet should not exceed ± 0.05 mm from the mean thickness.

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1.4. Fibre-board of thickness from 0.4 to 8.0 mm should be

monolithic (single-ply). Fibre-board of thickness from 8.0 mm to 12.00 mm may be monolithic or multi-ply, glued. Fibre-board of thickness over 12.00 mm should be multi-ply glued.

1.5. Sizes of monolithic (single-ply) fibre-board sheets should conform to norms given in Table 2.

Table 2

Grade of fibre-board	Length	Width
FSV, FT, FE	1700 - 2500 and	1100 - 1400 and
FP and FPK	850 - 1500	550 - 850
FK	1000 - 1200	750 - 1000
KGF	by mutual agreement	

Sheet sizes of multi-ply fibre-board of grades FT and FKDG should be: length - from 1600 to 1900 mm, width - from 400 to 700 mm.

Other sheet sizes of fibre-board may be supplied by agreement with the customer.

Fibre-board of grade FP intended for the manufacture of textile cans should be produced in the following sizes:

for 1.5 mm thickness - length 2000 ± 50 mm, width 1100 ± 50 mm;

for 2 mm thickness - length 2000 ± 50 mm, width 1300 ± 50 mm.

The manufacturer should, at customer's request, mark the longitudinal direction of fibre-board with an arrow.

Fibre-board of thickness upto 1 mm may be supplied in 1200 ± 50 mm wide rolls. The order should specify strip length in the roll.

2. TECHNICAL REQUIREMENTS

2.1. Fibre-board should be manufactured in accordance with the requirements of this standard as per technological parameters approved in the established manner.

(REVISED EDITION, REV. No. 2)

2.2. Technical parameters of fibre-board should conform to the norms given in Table 3.

(REVISED EDITION REV. No 1, 2, 3)

2.3. Volume resistivity and dielectric strength of FT grade fibre-board is determined in case it is used as an electrical insulating material.

2.4. Fibre-board surface should be even and free from cracks, layers, wrinkles, holes, blisters and oil spots.

2.5. Fibre-board should be calendered. Calendering may be skipped with the customer's consent.

Table 3

Parameters	Norms for fibre-board of grade								Methods of Testing
	Нормы для фибры марок								
	ФСВ	ФТ	ФЭ	ФП	ФПК	ФК	КГФ	ФКДГ	
	FSV	FT	FE	FP	FPK	FK	KGF	FKDG	
1. Minimum density in g/cm^3 of fibre-board of nominal thickness in mm									As per clause 3.6 of this standard
0.4 - 0.9	—	1,10 1,15*	1,10 1,15*	1,05	1,10	—	1,10— —1,45	—	
1.0 - 3.0	1,25	1,15 1,18*	1,20 1,22*	1,10	1,15	1,20	1,10— —1,45	—	
3.5 - 5.0	—	1,20	—	—	1,15	—	—	—	
6.0 - 35.0	—	1,10	—	—	—	—	—	1,20 1,24*	
2. Ultimate tensile strength MPa (kgf/cm^3)									As per GOST 13525.1-79 and clause 3.5 of this standard
2a. in machine direction, not less than, for nominal thickness of fibre-board, mm									
0.4 - 0.9	—	62 (630) 74* (750)	69 (700) 75* (800)	57 (580) 61* (650)	57 (580)	—	—	—	
1.0 - 2.0	93 (950)	69 (700)	74 (750)	57 (580) 61* (650)	59 (600) 64* (650)	64 (650)	—	—	
2.2 - 3.0	88 (900)	69 (700)	74 (750)	57 (580)	59 (600) 61* (620)	64 (650)	—	—	
3.5 - 5.0	—	59 (600)		—	54 (550)	—	—	—	
6.0 - 35.0		49 (500)	—	—	—	—	—	49 (500)	
2b. in the transverse direction not less than, for nominal thickness of fibre-board, mm									
0,4—0,9	—	42 (430) 44* (450)	44 (450) 45* (460)	39 (400)	31 (350)	—	29 (300)	—	
1,0—2,0	52 (530)	44 (450)	44 (450)	39 (400)	39 (400) 42* (430)	42 (430)	29 (300)	—	
2,2—3,0	47 (480)	44 (450)	44 (450)	39 (400)	39 (400) 42* (430)	42 (430)	29 (300)	—	
3,5—5,0	—	44 (450)	—	—	32 (350)	—	—	—	
6,0—35,0	—	29 (300)	—	—	—	—	—	29 (300) 31* (320)	

Table 3 Contd.

