

#### GENERAL DESCRIPTION

Lignostone® Transformerwood® threaded nuts and rods are a non-vacuum impregnated grade of densified wood for use in transformers. Manufactured from red beech veneers which are joined together with thermosetting synthetic resins under high pressure and heat. It displays the best electrical and mechanical characteristics for use as insulation material in oil-filled transformers. From sustainable forests only grown in Europe, the peeled veneers are subject to stringent quality measures.

#### FEATURES & BENEFITS

- Good electrical insulation properties
- High mechanical strength
- Resistant to transformer oils, weak acids and bases
- Corrosion resistant
- Non magnetic



#### APPLICATIONS

- Oil filled transformers
- Cleat bar and clamping

#### GENERAL INFORMATION

Material	Densified laminated wood with thermoset phenolic resins		
Colour	Natural		
Specification	Nuts	KP 20224	
	Rods	KP 20214	

TECHNICAL DATA	TEST METHOD	UNITS	NUTS	RODS
<b>General</b>				
Oil absorption	DIN 7707	%	~7	~7
<b>Mechanical</b>				
Specific gravity	IEC 61061	g/cm <sup>3</sup>	1.2 to 1.3	1.2 to 1.3
Modulus of elasticity in flexion (perpendicular)	ISO 178	N/mm <sup>2</sup>	11,000	16,000
Compressive strength (perpendicular)	ISO 604	N/mm <sup>2</sup>	230	90
Compressive strength (parallel)	ISO 604	N/mm <sup>2</sup>	90	120
Bending strength (perpendicular)	ISO 178	N/mm <sup>2</sup>	130	200
Bending strength (parallel)	ISO 178	N/mm <sup>2</sup>	130	200
Tensile strength (parallel)	ISO 527	N/mm <sup>2</sup>	100	170
Impact strength RT (perpendicular)	ISO 179	kJ/m <sup>2</sup>	30	50
Impact strength RT (parallel)	ISO 179	kJ/m <sup>2</sup>	25	45

Röchling

LIGNOSTONE® TRANSFORMERWOOD®

THREADED NUTS & RODS

Finished components for oil filled transformers

Lignostone®  
Transformerwood®  
Threaded Nuts &  
Rods

TECHNICAL DATA	TEST METHOD	UNITS	NUTS	RODS
<b>Thermal</b>				
Thermal conductivity	DIN 52612	W/mK	ca. 0.22	ca. 0.22
Operating temperatures continuous	DIN 7707	°C	100	100
Temperature limit when drying and oil impregnating	DIN 7707	°C	130	130
<b>Electrical</b>				
Electric strength (parallel)	IEC 60243	kV/25 mm	70	70
Electric strength at 90°C (parallel)	IEC 60243	kV/25 mm	70	70
Dielectric loss factor at 50 Hz	DIN 53483	tan alpha	0.02	0.02
Volume resistivity	IEC 60093	Ω x cm	10 <sup>12</sup>	10 <sup>12</sup>
Track resistance	IEC 60112		CTI 175	CTI 175

#### MATERIAL SPECIFICATIONS

##### Nuts

M 10, M 12, M 16, M 20

##### Rods (Length mm)

1,000 mm

#### MACHINING & FABRICATION

Insulect's manufacturing capabilities form a key part of the trusted service we offer our customers. Our two modern, well equipped facilities – in Brisbane and Melbourne – work with a wide range of electrical, thermal and mechanical materials – including plastics, composites and cellulose-based products.

We offer short run, specialty or volume based machining and fabrication for almost any application and can produce cut-to-order sheets or finished components. Coupled with our highly-trained and experienced team, we are able to deliver on the most complex of customer requirements.

#### SIZING & AVAILABILITY

The above table shows the most commonly requested products in this range. Should you require something outside of these parameters, please contact your local sales representative or our customer service team.