PolymerSystems Technology Limited

Silicones for Thermal Management

Due to their thermal stability at high operating temperatures other types of materials are unable to sustain, silicones are trusted to protect electronics devices. NuSil Technology optimizes silicones according to various thermal management needs by applying our expertise to sophisticated filler technology including but not limited to the following:

- Use of high purity metal oxides to increase thermal conductivity while maintaining electrical insulation
- Use of specific filler particles allowing very thin bond line thickness (BLT) for lower thermal resistance
- Use of custom fillers for achievement of the desired properties needed for an individual application

Whether bonding or encapsulating, NuSil's thermally conductive silicones spread easily to ensure excellent contact with a variety of substrates such as metals and composites. Many substrates have uneven surfaces, and thermal resistance can increase with the formation of air gaps. To remedy this, our silicones are available in a variety of viscosities to match the desired flow onto the device and to accommodate different processing methods. For instance, we manufacture non-curing greases as well as materials that cure into elastomers.

Below are examples of our most popular thermally conductive, electrically insulating silicones. Please see the NuSil website or our Engineering Selection Guide for additional thermally and electrically conductive silicones.

NuSil Product	Application Description	Thermal Conductivity* (W/m-K)	Rheology	Durometer Type A	Cure Time/Temp
SCV1-2599	Ultra Low Outgassing [™] , Boron Nitride filled silicones	1.6	Paste	75	7 d / R.T., H
CV-2948	Low outgassing, versatile legacy material suitable for a variety of applications, Boron Nitride filled	2.0	Paste	70	7 d / R.T., H
CV-2946	Low outgassing, great thermally conductive legacy material. Can be heat accelerated, Boron Nitride filled	1.5	Paste	75	7 d / R.T., H
EPM1-2493	Low viscosity for complex geometries. Can be used for thin bond lines	1.0	36,000 cps	65	15 m / 150oC
EPM-2495	BLT of 50 μm, Boron Nitride filled	0.6	140 g/min	55	30 m / 150oC
EPM-2890	Low contamination, non-corrosive, thermally conductive adhesive for applications that require non-slump material	0.6	40g/min (Extrusion rate)	65	72 hours / R.T., H
R-2930	Versatile legacy material suitable for a variety of applications, Boron Nitride filled	1.5	Paste	80	30 m / 150oC
EPM-2401	Low volatility grease. Max BLT 0.5 µm, non-curing	0.7	Medium Grease	-	-



Thermal Interface Materials for Electronics





Encapsulating



*Tested per ASTM E1530, Bulk Thermal Conductivity @40°C. Typical sample thickness is 0.075" (2 mm)

It is the sole responsibility of each purchaser to ensure that any use of these materials is safe and complies with all applicable laws and regulations. It is the user's responsibility to Version uploaded 24/04/2019 adequately test and determine the safety and suitability for their applications and NuSil Technology makes no warranty concerning fitness for any use or purpose.

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NuSil Technology has been synthesizing silicone intermediate materials since 1979. Through our proprietary processing and synthesis techniques, we manufacture a variety of silicones for thermally harsh environments that alleviate contamination concerns often encountered when using conventional silicone products.



In addition to avoiding contamination, key to maintaining efficient operation of electronic assemblies is keeping them cool. Our thermally conductive silicone adhesives and encapsulants aid in the removal of heat without putting additional stress on the device during thermal cycling. NuSil understands the difficulties that occur when bonding hybrid packages and therefore offers a wide variety of thermally conductive silicones for potting, encapsulating and adhering all components of packaging.

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Polymer Systems Technology Limited was established in 1994, and is located in High Wycombe, approximately 25 miles west of London.

Product quality and safety in use are of paramount concern to us. It is for this reason that registration to the approved quality standards was sought.

Accreditation was first achieved in 1997, and we are proud to announce that we now hold the latest revision, ISO 9001:2015 As a logical and essential development of our ongoing commitments we sought and achieved registration to the environmental standard ISO:14001.

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