Parameters	Norms for fibre-board of grade								Methods of testing
	FVS	FT	FE	FP	FPK	FK	KGF	FKD	
3. Elongation at rupture, % for all thicknesses of fibre-board									
3a. in longitudnal direction, minimum.	10	—	—	—	—	—	—	—	As per GOST 13525.1-79
3b. in the transverse direction minimum	12	—	—	—	—	—	—	—	
4. Volume resitivity in ohm. cm at a temperature of 20 ± 5° C minimum.	—	1.0×10^{7} 1.2×10^{7}*	1.0×10^{8} 1.2×10^{8}*	—	—	—	—	—	As per GOST 6433.2-71 and clause 3.7 of this standard
5. Dielectric strength in kV/mm at a temperature of 20 ± 5° C, not less than.									As per GOST 6433.3-71 and clause 3.8 of this standard
5a. Nominal thickness in mm of fibre-board 0.4 - 1.0	—	4.0 6.0*	7.0 8.0*	—	—	—	—	—	
1.1 - 2.0	—	2.5 3.0*	5.0 6.0*	—	—	—	—	—	
2.2 - 12.0	—	2.0	3.5	—	—	—	—	—	
6. Adhesive strength in Newton/cm (gf/cm), not less than, at nominal thickness in mm of fibre-board 0.4 - 0.9	—	1.7 (170) 1.8* (180)*	1.7 (170) 1.8* (180)*	—	1.5 (150)	—	—	—	As per clause 3.9 of this standard
1.0 - 5.0	1.7 (170)	1.8 (180) 1.9* (190)	1.8 (180) 1.9* (190)	1.7 (170) 1.8* (180)	1.7 (170)	1.7 (170)	—	2.0 (200)	
7. Zinc chloride content by weight %, not more than	0.15	0.20 0.15*	0.15 0.10*	0.20 0.15*	0.20 0.15*	0.20	0.12	0.20 0.15*	As per clause 3.10 of this standard
8. Ash content by weight, %, not more than	—	2.0	1.5	2.0	2.0 1.0*	2.0	—	—	As per clause 3.11 of this standard
8a. Ash content by weight, when dyed with mineral dyes, not more than	—	7	—	7	—	—	—	—	

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Table 3 Contd.

Parameters	Norms for fibre-board of grade ФСВ	ФТ	ФЭ	ФП	ФПК	ФК	КФ	ФКП	Methods of testing
9. Water absorption in %, after 24 hours, not more than									As per clause 3.12 of this standard
9a. For nominal thickness in mm of of fibre-board									
i) 0.4 - 0.9	—	65(i)	65	65	65	—	—	—	
ii) 1.0 - 3.0	—	60(ii)	60	60	60	60	—	—	
iii) 3.5 - 5.0	—	50(iii)	—	—	—	—	—	—	
iv) 6.0 - 12.0	6-10 (2.0)*	40(iv)	—	—	—	—	—	—	
v) 13.0 - 35.0		35(v)	—	—	—	—	—	—	
10. Moisture content, %	6—10	6—10	6—10	6—10	6—10	6—10	6—10	—	As per clause 3.14 of this standard
11. Oil absorption of fibre-board after soaking in transformer oil for 24 hours at a temperature of 15-20°C, %, not more than	1.3	—	—	—		—	—	—	As per clause 3.17 of this standard
12. Petrol absorption of fibre-board after soaking in aviation petrol for 24 hours at a temperature of 15-20°C, %, not more than	1.5	—		—	—	—	—	—	As per clause 3.18 of this standard

* For products with state quality mark.

2.6. Edges of fibre-board sheets should be evenly trimmed. Fibre-board may be supplied in untrimmed condition but having smooth edges, by agreement with the customer.

