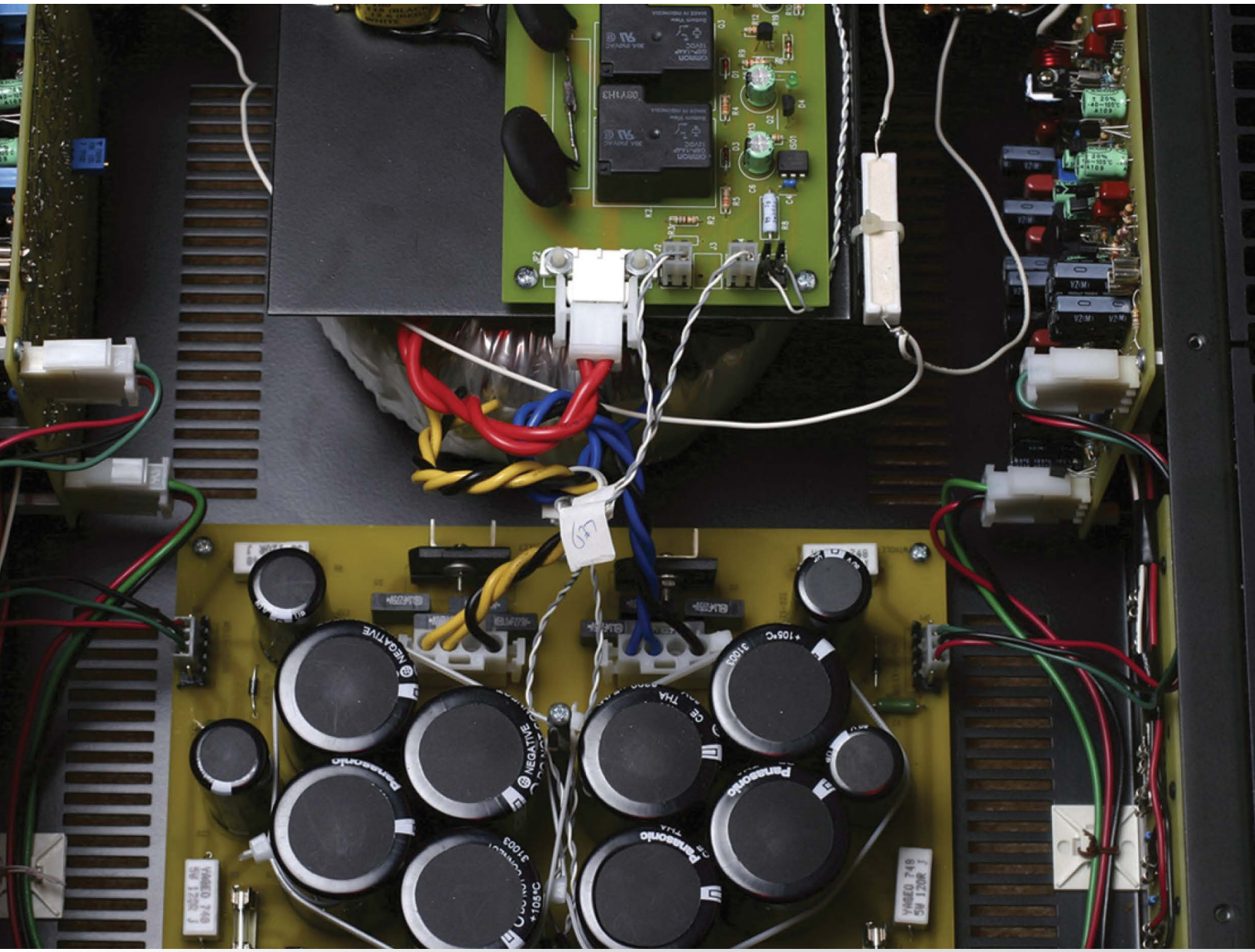
INSULCAST®

Potting and Encapsulation Solutions for High Voltage & Electronic Applications



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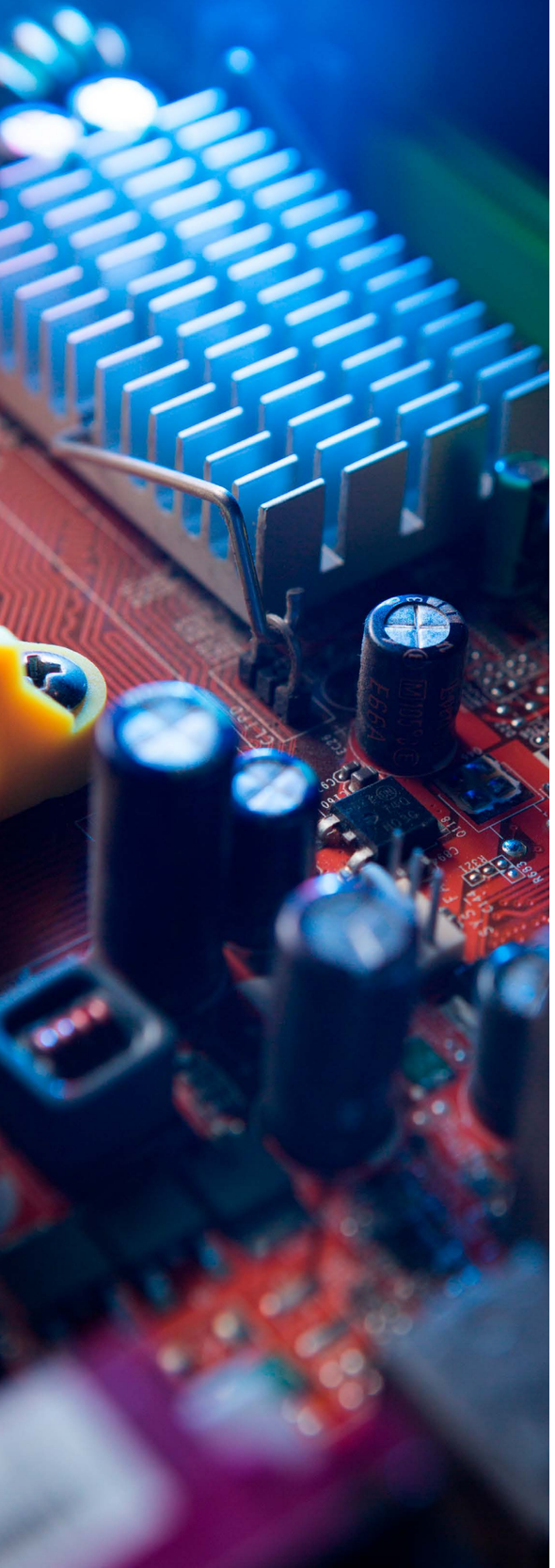


INSULCAST SOLUTIONS

Highly engineered epoxy and silicone potting compounds

INTRODUCTION

As assemblies continue to become smaller and more compact, the need to address the heat generated by these devices continues to grow. Dissipating this heat and removing it from the unit is a key factor in the performance and longevity of the device.

That's where the Insulcast range of potting and encapsulation compounds play a critical role. The Insulcast products are specifically designed to protect components in applications such as heat sink bonding, surface mount and die attach while meeting the challenges of heat dissipation. In addition to providing superior adhesion to a variety of substrates, these compounds also help withstand chemicals and corrosion.

