

## TSE3051

### Description

TSE3051 is a transparent, one-component, low viscosity silicone potting gel designed for electronic potting applications. This product cures with heat in a short period of time to a soft, tacky gel used to protect delicate electronic assemblies from humidity, dirt, and vibration.

### Key Features and Typical Benefits

- Easy to use - one component, no mixing required, long pot life
- Low viscosity - pours easily, penetrates complex assemblies
- Heat accelerated cure
- Fast heat cure system
- Soft, tacky, sticky gel
- Absorbs shock and protects delicate mechanical components from vibration

### Typical Physical Properties

<u>Property</u>	<u>Unit</u>	<u>Value</u>
<b>UNCURED PROPERTIES</b>		
Appearance		Transparent
Viscosity (23 °C)	Pa·s	0.7
Specific Gravity (23 °C)	g/cm <sup>3</sup>	0.97
<b>CURED PROPERTIES (2 hrs at 125 °C)</b>		
Appearance		Gel
Penetration		85
Volume Resistivity	Ω·cm	1.0 x 10 <sup>15</sup>
Storage shear modulus (G') <sup>(1)</sup>	Pa (dyn/cm <sup>2</sup> )	450 (4500)

Loss shear modulus (G'') <sup>(1)</sup>	Pa (dyn/cm <sup>2</sup> )	170 (1700)
Loss tangent (G''/G')		0.4
Poisson's ratio		0.5
Specific heat	J/(g·K)	1.51
Thermal Conductivity	W/m·K	0.17
Dielectric Strength	kV/mm	18
Dielectric Constant (60 Hz)		2.8
Dissipation Factor (60Hz)		0.001
Water Absorption <sup>(2)</sup>	%	0.05
Moisture permeability <sup>(3)</sup>	g/m <sup>2</sup> •24 hrs.	110

Typical physical properties are average data and should not be used as or to develop product specifications.

<sup>(1)</sup> 10rad/s at 25 °C    <sup>(2)</sup> ASTM D 570

<sup>(3)</sup> JIS Z 0208

## Typical Applications

- Electrical and electronic potting such as hybrid IC insulation potting
- Power devices such as power module potting
- Mechanical cushioning and vibration dampening material for delicate assemblies

## Processing Recommendations

### Compatibility

TSE3051 silicone potting gel will cure in contact with most clean, dry surfaces. However, certain materials, such as butyl and chlorinated rubber, sulfur-containing materials, amines, and certain metal soap cured RTV silicone rubber compounds can cause cure inhibition. Cure inhibition is characterized by a greasy appearance of the TSE3051 silicone potting gel at the interface between the gel and the substrate to be bonded. It is recommended that a sample patch test should be performed with the TSE3051 silicone potting gel to determine substrate compatibility.

### Surface Preparation

The adhesive performance of any polymer system is highly dependent upon proper

surface preparation. In order to maximize the adhesion of TSE3051 silicone potting gel and minimize the potential for cure inhibition, all parts should be as clean and dry as possible prior to the application of the gel.

### **Curing**

TSE3051 silicone potting gel requires the use of elevated temperatures in order to achieve full cure. Typical cure times and temperatures are as follows:

100 °C	4 hours
125 °C	2 hours
150 °C	1 hours

Note: Test data. Actual results may vary.

The actual cure time is affected by such things as cross-sectional thickness of the TSE3051 silicone potting gel, heat capacity of the overall assembly and efficiency and type of oven used (i.e. convection, infrared).

### **Patent Status**

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

### **Product Safety, Handling and Storage**

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at [www.momentive.com](http://www.momentive.com) or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

### **Limitations**

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

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