STYCAST® 2741 LV / CATALYST 15 LV
Adjustable Flexibility, General Purpose, Epoxy Encapsulant

Key Feature:	Benefit:
• Low viscosity	• Ease of use
• Adjustable flexibility	• Hardness can be adjusted by varying amount of CATALYST 15 LV
• General purpose	• Bonds well to metal, glass and plastic substrates

Product Description:

STYCAST 2741 LV / Catalyst 15 LV is a black, filled room temperature curing epoxy encapsulant. The hardness can be adjusted by varying the amount of CATALYST 15 LV used. STYCAST 2741 LV has excellent shock and impact resistance and excellent adhesion to glass, metals, plastics and ceramics. STYCAST 2741 LV / CATALYST 15 LV is a lower viscosity version of STYCAST 2741 / CATALYST 15.

Applications:

STYCAST 2741 LV / Catalyst 15 LV is designed for electronic embedment and in sealing or cementing of metals, ceramics and plastics. It is particularly useful when shock resistance and impact resistance are required.

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.

Some separation of components is common during shipping or 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.

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	STYCAST 2741 LV	CATALYST 15 LV
Chemical Type			Epoxy	Amine
Appearance	Visual		Black	Black
Density	TP-13	g/cm^3	1.58	0.97
Brookfield Viscosity	TP-10 or TP-11	Pa.s cP	35 35,000	11 11,000

Properties of Material As Mixed:

Property	Test Method	Unit	Value		
			Rigid	Semi-rigid	Flexible
Mix Ratio - Amount of Catalyst 15 LV per 100 parts of STYCAST 2741 LV		By Weight By Volume	25	50	100
Working Life (100 g @ 25°C)	ERF 13-70	minutes	120	90	90
Density	TP-13	g/cm^3	1.43	1.34	1.23
Brookfield Viscosity	TP-10 or TP-11	Pa.s cP	30 30,000	25 25,000	16 16,000

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

Cure Schedule:

Cure at any one of the recommended cure schedules. Alternate cure schedules may also be possible.

Temperature	Cure Time
°C	**Time**
25	16-24 hours
45	4-6 hours
65	2-4 hours
90	30-60 minutes

Properties of Material After Application:

Property	Test Method	Unit	Value		
			Rigid	Semi-rigid	Flexible
Hardness	TP-311	Shore	82D	74D	50D
Compressive Strength	TP-207	mPa psi	98 14,200	69 10,000	35 5,000
Tensile Strength	TP-239	mPa psi	48 6,900	44 6,400	4 600
Linear Shrinkage	TP-320	cm/cm	0.001	0.001	0.001
Water Absorption (24 hours)	24 hour boil	%	0.2	0.5	
Coefficient of Thermal Expansion α^1 α^2	TMA	 10^{-6}/°C 10^{-6}/°C	 55 148	 63 159	 80 188
Glass Transition Temperature	DSC / TMA	°C	68	38	21
Temperature Range of Use		°C	-40 to +90	-55 to +80	-55 to +65
Dielectric Strength	TP-297	kV/mm V/mil	16 400	16 400	16 400
Dielectric Constant @ 1 mHz	TP-184	-	3.27	3.45	3.50
Dissipation Factor @ 1 mHz	TP-184	-	0.08	0.02	0.07
Volume Resistivity @25°C	TP-183	Ohm-cm	$>10^{15}$	$>10^{15}$	$>10^{14}$

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Storage and Handling:

The shelf life of STYCAST 2741 LV / CATALYST 15 LV is 12 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 2741 LV , 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.

The CATALYST 15 LV is classified as a corrosive material. Direct contact with unprotected eyes or skin can cause severe burns. Certain individuals may also develop an allergic skin or respiratory reaction after exposure (skin contact, skin absorption, inhalation of vapors, etc.). These
reactions may manifest themselves in a number of ways including skin rashes , itching sensation and breathing difficulties. Handling this product 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.

Medical Implantable Disclaimer

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Underfills Solder Alternatives C.O.B Materials
Encapsulants Coatings Adhesives Film Adhesives Thermal Interfaces
Electrically Conductive Coatings and Adhesives

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