2.7. Fibre-board should be of the following colours:

for grade FT - red, black, dark grey, brown and natural fibre;

for grade FSV - any colour;

for grade FE - natural fibre colour;

for grade FP - brown, red, grey and black colour;

for grade FPK - natural fibre colour;

for grade FK - ranging from dark grey to black;

for grade KGF - red;

for grade FKDG - natural fibre colour.

Fibre-board may be supplied in other colours by agreement with the customer.

Sheets should be dyed evenly and without marks.

2.8. Fibre-glass sheets of grades FSV, FE, FP and FK should pass a bend test around a rod. The diameter of rod for grades FSV and FK of thickness upto 1.5 mm is 10 times the thickness of the sheets and for grades FE, FP and FSV of thickness more than 1.5 mm, it is 20 times the thickness of the sheet. There should not be any rupture or crack after the test.

2.9. Fibre-board should not crack, crumble or split into layers during machining operations like saving, drilling and stamping. Fibre-board of grades FSV, FT and FE should be free from these defects during the above operations and apart from the above operations, during milling and turning.

When baffle plates are rolled from FK grade fibre-board it should produce a clear relief which does not get smoothened out.

Fibre-board of grade KGF should withstand heating upto 100-150°C for 24 hours without peeling off or developing, cracks and pores. It should be elastic enough to ensure the necessary compactness of joints

between units of machines and equipment. It should not cause corrosion of aluminium, duralumin and steel.

Fibre-board is machined at a moisture content of 6-10%. FK grade fibre-board is machined at a moisture content of 12 to 16%. Fibre-board stored at sub-zero temperatures or in godowns having lower or higher humidity, should be kept at a rolative humidity of 65±2% and a temperature of 20±2°C for a period of two weeks before it is taken up for machining.

2.10. Fibre-board having minor surface defects in the form of wrinkles, small folds or small internal pores and inclusions is categorised as second sort.

All technical parameters of fibre-board of second sort should conform to the requirements of clause 2.2.of thes standard. Fibre-board of grades FSV, FE and FK should be produced only as first sort.

2.11. The finished product should be acceptable to the inspection department of the manufacturing factory. The manufacturer should guarantee conformity of the entire quantity produced, with the requirements of this standard and supply a document in the prescribed form along with each batch certifying its quality.

2.12. Fibre-board of grade FKDG should have a strength of glued joint not less than 40 MPa (40 kgf/cm^2)

(ADDED, REV. No. 2)

3. METHODS OF TESTING

3.1. Rules relating to sampling as set out in GOST 8047-78, the methods of testing set out in clause 2.2 of the present standard and the additional stipulations given below must be used for customer

acceptance check of the quality of fibre-board and of the conformity of the container, packing and marking with the requirements of the present standard.

3.2. Thickness, size and external appearance (clauses 1.2 to 1.5 and 2.4 ao 2.7) of fibre-board are checked by measurement and examination of 5% of the sheets from each size and each thickness. Technical parameters (clauses 2.2 and 2.8) are checked by conducting control check on two sheets out of every hunired sheets or part thereof for each size and each thickness in a batch presented for acceptance.

3.3. If unsatisfactory test results are obtained against even a single parameter, the particular test is repeated on double the number of samples taken from the same batch of fibre-board. Results of retesting are final.

3.4. Thickness of fibre-board sheets is measured with a micrometer of accuracy upto 0.01 mm at a minimum of four points located at a distance not less than 30 mm from the edge of the sheet. The arithmetic mean of four readings is taken as the thickness of the sheet. However, no reading should exceed the limits of permissible deviations.

3.5. Tensile test specimens are prepared in the form of rectangular strips 15.0 ± 1.0 mm wide and 235.0 ± 1.0 mm long. Before commencing the test, the specimens must be held at a temperature of $20 \pm 2^{\circ}C$ and a relative humidity of $65 \pm 2\%$ for the following periods:

Thickness of sample in mm	Holding time in days
0.4 to 3	2
3.5 to 7	3
$\geqslant 8$	4

The arithmetic mean of five determinations rounded off to the

first decimal place is taken as the result. The difference between the values as determined should not exceed 10% of the minimum value. Page 10

3.6. Density should be determined on three specimens of size 50 x 50 mm or on discs of diameter 50 mm. The specimen is weighed with accuracy upto 0.01 g.

