IRS 2040-1

Epoxy Potting Compound, Flame Retardant Encapsulating Compound

Description

IRS 2040-1 Epoxy Potting Compound is a non-toxic general purpose flame retardant encapsulating compound. It has a long pot life and can be cured at ambient temperatures or accelerated with heat.

When cured, IRS 2040-1 exhibits good surface finish, high electrical strength, good thermal conductivity, low exotherm and low cure shrinkage. It is compatible with most PCB components and materials over a wide range of temperatures. In addition to this it has excellent adhesion to most plastic and metal substrates.

IRS 2040-1 is suitable for a wide variety of applications due to its combination of properties and ease of use. It does not contain halogens or heavy metals and comes in a standard colour of black.

Key Properties

- High electrical insulating characteristics
- Non-toxic
- Good thermal conductivity
- Low shrinkage
- High adhesion
- Flame retardant to UL94 V-0 @ 3mm
- Good chemical and water resistance
- Meets the requirements of WEEE and RoHS
- Long pot life
- Cured at room temperature or with heat

Typical Properties

Property	
Specific gravity (g/ml)	1.70
Viscosity m.Pa.s @ 25°C	6,500 cps
Mix ratio	8.5:1 resin to hardener by weight 4.8:1 resin to hardener by volume
Operating temperature	-55°C to +130°C
Shore hardness	D80 – D90
Flammability	UL94 V-0 @ 3mm
Shrinkage	0.3%
Tensile strength	14 mPa
Compressive strength	60 mPa
Deflection temperature	35°C
Thermal conductivity	0.85 W/mK
Elongation at break	0.7%

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Property	
Loss tangent	0.060 @50Hz
Colour	Black
Coefficient of thermal expansion	35-55 ppm/°C
Impact strength	310 KJ/m^2
Electric strength	18 kV/mm
Relative permittivity	4.8 @50Hz
Flexural strength	31.3 MPa
Flexural modulus	2.08 GPa
Water absorption	0.3% (30 days @ 20°C)

Bondline Temperature	Pot Life	Gel Time	Light Handling	Full Cure
RT (20°C)	40 - 80 minutes	180 minutes	24 hours	48 hours
60°C			2 hours	4 hours
80°C			1 hour	2 hours

Cure time will depend on cross sectional area, ambient conditions, and mixing method. The above data is given as a guide only. Hotter temperatures may be used for faster cure but will result in higher post cure shrinkage and higher cure exotherm. Experimentation and testing is suggested to avoid side effects.

Storage and Shelf Life

12 months at 25 +/- 10 °C

Many epoxy resin systems are prone to crystallization as epoxy resin is a super-cooled fluid. This condition may give the product a gritty or grainy appearance (or hazy in clear products). Products in this state will not usually cure to normal and expected properties. In extreme cases it may appear solid and cured. Fluctuating temperatures (within 5 to 50 °C) aggravate this phenomenon. Heating the individual component to 50 to 60 °C while stirring can usually restore products to original state.

Health and Safety

Epoxy resin systems may cause sensitisation by skin contact or inhalation may be corrosive, harmful or toxic. It is therefore strongly recommended that skin and eye contact is avoided by the using of appropriate personal protective equipment such as gloves, safety glasses or goggles and overalls.

Wash any contamination from the skin immediately and thoroughly and do not eat, smoke or drink in the working vicinity. Under normal working conditions a good source of ventilation is adequate, however if the material is heated, or where vapour levels are likely to exceed the occupational exposure limits appropriate respiratory protection must be worn.

Local exhaust ventilation (LEV) may be required especially for curing ovens or where large volumes of material are curing.

The above is given as a guide only; please refer to IRS2040-1 safety data sheet individual/specific advice.

Useful Resources

Product webpage

Warranty

Statements, technical information and recommendations contained herein are based on tests we believe to be reliable but they are not to be construed in any manner as warrantees expressed or implied. The user shall determine the suitability of the product for his intended use and the user assumes all risk and liability whatsoever in connection therewith.