As a result, the Insulcast compounds are widely used in a number of markets including aerospace, automotive both conventional and electric vehicles, electronics, power generation, telecommunications and utilities. These products find extensive application in ignition coils, printed circuit boards, EV batteries, high voltage power supplies, transformers and other critical electronic equipment.

BENEFITS

Insulcast Epoxies are general purpose and thermally conductive compounds. They are formulated to provide superior mechanical strength, excellent moisture resistance and high chemical resistance. They exhibit good adhesion properties.

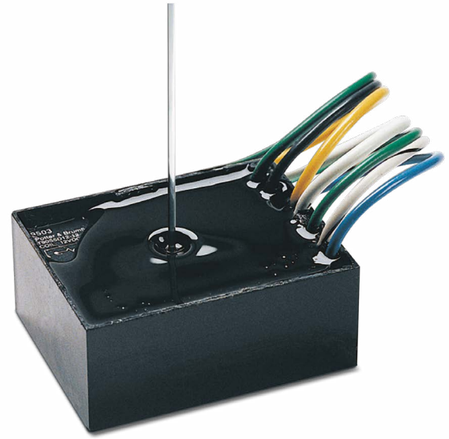
Insulcast Silicones are both general purpose and thermally conductive compounds. They exhibit high flexibility, are easily repairable and have superior performance over a broad temperature range. They have minimal shrinkage during cure. There are two primary types: addition cure and condensation cure.

