

Restoration Supplies

tools materials & equipment for ceramic restorers

Technical Data : HXTAL NYL – 1

Physical Properties

Appearance	Colourless, clear two part epoxy resin
Tensile Strength	5400 psi
Tensile Modulus	316,000 psi
Elongation	3%
Flexural Strength	10,100 psi
Flexural Modulus	365,000 psi
Impact Strength	0.14 ft lbs / in
Heat Distortion Temp	264 / 66 psi
	37.5 °C / 39 °C
Hardness (Shore D) 0 / 10 secs	78 / 73
Refractive Index	1.549
Surface pencil hardness	
24 hrs	<3B
72 hrs	B
96 hrs	HB
14 days	F
(7 day cure @ 25 °C, 4*0.5*0.125 inch sample)	
Gel Time, 110g mass 150 °F	25.8 min
100 °F	262.7 m
Cure of 0.2 mm film at 25 °C	
Cure to touch	15.3 hours
Full cure	30.9 hours

General

Hxtal Nyl-1 was the first epoxy adhesive to be developed specifically for conservation and restoration use. A two part, low viscosity, epoxy it has exceptional non-yellowing properties combined with high strength characteristics This low viscosity, hard, water-white, glass like epoxy also adheres strongly to metals, wood, ivory and marble.

Despite being used in such small quantities we recommend that all aspects of use be conducted within areas of good ventilation, the mixture may be irritating to the eyes and skin and appropriate care should therefore be adopted during use. The resin does carry a "Harmful" warning and the Hardener a "corrosive" label.

Mixing

For best results Hxtal Nyl-1 should be accurately mixed by weight (Hxtal may be mixed by volume to the same ratio but is best suited to mixing by weight), cure time will be affected by incorrect mixing. The mixing ratio is : Three (3) parts **A** (resin) to one (1) part

B (hardener). Mix in a clear glass or polythene container ensuring parts are thoroughly mixed.

Application (general)

Once mixed Hxtal Nyl-1 will be very thin and is suitable for all applications where a thin bond line is required, this however may be too thin for porous parts that require an amount of gap filling. For porous parts and small gap filling a thicker consistency is required. To thicken the adhesive cover the container, allowing it to stand for a few hours. Freshly mixed Hxtal Nyl-1 is very thin and penetrates deep into the smallest crack, to increase the penetration warm the crack with a hair dryer or low voltage lamp.

Bonding uneven, pitted or sawn glass surfaces

Where bonding uneven or even pitted glass surfaces together we recommend treating all surfaces to be bonded with Hxtal with an AC1100 solution in ethanol. Applying a pre-treatment of A1100 eliminates tiny micro bubbles that seem to form, often much later, in the glue line along the sawn or irregular edge.

An alcohol and silane produce, A1100 may react with some sensitive skins, users should wear protective handwear, goggles and appropriate vapour mask (or within a controlled fume extraction unit). Barrier cream is also recommended. If contact with skin occurs wash immediately with soap and water. A1100 is flammable and should therefore be used in a well ventilated area. The container should be closed when not in use.

When the glue surfaces are totally clean and ready for gluing, simply apply the A1100 solution over the entire surface to be glued using a lint-free cloth and allow the solvent to evaporate leaving an extremely thin film of the A1100 coating the surface of the glass, this will not be visible after gluing. Immediately bond with Hxtal in your usual way.

Cure time

In normal use Hxtal Nyl-1 is a slow curing adhesive. At 75 °F : Handling strength is achieved in approx 24-30 hours (90% of cure time is achieved in 7 days). Cure times can be cut sharply by preheating the mix (and the object, providing its condition allows) to 38 °c for 15 to 20 minutes before use, and for an even faster cure, immediately after mixing raise the temperature to 60 °C to 77 °C for 1 to 2 minutes. After cooling, such preheated resin has a viscosity of the epoxies commonly sold in tubes and the cure time is just a few minutes. The cure time can also be shortened by warming the cemented object up to 60 °C. We recommend CAUTION though since if the warming is started too soon after the application of the adhesive, the adhesive may thin and run away from the joint.

Clean – Up

To clean surplus adhesive from the repair site allow Hxtal Nyl-1 to cure for 24-30 hours carefully scraping away any surplus with a one sided razor or sharp knife. Solvents soaked into a cloth may be used away from the joint but remember that should the solvent come into contact with the adhesive it may penetrate the joint weakening or even breaking the joint.

Colouring

Powder pigments should be ground to between 30 – 40 microns for best possible dispersion. Titanium Dioxide can also be used to match translucency of fine porcelain.