

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 ³	1.06
Hardness (Type A)		30
Tensile strength	MPa {kgf/cm ² }	1.7 {17}
Elongation	%	210
Adhesive strength ^{*1}	MPa {kgf/cm ² }	1.3 {13}
Thermal conductivity ^{*2}	W/(m·K) {cal/(cm·s·°C)}	0.18 {4.4×10 ⁻⁴ }

Volatile siloxane ^{*2}	wt %	0.025
Volume resistivity	$\Omega \cdot \text{cm}$	1.0×10^{15}
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)
Metals				
Copper	○	○		
Steel	○	○		
Mild steel	○	○		
Brass	○	○		
Stainless steel	○	○		
Pure aluminum	○	○		
Corrosion-resistant aluminum	○	○		
Galvanized sheet iron	○	○		
Tin plate	○	○		
Plastics				
Acrylic resin	○		○	
Phenolic resin	○		○	
Epoxy resin	○		○	
Polycarbonate	○ ^{*1}		○ ^{*1}	
Soft polyvinyl chloride	○		○	
Rigid polyvinyl chloride	○		○	
Melamine resin	○		○	
Polystyrene	△		○	
Polyacetal	×		○	
PPE	○		○	
Polyester film	○		○	
Unsaturated polyester resin	○		○	
Polyimide	○		○	

Nylon66	○		○	○ ^{*2}
PBT	○		○	× ^{*2}
PPS	○		○	○ ^{*2}
ABS resin	○		○	
Polypropylene	×		×	○ ^{*3}
Polyethylene	×		×	△ ^{*3}
Polytetrafluoroethylene	×		×	×
Silicone varnish laminate	○		○	
Silicone varnish coated glass cloth	○		○	
Rubbers				
Chloroprene	△		○	
Nitril	△		○	
Styrene butadiene	△		○	
Ethylene propylene	△		○	
Silicone	○		○	
Others				
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)

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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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