STYCAST™ 2651™/Catalyst 9™

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PRODUCT DESCRIPTION

STYCAST™ 2651™/Catalyst 9™ provides the following product characteristics:

Technology	Epoxy
Appearance (Resin)	Black
Components	Two component - requires mixing
Mix Ratio, by weight - Resin : Hardener	100 : 7
Mix Ratio, by volume - Base : Hardener	100 : 11.5
Product Benefits	• General purpose • Excellent adhesion • Excellent electrical properties • Thermally conductive • Excellent chemical resistance • Good physical strength
Cure	Room temperature cure
Application	Encapsulant
Operating Temperature	-40 to 130 °C

STYCAST™ 2651™/Catalyst 9™ is a dielectric grade epoxy encapsulant designed for general purpose and has excellent adhesion to a wide variety of substrates.

STYCAST™ 2651™/Catalyst 9™ passes NASA outgassing standards.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties *2651*™

Viscosity, Brookfield , 25 °C, mPa·s (cP):	
Speed 5 rpm, # 7	225,000
Specific Gravity	1.65
Shelf Life @ 25°C, months	6
Flash Point - See MSDS	

Part B Properties *Catalyst 9*™

Viscosity @ 25 °C, mPa·s (cP)	80 to 105
Flash Point - See MSDS	

Mixed Properties

Mixed Viscosity, mPa·s (cP)	32,000
Specific Gravity	1.56
Working Time, 100 g mass, @ 25ºC, minutes	45
Flash Point - See MSDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

16 to 24 hours @ 25°C or
4 to 6 hours @ 45°C or
1 to 2 hour @ 65°C

Post Cure

Post Cure: 2 to 4 hours at the highest expected use temperature

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion TMA:		
Below Tg, ppm/°C		43.3
Thermal Conductivity, W/mk		0.66
Hardness, Shore D		88
Water Absorption24 hours, %		0.25
Compressive Strength, psi		17,100
Flexural strength , ASTM D790	N/mm² (psi)	77 (11,100)
Tensile Strength, psi		6,500

Electrical Properties:

Dielectric Strength, volts/mil	450
Volume Resistivity @ 25ºC, ohm-cm	5×10^{15}
Dielectric Constant @ 1mHz	3.9
Dissipation Factor @ 1mHz	0.05

Outgassing Properties:

Total Mass Loss, %	0.37
Collected Volatile Condensable Material, %	0.03

GENERAL INFORMATION

For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

DIRECTIONS FOR USE

1. Complete cleaning of the substrates should be performed to remove contamination such as oxide layers, dust, moisture, salt and oils which can cause poor adhesion or corrosion in a bonded part.
2. Some separation of components 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.
3. Accurately weigh resin and hardener into a clean container in the recommended ratio.
4. Blend components by hand, using a kneading motion, for 2 to 3 minutes and scrape the bottom and sides of the mixing container frequently to produce a uniform mixture.
5. If possible, power mix for an additional 2 to 3 minutes. Avoid high mixing speeds which could entrap excessive amounts of air or cause overheating of the mixture resulting in reduced working life.
6. To ensure a void-free embedment, vacuum deairing should be used to remove any entrapped air introduced during the mixing operation.
7. Pump-down or pull vacuum on the mixture to achieve an ultimate vacuum or absolute pressure of 1 to 5 torr or mm Hg. The foam will rise several times in the liquid height and then subside.
8. Continue vacuum deairing until most of the bubbling has ceased. This usually takes 3 to 10 minutes.
9. To facilitate deairing in difficult to deair materials, add a few drops of an air release agent, such as ANTIFOAM 88 into 100 grams of mixture.
10. Gentle warming will also help, but pot life will be shortened.
11. Pour mixture into cavity or mold.
12. 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.
13. Further vacuum deairing in the mold may be required for critical applications.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 25 °C

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Certain resins and hardeners are prone to crystallization. If crystallization does occur, warm the contents of the shipping container to 50 to 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.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note

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Reference 0.1