Material characteristics

EIN super wood maintains stable quality for a long time under all conditions indoors and outdoors even under severe installation conditions due to its diverse functionality. It is a composite wood with superior material characteristics as "resource environment type'' that can be re-used many number of times.

I. Material performance and actual performance

It complies with the standard JIS A 5741 of wood, plastic and composite materials EX-I.

◆ Material performance of recycled composite

Performance item			Unit	JIS standard performance value（EX－I）	Test results
Basic properties	Density / specific gravity	True specific gravity	–	0.8-1.5	1.1
	Water absorption characteristics	Water absorption rate	%	Below 10	0.7
		Length change rate	%	Below 3	Length direction：0.0 Width direction：0.0
	Strength	Bending characteristics	MPa	Over 20	26.9
		Impact strength	KJ/㎡	Over 0.5	3.4
	Thermal characteristics	Heat deflection temperature	℃	Over 70	103.3
	Weather resistance	Tensile strength change rate	%	Within－30	-2
		Elongation change rate		Within 50	16
Stability	Volatile substance emission amount	Formaldehyde	mg/l	Average value of below 0.3, and maximum value of below 0.4	Average value: below 0.1 Maximum value: below 0.1
	Harmful substance solute quantity	Cadmium	mg/l	Below 0.01	Below 0.01
		Lead		Below 0.01	Below 0.01
		Mercury		Below 0.0005	Below 0.0005
		Selenium		Below 0.01	Below 0.01
		Arsenic		Below 0.01	Below 0.01
		Hexavalent chromium		Below 0.05	Below 0.05

II. Screw holding force

The material is harder than natural wood, about 4 times the domestic wood, and it boasts about 2.5 times the pull-out-strength of the hard imported wood.

◆ Screw retention test data（JIS A5905　Perforation of a 10mm thick board with a Ø5 screw）

	EIN Superwood	Cedar	Cypress	Redwood	Lophira alata	Jarrah	Ipe
Screw holding force	3230	509	789	589	1090	1140	1270

Unit：N

III. Abrasion resistance

Compared to natural wood, the material is harder than natural wood and wear is also small, so you can use it with confidence.

◆ Abrasion test data (JIS Z 2101)

	EIN Superwood	Cedar	Cypress	Redwood	Lophira alata	Jarrah	Ipe
Wear amount	0.052	0.340	0.223	0.266	0.099	0.111	0.106

Unit：mm

IV. 4 Thermal expansion

The thermal expansion coefficient is more stable than normal resin because it is melted and integrated in the form of plastic in the wood powder.

◆ Dimensional stability data (-20～60°C)

	EIN Superwood Length direction	EIN Superwood Width, height direction	Polypropylene Length direction	Polypropylene Width, height direction
Coefficient of linear expansion	2.9	7.0	8.2	9.6

Unit： x 10^{-5}/°C

V. Sliding resistance

By shaving the surface it puts out the wood grain of aggregate, it boasts slip resistance comparable to concrete flat plate, such as when used as a flooring material.

(Generally, if it is BPN 50 or more and CSR 0.46 or more it can be judged that it is not slippery.)

◆ Slip resistance data

Test method	EIN Superwood				Marble (main polish)	Concrete flat plate	Asphalt
	Dry condition		Wet condition				
	Right angle to the wood grain	Parallel to wood grain	Right angle to the wood grain	Parallel to wood grain			
ASTM E-303 (BPN)	95	88	61	55	7	63	66
O-Y-PSM (CSR)	0.52	0.47	—	—	0.33	0.52	0.75

VI. Preservation・Termite repellency

As the plastic is integrated into the wood powder's fibers, it difficult the wood fiber to absorb moisture and it is not affected by rot fungi and not eaten by termites.

◆ Preservation test (JISA 9201)

Test fungus	EIN Superwood	Cedar
Trametes versicolor	0	21.9
Fomitopsis palustris	0	63.4

Mass reduction rate (%)

◆ Anti-termite test [Japan Wood Protection Association Standard Regulation (1) of No.11]

	EIN Superwood	Pine Tree
Insect Mortality rate	100	7.0
Mass reduction rate	0	26.8

Test Ant：House termite

VII. Weather resistance（Cold resistance, heat resistance）

The quality is maintained even under severe weather environments, because it has low deterioration even in a repeated cooling experiment at -30 ° C to 80 ° C and also has heat resistance not softening to temperature near 120 ° C.

※ EIN super wood physical property value is a representative value and not the standard value.