

SilCool* TSE3380

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Description

TSE3380 is a two-component, heat curable silicone rubber designed for thermally conductive applications. TSE3380 cures with heat to form an elastic, thermally conductive rubber and adheres well to various types of materials such as metals, plastics, glass and ceramics without the use of primers.

Key Features and Benefits

- Convenient 1:1 mix ratio by weight
- Heat accelerated cure
- Excellent thermal conductivity
- Excellent adhesive properties; primerless adhesion to many types of substrates
- Resistance to temperature extremes
- Non-corrosive to metal

Typical Physical Properties

Typical uncured Properties		A-part	B-part
Appearance		Grey	White
Viscosity (23°C)	Pa·s	30	50
Viscosity after mixing (23°C)	Pa·s	40	
Mix ratio by weight		1 : 1	

Cured Properties(0.5 hr@ 150°C)		TSE 3380
Appearance		Elastic rubber, grey
Density	g/cm ³	2.70
Hardness	Shore A	70
Tensile strength	MPa	2.5
Elongation	%	100
Adhesive strength*	MPa	1.5
Thermal conductivity	W/m·K	1.68

Linear expansion	1/K	1.4×10^{-4}
Volume resistivity	$\Omega \cdot \text{cm}$	2.1×10^{14}
Dielectric strength	kV/mm	15
Dielectric constant (60 Hz)		5.7
Dielectric loss (60 Hz)		0.002

*Aluminium Lap Shear

Potential Applications

Sealing and bonding for thermal conductive applications -Heat generating elements, Regulators, Rectifier, Thyristor, etc

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

The 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 at a temperature below 27°C.

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.

Processing Recommendations

Compability

TSE3380 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 inhibition. Cure inhibition is characterized by a lack of cure of the TSE at the interface of the silicone rubber and the substrate.

It is recommended that a sample patch test be performed with TSE3380 to determine if a barrier coating or

other inhibition preventing measures are necessary before pouring the TSE.

Mixing

Select a mixing container 4-5 times larger than the volume of TSE silicone to be used. Mix the A as well as the B part thoroughly before use as sedimentary contents may have settled to the bottom of the container. Weight out 100 parts of A component and 100 parts of B component. With clean tools, thoroughly mix the A and B components together, scraping the sides and bottom of the container carefully to produce a homogeneous mixture. When using power mixers, avoid excessive speeds, which could entrap large amounts of air or cause overheating of the mixture, resulting in a shorter pot life.

Deaeration

Air entrapped during mixing should be removed to eliminate voids in the cured product. The mixed material should be exposed to a vacuum of 20 mbar. The material will expand, crest and recede to about the original level as the bubbles break. Degassing is usually complete about 2 minutes after frothing ceases.

Curing

TSE3380 silicone rubber adhesive cures very rapidly when exposed to elevated temperatures. Typical cure times as are as follows:

Cure Temperature	Cure Time
100°C	120 minutes
125°C	45 minutes
150°C	30 minutes

The actual cure time will depend on the cross-sectional thickness of the TSE3380 silicone rubber adhesive, the thermal properties of the overall assembly and type and efficiency of oven. Cure temperatures below 100°C are not recommended.

Bonding

To achieve optimum adhesion, substrates should be cleaned with a nonoily solvent such as a naphtha, methyl ethyl ketone (MEK) or isopropyl alcohol. Apply freshly catalyzed TSE3380 to the surface and cure at minimum 100°C to obtain optimum adhesion. The heating time is depending on the heat capacity of the substrates, the ovens and the amount of TSE3380 to be used.

Limitations

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

Availability

TSE3380(A) and TSE3380(B) are each available in 1 kg cans.

Contact Information

For product prices, availability, or order placement, contact our customer service at [Momentive.com/contact/customer-service](https://www.momentive.com/contact/customer-service)

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

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