The length, width or diameter of the specimen is measured with accuracy upto 0.1 mm. The volume of the specimen is calculated with accuracy upto 0.01 cm^3. Density (γ) in g/cm^3 is calculated using the formula

$$\gamma = \frac{m}{v}$$

where m is the weight of the specimen in grams and

v is the volume of the sample in cm^3.

The arithmetic mean of three determinations rounded off to 0.01 g/cm^3 is taken as the result. Difference between the values as determined should not be more than 4% of the mean value.

3.7. Volume resistivity of fibre-board is determined as per GOST 6433.2-71 with the following additions. The test should be conducted at $20\pm2^{\circ}C$ after preliminary drying of specimens at $105^{\circ}C$ for a minimum period of 24 hours followed by cooling down to room temperature and holding at $20\pm2^{\circ}C$ and a relative humility of $65\pm2\%$ for a minimum of six hours.

Three specimens of size 100 x 100 mm are tested.

The artithmetic mean of all determinations is taken as the result. The difference between the values as determined should not be more than 1% of the mean value.

3.8. Dielectric strength perpendicular to the layers is determined after preliminary drying of the specimens as per clause 3.7 of this standard. Three specimens of size 100 x 100 mm are tested with the

help of electrodes of diameter 50 ± 1 mm.

The arithmetic mean of three determinations is taken as the result. The difference between the values as determined should not be more than 1 % of the mean value.

3.9. Adhesive strength is determined on three specimens of size 100 x 30 mm. Specimens of glued fibre-board are selected from a layer of monlithic fibre-board between two adjacent layers of adhesive compound. The thickness of the monolithic specimen selected should not be more than 3 mm.

Selected test specimens are immersed in water at a temperature of 20 ± 5°C for 24 hours in the case of fibre-board of thickness more than 1.1 mm and for 12 hours in the case of fibre-board of thickness 1.1 mm or less. Fibre-board specimens of thickness more than 1.5 mm are split up manualy after soaking to bring their thickness down to 1.0 to 1.5 mm. After this, the specimens are split into two layers from one end to a depth of about 30 mm.

Each split end of both layers is clamped to the dynamometer terminals. The distance between the terminals of the dynamometer should not exceed 100 mm. The instrument is switched ON and as Page 11 soon as the sample starts splitting the instrument is switched OFF. The reading is noted after two minutes. The value thus obtained is divided by the width of the specimen in centimetres. This is taken as the adhesive strength expressed in grams per centimetre of length.

The arithmetic mean of three determinations rounded off to the nearest whole number is taken as the result.

3.10. The following reagents are used for determining zinc chloride content:

silver nitrate conforming to GOST 1277-75, 0.01N solution;

potassium chromate to GOST 4459-75, 5 % solution.

About 5 g of fibre-board reduced to about 2 x 2 mm is weighed with accuracy upto 0.10 g and extracted with boiled distilled water for 1.5 hours. After this, the extract is decanted and the fibre-board is washed with hot water. The extract and the washed water (their combined volume should not exceed 100 cc) is cooled and titrated in the presence of potassium chromate with a 0.01 N silver nitrate solution till the colour changes from yellow to light brick red.

Quantity of zinc chloride (K) as a percentage is calculated using the formula

$$K = \frac{v.0.00068}{m} .100$$

where v - is the volume of 0.01 N silver nitrate solution used for titration in ml;

m - is the weight of air-dried fibre-board in g;

0.00068 - quantity of zinc chloride corresponding to 1 ml of 0.01 N silver nitrate solution in g.

The result is rounded off to 0.01 %.

3.11. Approximately 2 g of fibre-board (cut up into pieces from various places on the sample) are weighed with accuracy upto 0.001 g and burnt. It is then calcined till it attains a constant weight.

Ash content, (Z) is calculated using the formula

$$Z = \frac{m_1}{m} .100,$$

where m_1 - is the weight of ash in g and

m - is the weight of absolutely dry fibre-board in g.

