

INSULCAST®

PLEXUS®

Adhesive & Potting Solutions for Electric Vehicles





INTRODUCTION

The automotive industry is going through significant transformation. With consumers today increasingly socially and environmentally conscious, there is a growing demand for energy-efficient vehicles. As a result, investments are being made globally in the design and development of Electric Vehicles. Designers in particular are innovating with different materials and chemistries to achieve the required performance targets. Vehicle lightweighting as well as thermal management are key areas of research and development.

That's where the Insulcast and Plexus range of products play an important role. They are designed to overcome difficult engineering challenges. The Insulcast potting and encapsulation compounds are specifically developed to protect components in applications such as heat sink bonding, surface mount and die attach while meeting the challenges of heat dissipation. This improves performance and longevity of the device. The Plexus range of adhesives bond nearly all thermoplastics, metals and composite materials providing greater design freedom and manufacturing flexibility. They require little to no surface preparation and ensure bonds so strong that the adhesive will outperform the substrate.

BENEFITS

Plexus (Polymethylmethacrylate) MMA adhesives are fast setting, room temperature cured that provide excellent adhesion to metals, composites and thermoplastics. Plexus ensures durable bonds, offering countless possibilities for design engineers and the production managers. They offer superior strength and enable bonding over a wide range of gaps and substrate thickness, providing both a structural bond and final seal.

Insulcast Epoxies are general purpose and thermally conductive compounds. They are not only formulated to provide high thermal conductivity but also superior mechanical strength, excellent moisture resistance and high chemical resistance. They exhibit good adhesion properties.

Insulcast Silicones are both general purpose and thermally conductive compounds. These addition cure silicones exhibit high flexibility, are easily repaired and provide a superior performance over a broad temperature range. They have minimal shrinkage during cure.

INSULCAST & PLEXUS

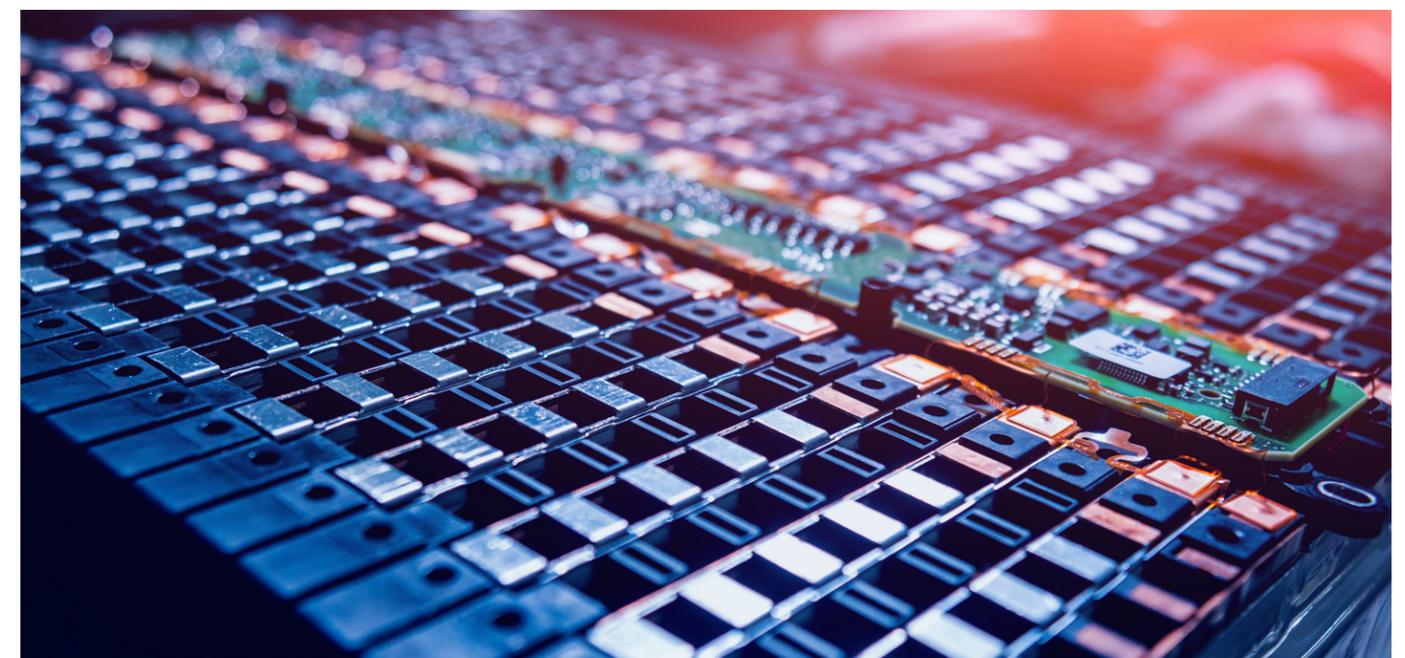
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Global Distribution Network



