



TSE3051

One Component Silicone Potting Gel

Product 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 colours:

TSE3051 : Transparent

TSE3051-G : Light grey

Key Performance Properties

KEY FEATURES

- Easy to use - one component, no mixing required, long pot life
- Low viscosity - pours easily, penetrates complex assemblies
- Fast heat cure system and heat accelerated cure
- 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 damping material for delicate assemblies

Typical Product Data

UNCURED PROPERTIES		
Appearance		Transp. or light grey liquid
Viscosity (23°C)	Pa•s	0.7
Density (23°C),	g/cm ³	0.97



Typical Product Data

CURED PROPERTIES (2hrs@125°C)		TSE 3051
Penetration ASTM D 1403, 1/4 cone	1/10mm	85
Volume Resistivity	$\Omega \cdot \text{cm}$	1.0×10^{15}
Storage shear modulus (G') *1	Pa(dyn/cm ²)	450 (4500)
Loss shear modulus (G'') *1	Pa(dyn/cm ²)	170 (1700)
Loss tangent ($\tan \delta = G''/G'$)		0.4
Poissons 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
Dielectric Loss (60Hz)		0.001
Water Absorption ASTM D 570	%	0.05
Moisture permeability *2	g/m ² .24 hrs.	110
Volume Expansion	1/°C	1.0×10^{-3}

*1 : 10rad/s at 25 °C

*2 JIS Z 0208

Specifications

Typical product data values should not be used as specifications. Assistance and specifications are available by contacting Momentive performance materials Technical Service RTV1 and RTV2.

Instructions for Use

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).

Handling and Safety

Material Safety Data Sheets are available upon request from Momentive performance materials. Similar information for solvents and other chemicals used with the Momentive performance materials products should be obtained from your supplier. When solvents are used, proper safety precautions must be observed.

Storage and Warranty Period

The warranted shelf life will be indicated by the 'use before date' on the associated documents with a minimum of 4 months when stored in the original unopened containers between 0 and 10°C.

Availability

TSE3051 is available in 1 kg cans and 20 kg pails.
TSE3051G is available in 20 kg pails



PRINCIPAL LOCATIONS – Regional Information

North America	World Headquarters 187 Danbury Road Wilton, CT 06897, USA	T 800.295.2392	F 607.754.7517
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Pacific	Akasaka Park Building - 5-2-20 Akasaka Minato-ku, Tokyo 107-6112 Japan	T +81.3.5544.3100	F +81.3.5544.3101

CUSTOMER SERVICE CENTERS

North America	Charleston, WV 25314, USA E cs-na.silicones@momentive.com		
	<ul style="list-style-type: none"> Specialty Fluids UA, Silanes, Resins, and Specialties RTV Products-Elastomers Sealants and Adhesives & Construction 	T 800.523.5862 T 800.334.4674 T 800.332.3390 T 877.943.7325	F 304.746.1654 F 304.746.1623 F 304.746.1623 F 304.746.1654
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	<ul style="list-style-type: none"> Argentina & Chile Brazil Mexico & Central America Venezuela, Ecuador, Peru, Colombia, & Caribbean 	T +54.11.4862.9544 T +55.11.4534.9650 T +52.55.5899.5135 T +58.212.285.2149	F +54.11.4862.9544 F +55.11.4534.9660 F +52.55.5899.5138 F +58.212.285.2149
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