Hysol

STYCAST 1217

Low Viscosity Epoxy Encapsulant And Impregnant

Key Feature:	Benefit:
• Low viscosity	• Ease of dispensing and use
• Good electrical and physical properties	• Reliable electrical and electronic assemblies
• General purpose	• Used in a wide variety of applications

Product Description:

STYCAST 1217 is an unfilled, low viscosity, general purpose, epoxy encapsulating and impregnating resin. It yields good electrical and physical properties and can be cured with a wide variety of catalysts.

Applications:

STYCAST 1217 is designed to pot or impregnate small coils and electrical devices.

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.

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 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.

To facilitate deairing in difficult to deair materials, add 1-3 drops of an air release agent, such as ANTIFOAM 88, into 100 grams of mixture. Gentle warming will also help, but working life will be shortened.

Pour mixture into cavity or mold. Gentle warming of the mold or assembly reduces the viscosity. This improves the flow of the material into the unit having intricate shapes or tightly packed coils or components. Further vacuum deairing in the mold may be required for critical applications.

Properties of Material As Supplied:

Property	Test Method	Unit	Value
Chemical Type			Epoxy
Appearance	Visual		Clear, amber liquid
Density	ASTM-D-792	g/cm^3	1.17
Brookfield Viscosity	ASTM-D-2393	Pa.s cP	0.75 750

Choice of Curing Agents		
Curing agent	Catalyst 9	Catalyst 11
Description	General purpose with good chemical resistance and physical strength.	Long pot life, excellent chemical resistance, good physical and chemical properties at elevated temperatures.
Type of cure	Room	Heat
Viscosity Pa.s cP	0.080 to 0.105 80 to 105	0.035 to 0.060 @ 65 °C 35 to 60 @ 65 °C

Properties of Material As Mixed:

Property	Test Method	Unit	Value	
			Catalyst 9	Catalyst 11
Mix Ratio–Catalyst per 100 parts of STYCAST 1217		By Weight By Volume	13 17	17 18
Working Life (100 g @ 25°C)	ERF 13-70		45 minutes	>4 hours
Density	ASTM-D-792	g/cm^3	1.15	1.16
Brookfield Viscosity	ASTM-D-2393	Pa.s cP	0.6 600	0.5 500

Cure Schedule:

Cure at any one of the recommended cure schedules. For optimum performance, follow the initial cure with a post cure of 2 - 4 hours at the highest expected use temperature. Alternate cure schedules may also be possible. Contact your Henkel Corporation Specialty Polymers Technical Representative for further information.

Temperature	Cure Time	
°C	**Catalyst 9**	**Catalyst 11**
25	16-24 hours	
45	4-6 hours	
65	1-2 hours	
80		8-16 hours
100		2-4 hours
120		30-60 minutes

Properties of Material After Application:

Property	Test Method	Unit	Value	
			Catalyst 9	Catalyst 11
Hardness	ASTM-D-2240	Shore D	86	88
Flexural Strength	ASTM-D-790	mPa psi	137 19,900	
Temperature Range of Use		°C	-40 to +130	-55 to +155
Dielectric Constant @ 1 mHz	ASTM-D-150	-	3.4	3.4
Dissipation Factor @ 1 mHz	ASTM-D-150	-	0.02	0.02
Volume Resistivity @ 25°C	ASTM-D-257	Ohm-cm	8.9×10^{15}	8.9×10^{15}

Storage and Handling:

The shelf life of STYCAST 1217 is 12 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. Certain resins and hardeners are prone to crystallization. If crystallization does occur, warm the contents of the shipping container to 50-60°C until all crystals have dissolved. Be sure the shipping container is loosely covered during the warming stage to prevent any pressure build-up. Allow contents to cool to room temperature before continuing.

Health and Safety:

The STYCAST 1217, like most epoxy compounds, possesses the ability to cause skin and eye irritation upon contact. Certain individuals may also develop an allergic reaction after exposure (skin contact, inhalation of vapors, etc.) which may manifest itself in a number of ways including skin rashes and an itching sensation. Handling this product at elevated temperatures may also generate vapors irritating to the respiratory system.

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.

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. For assistance in preparing specifications, please contact Henkel Corporation Quality Assurance for further details.

Medical Implantable Disclaimer

"In the event this product is intended by you for use in implantation in the human body, you are hereby advised that Henkel Corporation has not performed clinical testing of these materials for implantation in the human body nor has Henkel Corporation 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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