

STYCAST[®] S 5225 A/B

Internet Address:
www.emersoncuming.com

Key Feature:	Benefit:
• Very low viscosity	• Excellent penetration into very tight components
• High temperature properties	• Allows components to withstand elevated temperatures
• Flexible	• Low stress on embedded components
• One to one mix ratio	• Ease of use in manual or meter mix operations
• Primerless adhesion	• Fewer processing steps compared to materials requiring surface primer

Product Description:

STYCAST S 5225 is a two component, flame retardant, silicone encapsulant. It features a convenient one to one mix ratio and very low viscosity. STYCAST S 5225 gels at room temperature within 8 hours and offers several cure options. S 5225 also features primerless adhesion when heat cured enabling fewer processing steps than materials that require surface primer.

Applications:

STYCAST S 5225 is designed for encapsulation of small electronic devices which require a low stress, flexible material that is capable of flowing throughout tightly packed components. Typical applications include sensors, relays, transformers, ferrite cores, and power supplies.

Instructions For Use:

Thoroughly read the instructions for use in this Technical Data Sheet before using. Observe all precautionary statements that appear on the product label and/or are 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 that 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 should be used to remove any entrapped air introduced during the mixing operation. Vacuum deair mixture at 1-5 mm mercury. 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.

Properties of Material As Supplied:

Property	Test Method	Unit	Value - Part A	Value - Part B
Chemical Type			Silicone	
Brookfield Viscosity	ASTM-D-2393 50 rpm	Pa.s cP	2.23 2,230	2.55 2,550

Properties of Material As Mixed:

Property	Test Method	Unit	Value
Mix Ratio - Amount of Part B per 100 parts of Part A		By Weight	100
		By Volume	100
Working Life (100 g @ 25°C)	ERF 13-70	Hours	4
Density	ASTM-D-792	g/cm ³	1.59
Brookfield Viscosity	ASTM-D-2393 50 rpm	Pa.s	2.42
		cP	2,420

Cure Schedule:

Cure at any one of the recommended cure schedules. For optimum performance, follow the initial cure with a post cure of 1 hour at 100°C. Alternate cure schedules may also be possible. Contact your Emerson & Cuming Technical Representative for further information. 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 (°C)	Cure Time
25	16 hours
100	1 hour
150	30 minutes

Properties of Material After Application:

Property	Test Method	Unit	Value
Hardness	ASTM-D-2240	Shore A	53
Glass Transition Temperature	ASTM-D-3418	°C	-120
Temperature Range of Use		°C	-60 to +220
Fire Resistance (E&C lab screen)	UL 94		Pass V0 (6.35 mm)
Dielectric Strength	ASTM-D-149	kV/mm	17.7
		V/mil	450
Dielectric Constant @ 1 MHz	ASTM-D-150	-	3.0
Dissipation Factor @ 1 MHz	ASTM-D-150	-	0.01
Volume Resistivity @ 25°C	ASTM-D-257	Ohm-cm	1.5 X 10 ¹³

Storage and Handling:

The shelf life of STYCAST S 5225 Parts A and B are 6 months at 25°C. For best results, store in original, tightly covered containers. Storage in cool, clean and dry areas is recommended. Usable shelf life may vary depending on method of application and storage conditions.

Good industrial hygiene and safety practices should be followed when handling this product. 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.

Health and Safety:

The STYCAST S 5225 Parts A and B, like most industrial compounds, possesses the ability to cause skin and eye irritation upon contact. Handling this product at elevated temperatures may also generate vapors irritating to the respiratory system.

Attention Specification Writers:

The values contained herein are considered typical properties only and are not intended to be used as specification limits. For assistance in preparing specifications, please contact Emerson & Cuming Quality Assurance for further details.

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"In the event this product is intended by you for use in implantation in the human body, you are hereby advised that National Starch (or Emerson & Cuming) has not performed clinical testing of these materials for implantation in the human body nor has National Starch (Emerson & Cuming) sought, nor received, approval from the FDA for the use of these material in implantation in the human body. It is YOUR responsibility, as a manufacturer of any such device, to ensure that all materials and processes relating to the manufacture of any medical device fully comply with all applicable federal, state and local laws, rules, regulations and requirements as well as any such laws, rules, regulations, directives or other orders of any foreign country where such product is sold. If you have not undertaken the necessary investigations to ensure compliance you are advised NOT TO USE this product in the manufacture of any device which is to be implanted in the human body. No representative of ours has any authority to change the foregoing provisions."

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