GLUDITEC
Glue & Dispensing Technology

Technical Data Sheet

ES3400

Single component Epoxy Encapsulation for Electronics Devices

ES3400 is a one-component epoxy adhesive for the application of electronic devices. This product develops tough, strong, structure which offers excellent shear, peel and impact strength. This product can be applied to electronic devices encapsulation. The durability of this product is very high levels, and it can pass many environmental test experiments.

FEATURE

- This product is solvent-free, non-volatile, system.
- Cured product demonstrates excellent protection and for electronic devices.
- This product exhibits excellent dimensional stability over a wide temperature range.
- This product offers excellent retention of electrical insulation properties under high humidity conditions.
- Cured product offers outstanding resistance to water in gaseous state and liquid state.
- The retained adhesion strength of this product after environmental test experiments is still high.
- This product complies to the 2011/65/EU RoHS regulations.
- This resin complies to chlorine < 900ppm, bromine < 900ppm, chlorine + bromine < 1500ppm.

TYPICAL UNCURED PROPERTIES

Properties	ES3400
Appearance	Liquid
Color	Black
Viscosity *25°C, cps	45,000 ~ 85,000 S14, 10 rpm

TYPICAL CURING PROPERTIES

Properties	ES3400
Pot Life, 25°C, day	7
Cured Time 120°C, min	40

DIRECTION OF USE

1. The package of this product which is refrigerated in -40~-5°C or 2°C ~ 13°C can be brought to ambient conditions by allowing to stand at room temperature for 1 to 2 hours. Do not loosen container cover before temperature equilibration.

2. It should be applied to a clean surface which is free of dirt, grease or mold release. In many cases, a simple solvent wipe is sufficient

3. Cure time on the really part will depend on 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.

TYPICAL CURED PROPERTIES

Properties	ES3400
Glass Transition Temp., (DSC), °C	130
CTE (*2) (<Tg), μm/m/°C	50
CTE (*2) (>Tg), μm/m/°C	160
Specific Heat 0°C, J/g°C	4.76
Specific Heat 25°C, J/g°C	4.87
Specific Heat 50°C, J/g°C	5.03
Specific Heat 75°C, J/g°C	5.27
Specific Heat 100°C, J/g°C	5.42
Durometer Hardness, Shore D	89
Specific Gravity	1.48
Water Absorption Ratio (25°C/24hr), %	0.59
Water Absorption Ratio (80°C/24hr), %	2.06
Water Absorption Ratio (97°C/1.5hr), %	0.84
Degradation Temp (TGA 10°C / min), °C	317
Weight Loss Ratio @100°C, %	0.17
Weight Loss Ratio @150°C, %	0.33
Weight Loss Ratio @200°C, %	0.47
Weight Loss Ratio @250°C, %	0.83
Weight Loss Ratio @300°C, %	2.99
Weight Loss Ratio @350°C, %	13.50

(*1) Specimen Cure Condition: 120°C/ 40 min
(*2) CTE: Coefficient of Thermal Expansion

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Properties	ES3400
Volume Resistivity, ohm-cm	$4.5*10^{15}$
Surface Resistivity, ohm	$4.5*10^{14}$
Dielectric Constant, 1KHz	3.2

STORAGE AND SHELF LIFE

This product should be kept without any possibility of wet and heat exposure. Shelf life of this product is 1 year when stored below -40oC ~ -5°C before opening the containers. Shelf life of this product is 6 months when stored below 2°C ~13°C before opening the containers. Before using, it should place this product at 14~34°C for 1 to 2 hours. The 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 product 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 more information, refer to the Material Safety Data Sheet.

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