Addition Cure silicones are kit matched products that are often cured at elevated temperature to speed the cure. They are lower in viscosity and available in water clear versions.

Condensation Cure products require moisture to cure and are typically cured at room temperature. They are not subject to cure inhibition and are not usually used in deep section cure. The products are not kit matched.

ESTABLISHED IN 1972

- Part of ITW Performance Polymers
- Long History of Innovation
- Dedicated Sales & Technical Support
- Custom Formulated Solutions
- Global Distribution Network



Insulcast Epoxies

Product	Description	Color	Pot Life @ 25°C	Mix Ratio by Weight (with Curing Agent)	Viscosity (Mixed, cP)	Cure Cycle	Shore Hardness	Thermal Conductivity, (W/mK)	Glass Transition Point, (°C)	Dielectric Constant, (KHz)	Dielectric Strength, (Volts/Mil)	Volume Resistivity, (Ohm-cm)	Coefficient of Thermal Expansion (°C)	Service Temperature, (°C)	UL Flammability Rating
Insulcast 101	Has excellent chemical resistance to a broad range of acids, bases and organic solvents.	Black	45 min	1:1	10,000	48hr @ 25°C	80D	0.468	80	4.40	410	$1x10^{14}$	$30x10^{-6}$	-55 to +105	
Insulcast 116 FR	Easy-to-use, general purpose potting and casting compound. The convenient 1:1 mix ratio makes it ideal for production line mixing as well as for automatic dispensing.	Black	90 min	1:1	8,100	24hr @ 25°C	75D	0.649	80	4.40	420	$1x10^{14}$	$30x10^{-6}$	-40 to +105	94V-0
Insulcast 116 FR FC	Easy-to-use, general purpose, fast set potting and casting compound.	Black	30 - 45 min	1:1	9,800	16hr @ 25°C	75D	0.649	80	4.40	420	$1x10^{14}$	$30x10^{-6}$	-40 to +105	94V-0
Insulcast LN 1-05	Non-cracking compound that is suitable for large potting applications.	Black	8 -10 hours	7.2:1	5,000	36hr @ 25°C	85D	0.648	75	5.15	400	$6x10^{15}$	$32x10^{-6}$	-40 to +105	Meets 94V-0
Insulcast 987 CM	Semi-flexible potting compound that exhibits excellent electrical & physical properties.	Neutral	>48 hours	2:3	60,000	16hr @ 85°C	65D	0.417	80	4.90	375	$1x10^{14}$	$45x10^{-6}$	-55 to +155	
Insulgel 70 CC FR NS	Unique, flexible epoxy compound that exhibits superior thermal shock resistance. It provides reduced shrinkage and low CTE resulting in decreased stress and improved adhesion.	Black	30 - 45 min	100:10-11	3,000	24hr @ 25°C	50D	0.518	4 - 9	4.1	400	$7x10^{12}$	$90x10^{-6}$	-40 to +105	94V-0
Insulcast 140 FR †	Very high thermal conductivity.	Black	*	100: 3-4 (Icure 11B)	50,000	2hr @ 120°C**	90-95D	2.3	100	6.30	420	$1x10^{15}$	$26x10^{-6}$	-55 to +155	94V-1
Insulcast 333 †	Good thermal conductivity, superior impact resistance with good adhesion to most substrates.	Black / Neutral	*	100:6 (Icure 9)	2,000	12hr @ 25°C**	85D	0.618	80	4.4	410	$1x10^{15}$	$48x10^{-6}$	-40 to +105	94V-0
Insulcast 502 †	Unfilled, excellent electrical & physical properties.	Clear	*	100:13 (Icure 9)	200	24hr @ 25°C**	85D	0.23	85	4.0	425	$2x10^{15}$	$75x10^{-6}$	-40 to +105	
Insulcast 504 †	Unfilled, excellent electrical & physical properties.	Black	*	100:12 (Icure 9)	200	24hr @ 25°C**	75D	0.23	75	4.0	425	$5x10^{15}$	$61x10^{-6}$	-40 to +105	

† See TDS for full results.
** Value is determined by choice of Insulcure. See values for all Insulcures in the Insulcure property table below.*
*** Cure Cycle dependent on choice of Insulcure.*

Insulcure Properties	Insulcure 9	Insulcure 11B	Insulcure 20	Insulcure 24	Insulcure 26
Pot Life (Minutes)	45	300	60	80	120

