Technical Data Sheet

HYSOL® US5531

Formerly Loctite® 82691R/C
Liquid Urethane Encapsulant

Formerly Dexter

Description

Hysol® US5531 (formerly Loctite® 82691R & C) is an unfilled, low viscosity, re-enterable potting/encapsulation compound. It has excellent low temperature properties. Introduction of this material on a bed of 8 – 12 mesh sand increases thermal conductivity while decreasing shrinkage and cost. This material can be used to encapsulate electronics for various applications including under-the-hood automotive and marine. The low glass transition temperature means that sensitive compounds are not damaged during low temperature excursions.

Application Characteristics		US5531	Test Method
Viscosity, cps @ 23ºC		1,000	STP 2A
Working Time, 100 gm mass @ 23ºC		<60 minutes	
Gel Time, 100 gm mass @ 23ºC		90 minutes	
Recommended Cure Cycle			
	Normal @ 23ºC	24 hours	
	Alternate @ 60-85ºC	2 - 4 hours	
Color		Opaque Black	Visual
Density, (g/cc)		1.00	STP 9A
Shelf Life, in unopened containers			
	in cool, dry conditions	8 months	
Mix Ratio	by weight Resin/Catalyst	12/100	
	By volume Resin/Catalyst	1/10.7	

Typical Cured Properties	US5531	Test Method
Hardness, Shore OO	80	STP 11A
Hardness, Shore A	20	STP 11A
24 Hour Water Moisture Absorption, %	<0.1	STP 109A
Weight Loss After 168 Hours @ 125ºC, %	<0.5	
Coefficient of Thermal Conductivity,		STP 47C
Cal x cm/(sec x cm^2 x ºC)	4.1 x 10^{-4}	
Linear Shrinkage, %	<1.0	ASTM D 2566
Coefficient of Thermal Expansion		ASTM D 696
In/in/ºC @ -40 to 23ºC	1.80 x 10^{-4}	
In/in/ºC @ 23 to 125ºC	2.35 x 10^{-4}	
Glass Transition Temperature	-50ºC	ASTM D 3418

Typical Electrical Properties		US5531	Test Method
Dielectric Strength, volts/mil (100 mls thick)		>350	STP 48D
		25°C	
Dielectric Constant	@ 100 KHz	3.98	STP 53A
Dissipation Factor	@ 100 KHz	0.040	STP 53A
Volume Resistivity, ohm/cm		2.9×10^{11}	STP 30H01

Directions for Use

Some settling of fillers and pigments will occur with time. Therefore, thorough mixing of components containing fillers or pigments is necessary prior to every withdrawal of material. Weigh needed quantities together and mix until homogeneous. Mixing takes 1 - 4 minutes depending on material quantity and viscosity. Try to choose a mixing container that will be ½ to ¾ full of material. This minimizes inclusion of bubbles into the mix. Use spatulas or mixing paddles appropriate to container size. Scrape the sides and bottom of the container while mixing. If a bubble free product is desired, it may be necessary to vacuum deair the separate components and/or the mixture. Vacuum pressure should be 1mmHg or less to be effective.

Once opened, blanket the remaining product with dry nitrogen or dry air. Reseal containers tightly and store in cool, dry conditions. Blanket and reseal containers immediately after each use. This protects the remaining material from moisture contamination. Use a drying tube on the ventilation opening of drums. Never store chemical containers exposed to weather or direct sunlight.

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For additional information in the Americas, please contact one of the following locations:

New York	**Canada**	**Brazil**
TEL: 716.372.6300	TEL: 905.814.6511	TEL: 011.55.11.4143.7000
FAX: 716.372.6864	FAX: 905.814.5391	FAX: 011.55.11.4143.7100

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