

# Product Data

## Low Volatile, Heat Resistant Silicone Adhesive TSE3976-B

TSE3976-B is a one-component, low volatile, silicone adhesive sealant, which cures to a flexible silicone rubber on exposure to atmospheric moisture at room temperature. This product has excellent heat resistant properties and provides excellent electrical insulation.

### KEY FEATURES

- ◆ Excellent heat resistance
- ◆ Low volatility: reduced low molecular siloxane content
- ◆ Non-corrosive to metals: meets MIL-A-46146B corrosion test
- ◆ Fast cure
- ◆ Primerless adhesion to many types of substrates
- ◆ Low odor cure: releases an alcohol vapor during cure
- ◆ Flowability permits a smooth finished surface
- ◆ One-component, ready-to-use

### APPLICATIONS

- ◆ Electrical insulation for electrical and electronic components and home appliances required heat resistance
- ◆ Insulation and waterproof sealant for in/outlet of motors and transformers
- ◆ Sealing and encapsulating of heating elements in appliances
- ◆ Adhesive for metals, glass, plastics, wood, etc.

### TYPICAL PROPERTY DATA

(JIS K 6249)

UNCURED PROPERTIES		
Appearance		Flowable paste, Black
Viscosity (23°C)	Pas {P}	70 {700}
Tack-free time (23°C)	min	5
CURED PROPERTIES (7days @ 23°C, 50%RH)		
Appearance		Elastic rubber
Density (23°C)	g/cm <sup>3</sup>	1.06
Hardness (Type A)		30
Tensile strength	MPa {kgf/cm <sup>2</sup> }	1.7 {17}
Elongation	%	210
Adhesive strength <sup>*1</sup>	MPa {kgf/cm <sup>2</sup> }	1.3 {13}
Thermal conductivity <sup>*2</sup>	W/(m·K) {cal/(cm·s·°C)}	0.18 {4.4×10 <sup>-4</sup> }

Volatile siloxane <sup>*2</sup>	wt %	0.025
Volume resistivity	Ω·cm	1.0×10 <sup>15</sup>
Dielectric strength	kV/mm	27
Dielectric constant (60Hz)		3.0
Dissipation factor (60Hz)		0.01

\*1 Aluminum lap shear      \*2 In-house test method

*Typical property data values should not be used as specifications.*

## ADHESION PERFORMANCE

TSE39X series has excellent bonding properties and adheres to many materials without primers. However, for significantly better adhesion on difficult-to-bond substrates, use of a primer is suggested. The following list of materials shows the quality of adherence of TSE39X used with ME121, ME123, YP9341, XP80-A5363 or without a primer.

### Primer selection

SUBSTRATE	NO PRIMER	ME121	ME123	YP9341/ (P80-A5363)
<b>Metals</b>				
Copper	○	○		
Steel	○	○		
Mild steel	○	○		
Brass	○	○		
Stainless steel	○	○		
Pure aluminum	○	○		
Corrosion-resistant aluminum	○	○		
Galvanized sheet iron	○	○		
Tin plate	○	○		
<b>Plastics</b>				
Acrylic resin	○		○	
Phenolic resin	○		○	
Epoxy resin	○		○	
Polycarbonate	○ <sup>*1</sup>		○ <sup>*1</sup>	
Soft polyvinyl chloride	○		○	
Rigid polyvinyl chloride	○		○	
Melamine resin	○		○	
Polystyrene	△		○	
Polyacetal	×		○	
PPE	○		○	
Polyester film	○		○	
Unsaturated polyester resin	○		○	
Polyimide	○		○	

Nylon66	○		○	○ <sup>*2</sup>
PBT	○		○	× <sup>*2</sup>
PPS	○		○	○ <sup>*2</sup>
ABS resin	○		○	
Polypropylene	×		×	○ <sup>*3</sup>
Polyethylene	×		×	△ <sup>*3</sup>
Polytetrafluoroethylene	×		×	×
Silicone varnish laminate	○		○	
Silicone varnish coated glass cloth	○		○	
<b>Rubbers</b>				
Chloroprene	△		○	
Nitril	△		○	
Styrene butadiene	△		○	
Ethylene propylene	△		○	
Silicone	○		○	
<b>Others</b>				
Glass	○	○		
Ceramics	○	○		
Wood	○~△	○~△		

Note

○: Excellent (Cohesive failure, 100%)    △: Not sufficient    ×: Poor (Cohesive failure, 0%)

\*1: It shows good adhesion but solvent crack may occur depending on the application. A preliminary adhesion test is recommended to confirm.

\*2: YP9341

\*3: XP80-A5363

## HEAT RESISTANCE (250°C)

(JIS K 6249)

PROPERTIES		72h	168h	720h
Hardness change (Type A)		+2	+3	+11
Tensile strength change	%	-41	-18	-29
Elongation change	%	-5	-33	-38
Adhesive strength change*	%	-8	+8	-46

\*Aluminum lap shear

## HANDLING AND SAFETY

- ◆ Wear eye protection and protective gloves as required while handling the product.
- ◆ Adequate ventilation must be maintained in the work place at all times.

## STORAGE

- ◆ Store in a cool, dry, dark place out of direct sunlight.
- ◆ Keep out of reach of children.

## PACKAGING

- ◆ 100 g tube available in cases of 20
- ◆ 333 ml cartridge available in cases of 50 (5 boxes of 10 cartridge)
- ◆ 18 kg pail available

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**Momentive Performance Materials Japan LLC**

<http://www.momentive.com>

Technical Answer Center (Japan): Phone: +81-276-20-6182 FAX: +81-276-31-6259  
Tokyo Head Office: Phone: +81-3-5544-3111 FAX: +81-3-5544-3122