

Thermoset™ ES-100 Epoxy Encapsulant

Technical Data Sheet

Thermoset™ ES-100 encapsulant is a two-component epoxy system designed specifically for encapsulation of intricate electrical and electronic components used in automotive, marine and heavy industrial applications. Thermoset ES-100 encapsulant maintains its flexibility and low modulus characteristics after thermal aging, making it an excellent choice for potting or encapsulating delicate and pressure-sensitive electronic components.

Features and Benefits:

Low Viscosity – maintains low viscosity for ease of void-free component encapsulation.

Low Stress – exhibits low shrinkage and stress on components as it cures.

Chemically Resistant – provides excellent resistance to marine engine compartment fluids and automotive under-the-hood fluids.

Environmentally Resistant – provides excellent resistance to moisture and humidity; exhibits good hydrolytic stability; maintains flexibility in extremely harsh environments and temperatures.

Application:

Mixing – Mix Thermoset ES-100 resin with Thermoset ES-100 hardener at a 1:1 ratio, by volume. Automatic meter/mix/dispense equipment may be used for high volume production.

Applying – Apply encapsulant using handheld cartridges or automatic meter/mix/dispense equipment.

Curing – Allow encapsulant to cure for 3-4 hours at 80°C. This time-at-temperature profile refers to the time the material should be allowed to cure once it reaches the target temperature. Allowance should be made for oven ramp rates, parts with large thermal mass and other circumstances that may delay material reaching the target temperature.

Cleanup – Disposable containers and utensils are recommended when working with epoxies. However, when disposable materials are impractical, uncured encapsulant can be removed by cleaning equipment with solvent. Solvent-cleaned utensils should be thoroughly dried before reuse; any remaining solvent can contaminate the next mixture.

Shelf Life/Storage:

Shelf life of each component is one year when stored in a well ventilated area at 25°C in original, unopened container.

Typical Properties*

	ES-100 Resin	ES-100 Hardener	Mixed
Appearance	Black Liquid	Amber Liquid	Black Liquid
Viscosity, cP @ 25°C	300	8000	1200
Specific Gravity	1.03	0.97	1.00
Gel Time, minutes @ 80°C	–	–	60
Working Life, hours @ 25°C	–	–	12-16

*Data is typical and not to be used for specification purposes.



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Typical Cured Properties*

Coefficient of Linear Thermal Expansion, ppm/°C ASTM D696	270
Glass Transition Temperature (T _g), °C by TMA	-55
Hardness Shore OO, ASTM D 2240	70
Tensile Strength, MPa (psi) ASTM D 412	0.45 (65)
Elongation at Break, % ASTM D 412	122
Moisture Absorption, % 24-hour soak 25°C	0.28
Volume Resistivity, ohm-cm @ 25°C ASTM D 257	1 x 10 ¹¹
Dielectric Strength, kV/mm (V/mil)	15.7 (400)
Dielectric Constant ASTM D 150	4.0
Dissipation Factor @ 25°C ASTM D 150	0.13

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Cautionary Information:

Before using this or any Parker LORD product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

Values stated in this document represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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