



birchply Plywood
Technical Properties

Technical specifications

Waterproofness	Normal, no delamination in 72 hours boiling.
Density, kg/m ³	640-700
Moisture content, %	5-14
Plywood is produced under STO 00255177-001-2013 "General purpose plywood with birch face veneers."*	

Strength specifications

Subject		Thickness, mm	Index
Static bending strength, N/mm ² , not less	along the outer layer grain	9-40	60
	across the outer layer grain		30
Strength in tension along the grain, N/mm ² , not less		4-8	30
Modulus of elasticity in static bending, N/mm ² , not less	along the grain	9-40	6000
	across the grain		3000

Thermal properties

Thermal Insulation

The thermal conductivity of plywood is dependent on its moisture content. Table shows the thermal conductivity coefficient of Birch plywood in two different humidity conditions.

Thermal conductivity coefficient of Birch plywood (BS 2750)

		RH 47 %		RH 93 %	
Birch Plywood	Thickness mm	Moisture content, %	Conductivity W/(m.k)	Moisture content, %	Conductivity W/(m.k)
Birch	40	9.3	0.147	26	0.175
Combi	40	8.8	0.188	25	0.145
Conifer	40	10.4	0.110	25	0.132

THERMAL DEFORMATION

Birch plywood has excellent dimensional stability under heat, far superior to that of metals and plastics. In practice, the thermal deformation of birch plywood is so small, that it can generally be disregarded.

USEABLE TEMPERATURE RANGE FOR BIRCH PLYWOODS

Standard Birch plywood and most coated birch plywood products are suitable for use at temperatures of 100°C and many up to 120°C. The supplier should be consulted for applications at high temperatures, especially if the birch plywood is load carrying. Birch plywood endures cold even better than heat and can be used at sustained temperatures as low as -200°C.

FIRE PERFORMANCE

Although Birch plywood burns it can have better fire resistance than many materials which do not burn. Birch plywood has an optimal dimensional stability under heat and a low rate of combustion, better than solid wood.

The temperature at which Birch plywood will ignite when exposed to a naked flame is about 270°C whilst a temperature of over 400°C is needed to cause spontaneous combustion. When exposed to a fully developed fire, Birch plywood chars at a slow and predictable linear rate (about 0.6 mm per minute), which enables it to be used in certain fire resisting constructions. This property can be improved by impregnation or coating the Birch plywood with proprietary formulations or by facing with non-combustible foils.



SOUND INSULATION

Sound is transmitted through air and through structures. Airborne sound insulation is dependent on the density of the insulating material. Birch plywood is a good insulating material in relation to its weight. For these reasons plywood is a good material for acoustic improvement solutions. The average measured sound reduction index (for the frequency range 100-3200 Hz) for single panels of Birch plywood is given in table.

Sound reduction index of Birch plywood	
Nominal thickness, mm	Sound reduction index, dB
6.5	20.0
18	23.8
24	25.3

The sound insulation of Birch plywood can be improved by using sandwich construction and by avoiding gaps between elements.

EMISSION OF FORMALDEHYDE

Formaldehyde emission from phenol formaldehyde resin adhesive bonded Birch plywood is very low and measured values are below even the tightest national requirements. When determined according to EN 717-2, the formaldehyde emission from unsurfaced exterior birch plywood is 0.4 mg HCHO/(m²•h), significantly lower than the requirements of class E1 (the best class). Also BirchPly, Birch plywood-exterior meets requirements of the formaldehyde emission limits of EN 1084, release class A (the best class) as well as enjoys the exemptions from California ARB regulations for P2.

CHEMICAL RESISTANCE

Birch plywood has good resistance to many dilute acids and acid salt solutions. Alkalis tend to cause softening. Direct contact with oxidising agents such as chlorine, hypochlorites and nitrates should be avoided. Alcohols and some other organic liquids have an effect similar to water, producing swelling and slight loss of strength. Apart from discoloration, petroleum oils have no effect.

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