

ES3402

One component Epoxy for Electronics Devices

ES3402 is a one-component epoxy for electronic devices and it is also suited for the application of electronic devices dam, insulation, moisture resistance, encapsulation, and bonding. The resin offers good machinability and stability. This product exhibits high adhesion strength, greasy resistance, chemical and solvent resistance. The durability of this product is high levels and this resin can pass many environmental test experiments. For its characteristic and reliability, this resin is used widely in various areas, as a high-performance adhesive..

FEATURE

- Medium viscosity and good leveling; providing matted surface
- Highly vibration resistance at ordinary temperature
- Excellent retained strength after environmental test
- Comply to the 2011/65/EU RoHS regulations
- Comply to Chlorine < 900ppm, Bromine < 900ppm, Chlorine + Bromine < 1500 ppm

TYPICAL UNCURED PROPERTIES

Properties	ES3402
Appearance	Viscous liquid
Color	Black
Viscosity *25°C, S14 20 rpm, cps	30,000
Viscosity *25°C, S14 2rpm, cps	31,250
Thixotropic index	1.04

TYPICAL CURING PROPERTIES

Properties	ES3402
Pot Life, 25°C, days	2
Through Cured Time 120°C, min	60

DIRECTION OF USE

1. The package of this resin which is refrigerated in 2~13°C can be brought to ambient conditions by allowing to stand at room temperature for 1 - 2 hours. Do not loosen container cover before temperature equilibration.
2. Bonding surfaces should be clean, dry and properly prepared.
3. Apply adhesive to one or both substrates to be bonded. The parts must be held in contact until the adhesive is cured.
4. Cure time on the really part will depend upon factors such as part geometry, materials to be bonded, bond-line thickness and efficiency of the oven. Cure schedule should be confirmed with actual production parts and equipment.

5. For large scale application, this product is suggested to be precured at lower temperature, then full curing at high temperature.

TYPICAL CURED PROPERTIES

Properties	ES3402
Glass Transition Temp., (MDSC), °C	64
CTE (*2) (>T _g), μm/m/°C	226
Durometer Hardness, Shore D	69
Specific Gravity (20/20°C)	1.28
Water Absorption Ratio (25°C/24hr), %	0.97
Water Absorption Ratio (80°C/24hr), %	3.15
Water Absorption Ratio (97°C/1.5hr), %	1.41
Specific Heat 0°C, J/g°C	6.26
Specific Heat 25°C, J/g°C	6.66
Specific Heat 50°C, J/g°C	6.96
Specific Heat 75°C, J/g°C	7.26
Specific Heat 100°C, J/g°C	7.47
Degradation Temp (TGA 10°C/min), °C	305
Weight Loss Ratio @100°C, %	0
Weight Loss Ratio @150°C, %	0
Weight Loss Ratio @200°C, %	0
Weight Loss Ratio @250°C, %	0.5
Weight Loss Ratio @300°C, %	4.5
Weight Loss Ratio @350°C, %	11.6
Volume Resistivity, Ohm-cm	5 x 10 ¹⁵
Surface Resistivity, Ohm	5 x 10 ¹⁴
Dielectric Constant 100Hz	4.37

(*1) Cure Condition: 120°C/ 60 min

(*2) CTE: Coefficient of Thermal Expansion

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STORAGE AND SHELF LIFE

This resin should be kept without any possibility of moisture and heat exposure. It should be storage at 2°C ~ 13°C before opening the containers. This product has a six-month minimum shelf life. Before using, it should place this product at 14~34°C for 1 to 2 hours. The viscosity and properties will be changed when replace this product at room temperature for long time.

CAUTION

Some findings indicate a lack of potential for carcinogenicity with the compositions of this product by long term recurrent application to the skin. However, contact with skin is likely to produce mild transient reddening. It is important to remove adhesive from skin with soap and water thoroughly. DO NOT use solvents for cleaning hands. This resin is of moderate acute toxicity by swallowing. If swallowed, call a physician. Avoid contact with eyes. In case of contact, flush with water for at least 15 minutes and get medical attention immediately. For specific information on this product, consult the Material Safety Data Sheet.

The data contained in this bulletin is provided only as a guide for evaluation/consideration. These material characteristics are typical properties that are based on a limited number of samples tested in the laboratory. We cannot assume responsibility for results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any product or method. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide.