STYCAST® 5952 A/B

Thermally Conductive Silicone Encapsulant

Key Feature:	Benefit:
• Good thermal conductivity	• Dissipation of heat from embedded components
• Easy 1 to 1 mix ratio	• Ease of use
• Reversion resistant and non-corrosive	• High reliability of encapsulated assemblies

Product Description:

STYCAST 5952 A/B is a filled, addition cured, silicone encapsulant. It features good thermal conductivity, excellent electrical insulation properties, a convenient mix ratio and can be cured over a wide range of temperatures. STYCAST 5952 A/B can be cured in thick sections and is non-corrosive and reversion resistant.

Applications:

STYCAST 5952 A/B was designed for encapsulating heat generating electronic devices such as bridge rectifiers, power supplies, thermistors, transformers, thermal probes and sensors. Other applications include pour-in-place thermal pads and heat sinks.

Instructions For Use:

Thoroughly read the information concerning health and safety contained in this bulletin before using. Observe all precautionary statements that appear on the product label and/or contained in individual Material Safety Data Sheets (MSDS).

To ensure the long term performance of the potted or encapsulated electrical / electronic assembly, complete cleaning of components and substrates should be performed to remove contamination such as dust, moisture, salt, and oils which can cause electrical failure, poor adhesion or corrosion in an embedded part.

The cure of this silicone product may be inhibited through contact with certain contaminants. Avoid contact with butyl and chlorinated rubbers, amines, sulfur or sulfur containing materials, tin containing compounds, or heavy metal salts. Substrates in question should be evaluated for compatibility before application of this product. In addition, molds, mixing equipment, ovens, and other apparatus that will be used in the preparation and curing of this product should be free of inhibiting contaminants.

Some filler settling is common during shipping and storage. For this reason, it is recommended that the contents of the shipping container be thoroughly mixed prior to use. Power mixing is preferred to ensure a homogeneous product.

Accurately weigh resin and hardener into a clean container in the recommended ratio. Weighing apparatus having an accuracy in proportion to the amounts being weighed should be used.

Blend components by hand, using a kneading motion, for 2-3 minutes. Scrape the bottom and sides of the mixing container frequently to produce a uniform mixture. If possible, power mix for an additional 2-3 minutes. Avoid high mixing speeds which could entrap excessive amounts of air or cause overheating of the mixture resulting in reduced working life.

To ensure a void-free embedment, vacuum deairing or degassing should be performed to remove any entrapped air introduced during the mixing operation. Pump-down or pull vacuum on the mixture to achieve an ultimate vacuum or absolute pressure of 1-5 torr or mm Hg. The foam will rise several times the liquid height and then subside. Continue vacuum deairing until most of the bubbling has ceased. This usually requires 3-10 minutes.

In general, silicone materials exhibit outstanding release properties and will not adhere to most substrates. If adhesion is required, apply a thin, uniform coating of PRIMER S 11 to the desired clean, dry substrates. Allow the PRIMER S 11 to dry for 30-60 minutes at room temperature before applying this silicone material.

Pour mixture into cavity or mold. Further vacuum deairing in the mold may be required for critical applications.

Properties of Material As Supplied:

Property	Test Method	Unit	Value - Part A	Value - Part B
Chemical Type			Silicone	Silicone
Appearance	Visual		Red liquid	White liquid
Density	TP-13	g/cm^3	2.05	2.05
Brookfield Viscosity	TP-10 or TP-11	Pa.s cP	65 65,000	18 18,000

Properties of Material As Mixed:

Property	Test Method	Unit	Value
Mix Ratio - Amount of Part B per 100 parts of Part A		By Weight or Volume	100
Working Life (100 g @ 25°C)	ERF 13-70	minutes	100
Density	TP-13	g/cm^3	2.05
Brookfield Viscosity	TP-10 or TP-11	Pa.s cP	40 40,000

Cure Schedule:

Cure at any one of the recommended cure schedules. This product may be cured in large castings with no adverse heat or exotherm effects. There is essentially no limit on casting size due to shrinkage or exotherm.

Temperature	Cure Time
°C	**Time**
25	2 - 7 days
65	1 - 4 hours
150	20 minutes

Properties of Material After Application:

Property	Test Method	Unit	Value
Hardness	TP-311	Shore A	75
Tensile Strength	TP-239	mPa psi	3.4 500
Tear Strength	ASTM-D-624	N/m pli	3,500 20
Elongation	TP-239	%	50
Linear Shrinkage	TP-320	cm/cm	0.002
Coefficient of Thermal Expansion	TMA	10^{-6}/°C	200
Glass Transition Temperature	DSC / TMA	°C	-120
Thermal Conductivity	ASTM-D-2214	W/m.K Btu-in/hr-ft^2-°F	0.85 6.0
Temperature Range of Use		°C	-65 to +260
Dielectric Strength	TP-297	kV/mm V/mil	17.7 450
Dielectric Constant @ 1 mHz	TP-184	-	5.0
Dissipation Factor @ 1 mHz	TP-184	-	0.01
Volume Resistivity @ 25°C	TP-183	Ohm-cm	$>10^{14}$

TPs are internal test procedures typically derived from ASTM or other norms. Copies of these procedures can be obtained upon request.

Storage and Handling:

The shelf life of STYCAST 5952 Parts A and B is 6 months at 25°C. For best results, store in original, tightly covered containers. Storage in cool, clean and dry areas is recommended.

Health and Safety:

The STYCAST 5952 Parts A and B, like most industrial compounds, possess the ability to cause skin and eye irritation upon contact. Handling these products at elevated temperatures may also generate vapors irritating to the respiratory system.

Good industrial hygiene and safety practices should be followed when handling these products. Proper eye protection and appropriate chemical resistant clothing should be worn to minimize direct contact. Consult the Material Safety Data Sheet (MSDS) for detailed recommendations on the use of engineering controls and personal protective equipment.

This information is only a brief summary of the available safety and health data. Thoroughly review the MSDS for more complete information before using this product.

Attention Specification Writers:
The values contained herein are considered typical properties only and are not intended to be used as specification limits.

Medical Implantable Disclaimer

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Note

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