Electrical Cable Gland Epoxy Putty (ST574)

Description

Hylomar Cable Gland Epoxy Putty is a high quality structural adhesive filler based on epoxide resins.

The products were originally developed for use on high speed military aircraft and have since been used successfully for many varied applications throughout industry.

When cured, Hylomar Epoxy Putty can be drilled, filed, sawn, ground and generally shaped and treated like metal. It can be used to bond iron, steel, brass, bronze, aluminium, concrete, brick, porcelain and glass to themselves and to one another, and is ideal for modelling and for making prototype moulds, jigs, tools, dies, and formers. In addition, Hylomar Epoxy Putty can be used for repairing and even re-building broken machinery; filling large or small holes in castings; repairing cracks in cast machinery parts; mending worn bearings and stripped threads; building up worn faces on machine tools and repairing damaged concrete. This resistance to chemicals allows it's use to repair cracks and holes in pipes and ducting, in valves, hydraulic systems, water tanks, bulk storage tanks and steam pressure lines.

Properties

Specific Gravity	2.0
Specific Volume	0.5 litres/kg 13.9 cubic in/1b
Hardness	85-90° Shore D
Tensile Strength	25.0 MN/m^2 approximate figures 3,625 $1bf/ in^2$
Compressive Strength	70 MN/m^2 10,150 $1bf/in^2$
Adhesion to Aluminium	4.6 MN/m^2 670 $1bf/in^2$
Adhesion to Mild Steel	4.6 MN/m^2 670 $1bf/in^2$

Mixing & Application

Hylomar Cable Gland Epoxy Putty is supplied as a two-part system, requiring only that the hardener and resin components (Parts A and B respectively) are mixed before use.

The product is designed to give the best general properties by mixing the two components together in equal parts by volume. It is strongly recommended that this ratio be adhered to. However, the ratio can be varied if necessary to emphasise some properties, but at the expense of others. For example, a 50% excess of the hardener component will give added flexibility/resilience, and a similar excess of the resin component will generally give improved hardness at high temperatures.

Hylomar Epoxy Putty is mixed by blending the two parts by hand. It is convenient first to 'wrap' the more sticky hardener in the resin component before starting the kneading and rolling process. In all cases it is essential that mixing be carried out until all traces of the separate components have disappeared. Any inadequacy in the mixing process will leave layers and areas of weakness in the cured materials.

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The parts to which the materials are to be applied should be clean and dry, and preferably have a freshly-abraded surface.

When applying the Putty it may be an advantage to warm the surface beforehand to a little above the normal room temperature; this will improve the 'wetting' of the surface by the Putty and give it enhanced adhesion. With good and thorough surface preparation Hylomar Epoxy Putty materials will adhere to most hard surfaces and to many plastics materials. Exceptions are polyethylene, PTFE and plasticized PVC.

The surface of the uncured compound may be smoothed off immediately after application using water as a lubricant. This procedure is not recommended, however, if it is intended to cure the assembly at a high temperature, since surface blistering may result.

Working Properties

The cured material can be sawn, drilled, tapped and generally machined like metal. It will not become brittle and will not clog files and abrasives. Any normal kind of paint can be applied and the products are not damaged by the usual paint stoving cycles.

Chemical Resistance

Resistant to many chemicals, solvents, oils and water when cured. Slow but progressive attack by strong alkalis and mineral acids ultimately affects adhesion. Softened slightly by some chlorinated solvents, which can help with the removal of cured material.

Heat Resistance

May be used at temperatures of -60°C to +120°C for extended periods in light or non-load bearing applications, but test joints show a 50% reduction of adhesive strength at 150°C. However, when used as a filler with mechanical support may be used at temperatures up to 250°C. As a thermoset material, it will not distort at high temperatures when not under stress.

Heat Distortion Temperature

Mixed in ratio: 1 Volume Part A to 1 Volume Part B - 68 deg.C.

Electrical Properties

Suitable for use as an insulating sealant/adhesive on electrical applications.

Notes on Property Tables

1) CURE - The test results recorded were obtained on specimens cured at temperatures of 100-200°C, but substantially similar results may be obtained after cure at 20-25°C for 24 hours.

2) TEST METHODS

Heat Distortion Temperature	Temperature of Deflection Under Load) B.S.2782:121A:1976
Hardness	Shore D-B.S.2782:365B:1981
Tensile Strength	BS.2782 METHOD 301E
Compressive Strength	BS.2782 METHOD 102G

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Adhesion	Measured in single-overlap joints with a bond area of 1 inch square. Specimens abraded and degreased before assembly and cured under contact pressure.

3) TEST RESULTS - The figures given are typical results obtained in the laboratory tests, and are not to be considered to form a specification.

Handling Precautions

Hylomar Cable Gland Epoxy Putty is made from components carefully selected to give the lowest possible risk of skin irritation and for over 25 years these products have been used safely throughout industry. The Putty grades are intended to be mixed by hand and normal skins are not usually affected if good hygiene practices are observed. However, all reactive chemicals of this type carry some risk of irritation, especially to those persons having a history of chemical allergy. We recommend the use of gloves when mixing by hand.

The application of barrier cream is recommended before working with these materials, and in addition, the adoption of the following measures are recommended:-

- Avoid touching sensitive parts of the body with hands contaminated with compound.
- Wash well with soap and water after handling.
- Cover working surfaces with paper or plastic sheeting, which can regularly be changed. Use paper towels.
- Launder overalls regularly.

Shelf Life

Epoxy Putty will retain its properties for 24 months if stored at normal room temperatures in the original unopened container.

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