Insulcast Silicones: Addition Cure

Product	Description	Color	Pot Life @ 25°C	Mix Ratio by Weight	Viscosity (mixed, cP)	Cure Cycle	Shore Hardness	Thermal Conductivity (W/mK)	Dielectric Constant (KHz)	Dielectric Strength (Volts/Mil)	Volume Resistivity (Ohm-cm)	Coefficient of Thermal Expansion (°C)	Service Temperature, (°C)	UL Flammability Rating
RTVS 27	Low viscosity, general purpose compound. RTVS 27 exhibits low temperature flexibility, excellent electrical properties, high temperature resistance and easy removal for component replacement or repair.	Black	60 - 90 min	1:1	2,900	24hr @ 25°C	60A	0.31	3.00	500	$1x10^{15}$	$22x10^{-5}$	-55 to +204	94V-0
RTVS 27 FC	Low viscosity, fast cure compound that has excellent electrical properties. Suitable for Eletric Vehicle applications.	Black	<5 min	1:1	2,900	1 hr @ 25°C	60A	0.31	3.00	550	$1x10^{15}$	$22x10^{-5}$	-55 to +204	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. Suitable for Eletric Vehicle applications.	Black	60 min	1:1	6,000	24hr @ 25°C	60A	1.0	4.00	500	$1x10^{15}$	$17x10^{-5}$	-55 to +232	94V-0
RTVS 27 LV	General purpose compound.	Dark Gray	120 min	1:1	1,200	24hr @ 25°C	60A	0.31	3.40	500	$3x10^{14}$	$22x10^{-5}$	-55 to +204	94V-0
RTVS 42 Curtis II	This unique silicone-epoxy copolymer withstands severe thermal shock and eliminates cracking during thermal stress, provides low moisture absorption and has excellent dielectric insulation. It contains silane adhesion promoters that enable it to bond well to most metals and plastics.	Black	<20	100:4.8	16,000	24hr @ 25°C	75A	0.58	4.00	500	$1x10^{15}$	$45x10^{-6}$	-55 to +125	94V-0
RTVS 61M	Low viscosity, self-extinguishing compound.	Water clear	120 min	10:1	4,500	24hr @ 25°C	35A	0.19	2.70	500	$1x10^{15}$	$27x10^{-5}$	-55 to +204	
RTVS 8127	Flame retardent compound. The low viscosity and high thermal conductivity make it ideal for potting dense component packages requiring heat dissipation. Suitable for Eletric Vehicle applications.	Gray	160 - 220 min	1:1	4,000	24hr @ 25°C	55A	0.75	4.00	500	$1x10^{15}$	$18x10^{-5}$	-55 to +204	94V-0
RTVS 8128	Great for high voltage applications.	Dark Gray	60 - 90 min	1:1	2,200	24hr @ 25°C	50A	0.31	3.00	550	$1.5x10^{15}$	$22x10^{-5}$	-55 to +204	Meets 94V-0
RTVS 3-95-1	High thermal conductivity, high temperature compound.	Red	90 min	100:5	10,000	24hr @ 25°C	65A	1.25	5.00	500	$5x10^{14}$	$18x10^{-5}$	-55 to +260	94V-0
RTVS 3-95-2	High temperature with very high thermal conductivity potting compound. Suitable for Eletric Vehicle applications.	Red	90 min	1:1	35,000	24hr @ 25°C	85A	1.44	5.00	425	$1x10^{14}$	$15x10^{-5}$	-55 to +260	94V-0

Insulcast Silicones: Condensation Cure

Product	Description	Color	Pot Life @ 25°C	Mix Ratio by Weight	Viscosity, (cP)	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)	UL Flammability Rating
RTVS 46	Cures to a flexible syntactic foam.	White	2 - 3 min	100:5 (w)	40,000	30A	0.26	2.60	250	$1x10^{14}$	$20x10^{-5}$	-50 to +204	-
RTVS 51	Low temperature flexible, easily pourable.	White	15 - 120 min***	0.1 - 0.5% (w)	12,000	50A	0.31	3.60	520	$2x10^{14}$	$22x10^{-5}$	-115 to +232	-

**** Varies with % of CAT-2*

RTVS PRIMERS are used to strengthen adhesion of our two component addition cure RTV silicones, one component condensation cure RTV silicones, and mold-making compounds. These primers may be used on metal, wood, glass, ceramics and many plastics. There are 2 primers available: RTVS 44 (Clear), RTVS 41 (Blue). These primers have a mixed viscosity of 1 cP and a flash point of 84°F.

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