



TSE3280G and TSE3281G

Thermally Conductive, Heat Cured Silicone Adhesives

Product Description

TSE3280G and TSE3281G silicone adhesives are one component, medium viscosity, thermally conductive materials, which remain in an uncured state at room temperature and cure to an elastomer when heat is applied. TSE3280G and TSE3281G silicone adhesives provide much higher thermal conductivity than conventional silicone adhesives, which make them ideal for electrical and electronic applications where high thermal transfer is required. They are non-corrosive and have excellent adhesion properties to a wide variety of substrates without the need for using a primer.

Key Performance Properties

- Excellent thermal conductivity properties
- Fast thermal cure times
- Excellent adhesion to many substrates without the use of a primer
- Outstanding operating temperature performance (-55°C to 200°C)
- One component, solventless formulation for ease of handling
- No cure by-products / low shrinkage / non-exothermic allows for deep section application and use in enclosed assemblies
- Reversion resistant and hydrolytically stable
- Outstanding dielectric properties

Typical Product Data

Uncured Properties		TSE3280G	TSE3281G
Colour		Grey	Grey
Viscosity	mPa·s	60,000	40,000
Specific Gravity	g/cm ³	2.10	2.70
Cured Properties (cured 1 hour at 150°C)			
Mechanical			
Hardness	Shore A	62	84
Tensile Strength	MPa	3.3	4.6
Elongation	%	110	50
Shear Strength	MPa	2.0	2.5

Typical Product Data

		TSE3280G	TSE3281G
Electrical		measured at test pieces of 1.9mm thickness	
Dielectric Strength	kV/mm	21	15
Dielectric Constant (60Hz)		4.3	5.4
Dissipation Factor (60 Hz)		0.002	0.002
Volume Resistivity	Ohm-cm	2.5×10^{14}	4.8×10^{14}
Thermal			
Useful Temperature Range	°C	-55 to 200	-55 to 200
Thermal Conductivity	W/m-K	0.88	1.68
Linear Coefficient of Thermal Expansion	m/m-K	2.2×10^{-4}	1.4×10^{-4}

Specifications

Typical product data values should not be used as specifications. Assistance and specifications are available by contacting GE Bayer Silicones Technical Service RTV1 and RTV2.

Instructions for Use**Compatibility**

TSE3280G and TSE3281G silicone adhesives will cure 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 TSE3280G and TSE3281G silicone adhesives 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 TSE3280G and TSE3281G silicone adhesives 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

TSE3280G and TSE3281G silicone adhesives generally offer 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.

For application substrates, which require a primer, apply a uniform thin film of GE Bayer Silicones SS4155 silicone primer and allow the primer to air dry for one hour. Finally, apply TSE3280G and TSE3281G silicone adhesive to the primed surface and cure as recommended.

Curing

Since settling of the filler occurs during storage, TSE3280G and TSE3281G must be well stirred prior to use in the application.

When TSE3280G and TSE3281-G silicone rubber compound are 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.

TSE3280G and TSE3281G silicone adhesives cure very rapidly when exposed to elevated temperatures. Typical cure times are as follows:

<u>Cure Temp.</u>	<u>Cure Time</u>
100°C	2 hours
125°C	45 minutes
150°C	30 minutes

The actual cure time will depend on the cross-sectional thickness of the TSE3280G or TSE3281G silicone adhesive, the thermal properties of the overall assembly, and type and efficiency of the oven. Cure temperatures below 100°C are not recommended, and cure temperatures above 200°C need to be tested.

TSE3280G and TSE3281G must be cured in a well ventilated oven.

Handling and Safety

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

CAUTION

Uncured TSE3280G and TSE3281G can generate flammable hydrogen gas upon contact with acidic, basic, or oxidizing materials. Such contact should be avoided.

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 below 10° C.

Availability

TSE3280-G is available in 2 cans and 20 kg drums.

TSE3281-G is available in 320ml cartridges, 1 kg cans and 25 kg pails.

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