Two parallel determinations are carried out.

The arithmetic mean of the two determinations rounded off to 0.1 % is taken as the result. The difference between the determinations should not exceed 0.5 % absolute.

3.12. Water absorption of fibre-board is determined on three samples in the form of dics of diameter 50 mm or squares of size 50 x 50 mm selected for each thickness.

Samples are conditioned as mentioned in clause 3.5 of this standard, weighed with accuracy upto 0.01 and immersed for 24 hours in distilled water at a temperature of 20 ± 2°C. Page 12

After the lapse of 24 hours, the samples are taken out from water, wiped dry and immediately weighed with accuracy upto 0.01 g.

Water absorption (B) as a percentage is calculated using the formula

$$B = \frac{m_1 - m}{m} \cdot 100$$

where m_1 - is the weight of the sample after immersion in water, g and

m - is the initial weight of sample in g.

The arithmetic mean of three determinations rounded off to the nearest whole number is taken as the result.

The difference between the values as determined should not exceed 4 % absolute.

3.13. The bend test consists of bending 20 mm wide fibre-board samples around a rod after conditioning as per clause 3.5. Three samples each cut from the sheet in the longitudinal and transverse directions are subjected to test. Visible cracks should not develop on the surface of the fibre-board when bent. If unsatisfactory results are obtained with even a single sample, each sheet of fibre-board is checked.

3.14. Five to ten grams of fibre-board cut out from various places on the sample is weighed with accuracy upto 0.01 g and dried at a temperature of 100 to 105°C till it attains a contant weight. Constant weight is considered to have been attained when the difference between the two successive weighings does not exceed

0.02 g. Moisture content (W) as a percentage is calculated using the formula

$$W = \frac{m - m_1}{m} \cdot 100$$

where m - is the initial weight of the sample, g and

m_1 - is the final weight of the sample, g.

Two parallel determinations are made. The arithmetic mean of two results rounded off to the nearest whole number is taken as the result. The difference between the values as determined should not be more than 2 % of the average value.

3.15. The properties of KGF grade fibre-board as a sealing and packing material are determined on three samples prepared in the form of rings with inner diameter 22 mm and outer diameter 31 mm. The sample is tested for airtightness of sealing in a flanged joint with petrol under a pressure of 3.5 kgf/cm^2 applied for 1 minute. The fixture with the pressed gaskets is held in a thermostat for 24 hours in dry air as medium at a temperature of 60°C. After this, the test is repeated for airtightness of seal without additional pressing of blank flange.

Samples which do not reveal a leak during the test are considered to have passed the test. Page 13.

3.16. Corrosive properties of each fibre-board sheet are determined on three samples of size 50 x 50 mm or on discs of diameter 25 mm separately for each type of metal.

Fibre-board samples are tightly pressed between two metallic plates (steel, aluminium, duralumin), thoroughly cleaned to remove oxide (rust) and held in a thosmostat for 72 hours at a temperature of 60°C with humidified air as medium. The surface of the metallic plates in contact with the fibre-board sample is then examined. Blackening of metallic plate surfaces visible to the naked eye is taken as the sign of corrosion.

Fibre-board which causes corrosion of metals is considered to be unacceptable.

3.17. Determination of oil absorption.

Three samples of size 50 x 50 mm are weighed with accuracy upto 0.01 g after conditioning them as per clause 3.5 of this standard. They are then immersed in transformer oil for 24 hours at a temperature of 15 to 20°C. After the lapse of the given time, the samples are taken out, wiped with filter paper and again weighed.

Oil content (M) as a percentage is determined using the formula

$$M = \frac{m_1 - m}{m} \cdot 100,$$

where m - is the weight of the sample, g before immersion in oil and

m_1 - is the weight of the sample, g after immersion in oil.

The arithmetic mean of test results for three samples is taken as the result.

3.18. Determination of benzine absorption

Three samples of sizes 50 x 50 mm are weighed with accuracy upto 0.01 g after conditioning them as per clause 3.5 of this standard. They are then immersed in aviation benzine for 24 hours at a temperature of 15 to 20°C. After the lapse of the given time, the samples are taken out with an extractor, lightly wiped with filter paper, placed in a beaker with ground glass stopper and weighed.