Insulcast Epoxies	Description	Color	Mix ratio by weight (with curing agent)	Pot life, mins @ 25 °C (77°F)	Viscosity (mixed, cP)	Cure cycle °C (°F)	Shore hardness	Thermal conductivity, (W/m °K)	Glass transition point, °C (°F)	Dielectric constant, (KHz)	Dielectric strength, (Volts/Mil)	Volume resistivity, (Ohm-cm)	Coefficient of thermal expansion (°C)	Service temperature, °C (°F)	UL flammability rating
Insulcast 140FR	Very high thermal conductivity.	Black	100: 3-4 (lcure 11B)	150	50,000	3hr @ 100 (212)	90-95D	2.88	100 (212)	6.3	420	1x10 ¹⁵	26x10 ⁻⁶	-55 to +155 (-67 to + 311)	94 V-1
Insulcast 3230LV	Low viscosity, highly filled formulation that exhibits excellent electrical properties and unusually high thermal conductivity with low thermal expansion.	Black	100: 4-5 (lcure 9)	75 - 120	6,000	36hr @ 25 (77)	90D	1.2	80 (176)	6.3	475	1.3x10 ¹⁶	28x10 ⁻⁶	-40 to +105 (-40 to + 221)	None

Insulcast Silicones: Addition cure	Description	Color	Mix ratio by weight (with curing agent)	Pot life, mins @ 25 °C (77°F)	Viscosity (mixed, cP)	Cure cycle °C (°F)	Shore hardness	Thermal conductivity, (W/m °K)	Dielectric constant, (KHz)	Dielectric strength, (Volts/Mil)	Volume resistivity, (Ohm-cm)	Coefficient of thermal expansion (°C)	Service temperature, °C (°F)	UL flammability rating
RTVS 27 FC	Low viscosity, fast cure compound that has excellent electrical properties.	Black	1 : 1	<5	2,900	1 hr @ 25 (77)	60A	0.31	3	514	1x10 ¹⁵	22x10 ⁻⁵	-55 to +204 (-67 to +399)	94V-0
RTVS 27 HTC	Low viscosity compound with high thermal conductivity. This combination makes it ideal for potting dense component packages requiring heat dissipation.	Black	1 : 1	60	6,000	24hr @ 25 (77)	60A	1.01	4	500	1x10 ¹⁵	17x10 ⁻⁵	-55 to +232 (-67 to +449)	94V-0
RTVS 8127	Flame retardent compound. The low viscosity and high thermal conductivity make it ideal for potting dense component packages requiring heat dissipation.	Gray	1 : 1	160 - 220	4,000	24hr @ 25 (77)	55A	0.75	4	500	1x10 ¹⁵	18x10 ⁻⁵	-55 to +204 (-67 to +399)	94V-0
RTVS 3-95-2	High temperature with very high thermal conductivity potting compound.	Red	1 : 1	15	35,000	24hr @ 25 (77)	85A	1.44	5	425	1x10 ¹⁴	15x10 ⁻⁵	-55 to +260 (-67 to +500)	94V-0

General Use Instructions

- Mix R.T.V.S. compound in original container to be sure of uniformity.
- Weigh out sufficient R.T.V.S. compound for application. NOTE: Be sure container and stirrer are clean.
- Add catalyst in calculated amount for the desired cure rate. If unsure, use a small amount of compound to check cure rate.
- Mix thoroughly, being sure to incorporate material from sides and bottom of container. Keep air entrainment to a minimum.
- De-airation under vacuum may be necessary if absolutely void-free castings are needed.
- Pour into mold, cavity, etc.
- Cure at room temperature. Length of cure will depend on amount and type of catalyst used. Faster cures can be achieved at 51°C (125°F) for 2-3 hours.



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