MOMENTIVE™

Technical Data Sheet

TSE3051

Description

TSE3051 is a 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.

TSE3051 is available in two colors: TSE3051 transparent and TSE3051-G: Light grey

Key Features and 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 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

Typical Physical Properties

UNCURED PROPERTIES		
Appearance		Transparent (TSE3051) or light grey liquid (TSE3051-G)
Viscosity (23°C)	Pa•s	0.7
Specific Gravity (23°C)	g/cm³	0.97
CURED PROPERTIES (2 hrs @ 125°C)		**TSE3051**
Appearance		Gel
Penetration ASTM D 1403, 1/4 cone	1/10mm	85
Volume Resistivity	Ω•cm	1.0×10^{15}
Storage shear modulus (G') (1)	Pa (dyn/cm²)	450 (4500)
Loss shear modulus (G") (1)	Pa (dyn/cm²)	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
Dissaption Factor (60Hz)		0.001
Water Absorption (ASTM D 570)	%	0.05
Moisture permeability [(2)]	g/m²•24 hrs.	110
Volume Expansion	1/K	1.0×10^{-3}

[(1)] 10rad/s at 25 °C

[(2)] JIS Z 0208

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a 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 Material Safety Data Sheet (MSDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, and any special storage conditions required for safety. MSDS are available at www.momentive.com or, upon request, from any Momentive Performance Materials (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.

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.

Bonding

TSE3051 silicone potting gel offers outstanding adhesion characteristics to a wide variety of different substrates without the need of a primer. For difficult-to-bond-to substrates, or where more aggressive chemical adhesion is desired, the adhesion may be enhanced by using SS4155 silicone primer, available from Momentive Performance Materials. To apply the primer, thoroughly clean the surface and let dry. Then apply a uniform film (0.01- 0.02 mm) of SS4155 silicone primer and allow the primer to air-dry for one hour or more.

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:

125°C	2 hours
150°C	1 hour
200°C	5 minutes

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).

Limitations

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

Contact Information

For product prices, availability, or order placement, contact our customer service by visiting momentive.com/ContactSilicones.

For literature and technical assistance, visit our website at: www.momentive.com

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