Benzine content B (B) as a percentage is determined using the formula

$$B = \frac{m_1 - m}{m} \cdot 100,$$

where m - is the initial weight of the sample, g and

m_1 - is the final weight of the sample, g.

The arithmetic mean of test results on three samples is taken

as the final result.

3.19. Procedure for determining adhesive strength of glued joint. The method is based on determing the load at rupture, when the glued joint is tested for shear strength. Page 14

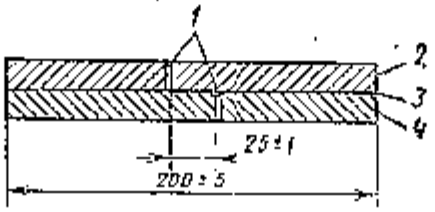
3.19.1. Apparatus

Tensile testing machine to GOST 13525.1-79.

3.19.2. Preparation for test

Five strips each of size 15 x 200 mm are cut from the selected samples in the machine direction on a milling or a planing machine.

Permissible deviation in width is ± 0.5 mm. Strips should consist of two adhesive layers of fibre-board. If there are more layers, the lower ones are removed. Grooves are cut in the strips as shown in the drawing.



1. grooves; 2. upper layer of fibre-board
3. glue layer; 4. lower layer of fibre-board

Fibre-board is conditioned in accordance with clause 3.5 before testing.

3.19.3. Test procedure

The prepared strip is clamped in a tesile testing machine and load is applied till rupture occurs. The rate of loading is 50 mm/min.

3.19.4. Evaluation of results

Adhesive strength of joint (σ_g) in MPa (kgf/cm^2) is calculated using the formula

$$\sigma_g = \frac{P}{S}$$

where P - is the load in newtons (kgf) at the time of rupture on the

scale of the tensile testing machine and

S - is the area in cm^2 of the adhesive surface.

The arithmetic mean of five determinations rounded off to 1 MPa (10 kgf/cm^2) is taken as the result.

3.19 to 3.19.4. (ADDED, REV. No. 2)

4. PACKING, MARKING, TRANSPORT AND STORAGE

4.1. Packing and marking of fibre-board should be carried out as per GOST 7691-75 with the following additional stipulations.

4.2. Fibre-board should be packed in dry wooden crates of suitable size. Fibre-board of grades FSV, and KGF (and also FE by mutual consent) should be packed in sturdy wooden boxes lined with water-proof paper to GOST 8328-75. KGF grade fibre-board sheets of different sizes may be packed in one box. All thicknesses should be indicated on the face panel of the packing cases. Fibre-board may be transported without packing by arranging the sheets horizontally forming an even stack by mutual consent.

4.3. Gross weight of a bale should not exceed 80 kg.

4.4. Fibre-board sheets of different grades, thicknesses and sizes should not be mixed up in a single bale except for grade KGF.

4.5. Fibre-board rolls should be tightened with steel packing tape to GOST 3560-73 and wrapped in three layers of packing paper of grade A or B (B) weighing 120 g/m^2 as per GOST 8273-75.

Tears and joints of fibre-board at the end of the roll are not acceptable.

4.6. The following particulars should be marked on each bale or roll.

a) manufacturer's name or trade mark;

b) product nomenclature indicating grade, thickness and sort (for second sort);

c) serial number of bale (roll);

d) gross and net weight of bale;

e) designation of this standard;

f) caution sign "Keep Dry";

g) facsimile of state quality mark as per GOST 1.9-67 for the product which has been assigned such mark.

(REVISED EDITION, REV. No. 1)

4.7. Fibre-board should be carried in clean covered, vehicles.

4.8. Fibre-board should be stored in dry, covered godowns in wooden racks protected from exposure to atmospheric precipitations and moisture from the soil.

4.9. Racks should not be positioned near outer walls of buildings or heating devices or piping of the central heating system.

4.10. Fibre-board sheets should be arranged horizontally in even stacks.

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