

SILCOOL™ TSE3281-G THERMALLY CONDUCTIVE MATERIAL

Description

SILCOOL TSE3281-G silicone adhesive is a one component, medium viscosity, thermally conductive material, which cures to an elastomer when heat is applied. It is non-corrosive and has excellent adhesion properties to a wide variety of substrates without the need for using a primer.

Key Features and Typical Benefits

- Good thermal conductivity properties
- Adhesion to many substrates without the use of a primer
- One component formulation for ease of handling
- No cure by-products / low shrinkage allows for deep section application and use in enclosed assemblies
- Good dielectric properties

Typical Physical Properties (JIS K 6249)

Uncured Properties		TSE3281-G
Colour		Grey
Viscosity	Pa·s	60
Cured Properties (cured 1 hour at 150°C)		
Density	g/cm ³	2.70
Hardness (Type A)		84
Tensile Strength	MPa	4.5
Elongation	%	50

Adhesion Strength	MPa	2.5
Dielectric Strength	kV/mm	15
Dielectric Constant (60Hz)		5.2
Dissipation Factor (60 Hz)		0.002
Volume Resistivity	$\Omega \cdot \text{cm}$	4.8×10^{14}
Thermal Conductivity	W/m·K	1.68
Linear Expansion	1/K	1.4×10^{-4}

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

Processing Recommendations

Compatibility

TSE3281-G silicone adhesive cures in contact with most clean and dry surfaces. However, certain materials, such as butyl and chlorinated rubber, sulfur-containing materials, amines and certain metal soap-cure RTV silicone rubber compounds, can cause cure inhibition. Cure inhibition is characterized by a gummy appearance of the RTV silicone adhesive at the interface between it and the substrate.

It is recommended that a sample patch test be performed with TSE3281-G silicone adhesive to determine if a barrier coating or other inhibition-preventing measures are necessary before using the material.

Surface Preparation

The performance of any adhesive system is highly dependent upon surface preparation. In order to maximize the adhesion properties of TSE3281-G silicone adhesive and minimize the potential for cure inhibition, all parts should be as clean and dry as possible prior to the application of the silicone adhesive. Particular attention should be paid to those areas, which will come in direct contact with the adhesive during the curing process.

Bonding

TSE3281-G silicone adhesive generally offers very good adhesion to a wide variety of substrate materials without the use of a primer. For best adhesion, surfaces to be bonded should be thoroughly clean and dry. If a solvent is used to clean the substrates prior to use, steps must be taken to ensure the solvent has completely evaporated prior to application of the silicone rubber compound.

Curing

Since settling of the filler occurs during storage, TSE3281-G must be well stirred prior to use in the application.

When TSE3281-G is hand mixed, or mixed with power mixing equipment, air entrapped during the mixing process should be removed to eliminate the formation of voids in the cured product.

TSE3281-G cures very rapidly when exposed to elevated temperatures. Typical cure times are as follows:

Cure Temp.	Cure Time
100°C	4 hours
125°C	2 hours
150°C	1 hour

The actual cure time will depend on the cross-sectional thickness, the thermal properties of the overall assembly, and type and efficiency of the oven.

Availability

TSE3281-G is available in 1 kg cans.

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 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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