VARIOBOND

DESCRIPTION

Variobond is a thixotropic, two component bonding paste based on solvent free epoxy resins and polyamine adduct hardeners.

PRINCIPAL CHARACTERISTICS

- Suitable as adhesive for bonding various materials such as wood, steel, aluminium, plastics and their combinations;
- Also suitable as multi-purpose filler for steel, wood, GRP, etc.;
- Recommend for fillet-joints;
- Good adhesive power;
- Excellent water resistance;
- Easy mixing as both components are thixtropic;
- Easy application;
- Suitable for woodcore epoxy constructions;
- Also available in mahogany colour, packed in a cartridge.

COLOURS AND GLOSS

Opaque or Mahogany - Gloss

BASIS PROPERTIES (AT 23 °C AND 50 % R.H.)

Density	:	approx. 1,4 g/cm^3 (mixed product)
Solid content	:	approx. 100 % (volume)
Recommended d.f.t.	:	depending on application
Dust dry after	:	approx. 24 hours
Full cure after	:	approx. 2 days, see additional information
Recoating interval	:	min. 24 hours, see additional information max. unlimited
Shelf life	:	separate components, stored cool and dry in original packaging, minimum 12 months
Flash point (DIN53213)	:	base component 150 °C hardener 112 °C

SPREADING RATE

Depending on application : approx. 1,0 - 3,0 m^2/kg, see additional information

The practical spreading rate depends on a number of variables, such as: shape and size of object to be painted, the condition and profile of the substrate, the method of application, climatologic conditions and skill of labour.

SUBSTRATE CONDITION AND TEMPERATURE

Wood	:	clean and dry, free from any contamination and loose particles, moisture content maximum 12%, pre-treated with Variopox Injection resin and/or Variopox Impregnating resin and sanded with grit paper P120;
Metals	:	clean and dry, free from oil, grease, contamination and loose particles, pre-treated with IJmopox ZF primer and sanded with grit paper P120;
Concrete	:	clean and dry, free from any contamination and loose particles, moisture content maximum 4%, pre-treated with Variopox Injection resin;
Polyester	:	clean and dry, free from contamination and loose particles, exposed glass fibres pre-treated with Variopox Injection resin and sanded with grit paper P120;
Other surfaces	:	clean and dry, in good condition, free from any contamination and loose particles, sanded with grit paper P120;

During application and curing a minimum temperature of 15 ºC is allowed. The temperature of the substrate should be minimum 3 ºC above dew point.

INSTRUCTIONS FOR USE

Before use, mix base and hardener components thoroughly.

Mixing ratio : 67,0 base : 33,0 hardener (by weight)
67,0 base : 33,0 hardener (by volume)
Do not prepare more material than can be applied within the pot life of the mixture.

Induction time : none at 20 ºC

Pot life : 20 minutes at 30 ºC
40 minutes at 20 ºC
50 minutes at 15 ºC

Application with:

	Puttyknife, comb
Type thinner	n.a.
% of thinner	
Nozzle orifice	n.a.
Nozzle pressure	n.a.
Cleaning	Double Coat Degreaser

Do not add any solvent to Variobond.

ADDITIONAL INFORMATION

- Curing of Variobond:

	10 ºC	20 ºC	30 ºC
Minimum, with IJmopox or Variopox, after sanding with P120	48 hours	24 hours	24 hours
Minimum, with Double Coat, after sanding with P180	3 days	2 days	2 days
Maximum, with epoxy or Double Coat, after sanding	unlimited	unlimited	unlimited
Fully cured after	4 days	2 days	2 days

- Pot life
  Do not continue application when the pot life is about to end. As the reaction between base and hardener has progressed, a poor adhesion will be the result.

- Application of Variobond at lower temperatures
  Curing at temperatures lower than 10 ˚C will result in a sticky layer on top of the cured resin. This will negatively affect adhesion of following coating.

- Possible combinations with other products
  Several combinations are possible with Variopox and Variobond. Depending on requirement, the thixotropy of the mixture may be adjusted by combining different base components and hardeners. The following combinations are possible:

To obtain:	Use as base component:	Use as hardener component:
high thixotropy	Variobond base, 67 parts by weight	Variobond hardener, 33 parts by weight
medium thixoptropy	Variobond base, 75 parts by weight	Variopox universal resin hardener, 25 parts by weight
low thixotropy	Variopox universal resin, 50 parts by weight n	Variobond hardener, 50 parts by weight
medium thixotropy with low flexibility	Variobond base, 70 parts by weight	Variopox Flex 75 hardener, 30 parts by weight

Adding Variobond to Variopox universal resin will change the colour from transparent to opaque.

- Mechanical properties

Property	Value	Unit	Test method
• Tensile strength	23	MPa	ISO 527-3
• Elongation at break	3	%	ISO 527-3
• Flexural strength	60	MPa	ISO 178
• Modulus of elasticity	5747	MPa	ISO 178

- Joints (fillet)
  A fillet joint is a simple connection suitable for plywood. The fillet is made with a round spatula or old tablespoon. The most suitable radius (r) for the joint is 2 to 5 times the thickness of the plywood (d), see figure 1.
  The amount of Variobond for the fillet can be calculated with the formula: quantity (gram) = 0,3 x (radius (r) in mm)2 x length (m)

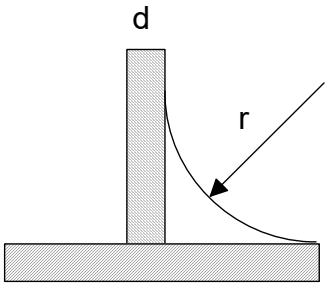

Figure 1 Fillet

- Repair of damaged areas, wood rot
  Identify the weak and damaged areas by pressing a screwdriver against the surface. Remove all dirt, loose particles and poor adhering paint by means of scraping. Remove rotten parts by chiselling up to a sound and clean surface. Remove dust and leave surface to dry. Apply one coat Variopox Injection resin and allow to cure for 24 hours. When a large area have to be repaired, make a support from plywood and plastic. Apply Variobond with a putty knife and press the material in all cavities and pores. Model and smoothen the layer of Variobond as good as possible. 24 hours after application and after sanding Variobond may be recoated with a suitable paint system.

- Mechanical properties
  After 7 days curing at 20 ºC Variobond will have following mechanical properties:

Shore D hardness	80	
Trensile strength	60	MPa
E-modulus	3,000	MPa
Elongation at break	1.5	%
Waterabsorbtion	<0.4	%

- Variobond in cartridge
  - Variobond is available in a cartridge. This cartridge contains both components. With a standard caulking gun the two components are dispended in the correct ratio. Mix afterwards both components with a putty knife.
  - Do not use the first few centimetres when a new cartridge is used.
  - Use a caulking gun of good quality. Do not remove the black disc from the cartridge. Without this disc, the components will not be dispensed from the cartridge.

SAFETY INFORMATION

See the corresponding Material Safety Data Sheet for detailed instructions on safety, disposal and health.

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