



# ALH Systems Limited

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## TECHNICAL DATA

### NP1003

### GENERAL PURPOSE EPOXY RESIN SYSTEM

### UL 94 V-0 Approved

#### Product Description

NP1003 is a two part epoxy resin system that has been given UL 94 V-0 Approval. The system cures at room temperature to a high gloss finish. It is flame retardant and thermally conductive. The resin system is slightly flexible to allow for thermal fluctuations and is suitable for encapsulation of PCB's and general electronics.

#### The LED Range of Resins

The electronics and the power supplies behind the LED's require advanced resins for protection and to dissipate generated heat. The NP1003 epoxy system offers an internationally recognized solution to many power supply problems. The water uptake is minimal (0.1%/30 days) and the slight flexibility makes NP1003 useful in most outdoor applications. The excellent thermal conductivity of 0.9 W/m/°K and low expansion coefficient (40 ppm/°C) provide the necessary performance for LED Power supplies.

#### Features

- \* UL 94 V-0 Approved
- \* High Gloss Finish
- \* Ambient or Elevated Temperature Dispensing and Curing
- \* Contains No Halogens and is Non-Toxic.
- \* Good Thermal Conductivity to Dissipate Heat

#### Applications

- \* Assemblies
- \* Power Supplies
- \* Modules
- \* Drivers



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## Typical Uncured Physical Properties

Property	Base	Hardener	Mixed System
Viscosity (mPas)	30000 – 60000	300	6000 - 10000
Colour	Black	Clear Amber	Black
Specific Gravity	1.82	0.96	1.70
Mix Ratio	10.1 5.3	1 1	By Weight By Volume
Pot Life	45 Minutes		150 gm @ 23°C
Gel Time	180 Minutes		150 gm @ 23°C
Peak Exotherm	37 °C		150 gm @ 23°C
Complete Cure	24 Hours		150 gm @ 23°C

## Typical Cured Properties

Property	Result	Units
Operating Temperature	-55 to +130	°C Continuous (Application & Geometry Dependent)
Shore D Hardness	80	
Electric Strength	15	kV/mm
Thermal Conductivity	0.9	W/m <sup>0</sup> K
Volume Resistivity	10 <sup>14</sup>	Ohm-cm
Loss Tangent	0.04	@ 50 Hz
Permittivity	4.00	@ 50 Hz
Continuous Tracking Index	>850	V
Cure Shrinkage	0.3	% (volume)
Flammability	UL 94 V-0	Certified
Tensile Strength	50	MPa
Compressive Strength	120	MPa
Deflection Temperature	60	°C
Coefficient of Expansion	40	ppm/°C
Water Absorption	0.3	% (30 days @ 20°C)
Elongation at Break	1.5	%

Note: The above technical information and data should be considered representative or typical only and should not be used for specification purposes.



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Supply	Details
Twinpacks	Ideal for mixing without the entrapment of air
Kits	The resin base and hardener are supplied in two separate containers, pre-weighed to facilitate accurate mixing for larger applications
Bulk	The NP1003 system is formulated to prevent sedimentation on storage. However, storage at higher ambient temperatures (above 25 °C for instance) or for long times, can cause some settlement. It is important that any sediment is redispersed into the bulk resin prior to using the resin. This can be done by stirring with a long spatula.
Shelf Life	The materials should be stored in the original unopened containers under cool dry conditions at temperatures between 10 and 25 °C. The shelf life is one year. Opened containers should be resealed.



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## Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. All Products should be used in accordance with your own COSHH Assessments. For additional health and safety information, call 01373 858234.

## Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that ALH believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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