

## TSE3331 Silicone Potting

### Description

TSE3331 is a two-component, heat curable silicone rubber for electric and electronic potting. TSE3331 cures with heat to form elastic, flame retardant rubber and adheres to various types of materials without the need for primers, such as metals, plastics, glass and ceramics.

### Key Features and Typical Benefits

- Convenient 1:1 mix ratio by weight
- Excellent thermal conductivity
- Low viscosity allows for excellent flowability
- Excellent adhesive properties: primerless adhesion to many types of substrates
- Flame retardant: UL94V-0 recognized (File No: E56745)
- Resistance to temperature extremes
- Non-corrosive to most metals

### Typical Physical Properties

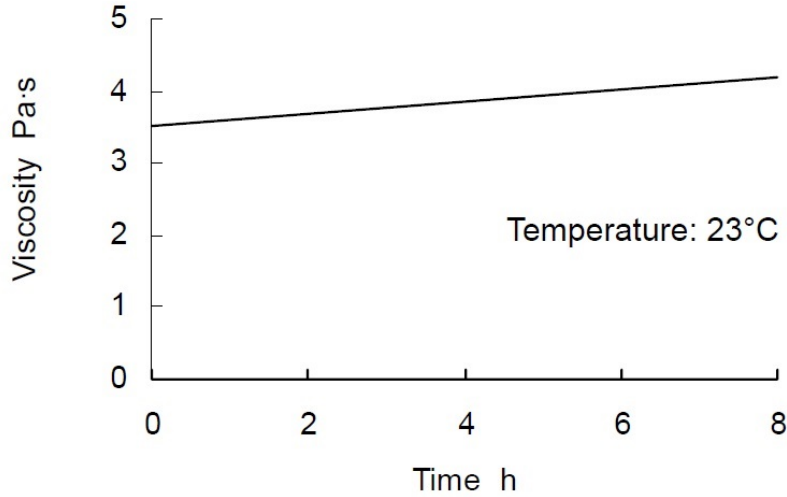
(JIS K 6249)

Property	Unit	Value	
Uncured Properties		(A)	(B)
Appearance		Black	WHITE
Viscosity (23 °C)	Pa·s {P}	4.1 {41}	3.5 {35}
Mix ratio by weight		1:1	
Viscosity after mixing (23 °C)	Pa·s {P}	3.5 {35}	
Pot Life (23 °C)	h	8	
<b>Cured Properties (1h at 120 °C)</b>			
Appearance		Elastic rubber, Black	
Density (23 °C)	g/cm <sup>3</sup>	1.51	
Hardness (Type A)		60	
Tensile Strength	MPa {kgf/cm <sup>2</sup> }	2.9 {30}	
Elongation	%	50	
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)}	0.63 {1.50 x 10 <sup>-3</sup> }	
Linear Expansion <sup>(2)</sup>	1/K	1.7 x 10 <sup>-4</sup>	
Water adsorption <sup>(3)</sup> %	25 °C, 24h	0.03	
	25 °C, 168h	0.03	

Property	Unit	Value
Volume Resistivity	MΩ·m {Ω·ccm}	2.0 x 10 <sup>6</sup> {2.0 x 10 <sup>14</sup> }
Dielectric Strength	kV/mm	26
Dielectric Constant	60Hz	3.4
	1Mz	3.3
Dissipation Factor	60Hz	0.017
	1Mz	0.003
Arc Resistance <sup>(4)</sup>	s	340

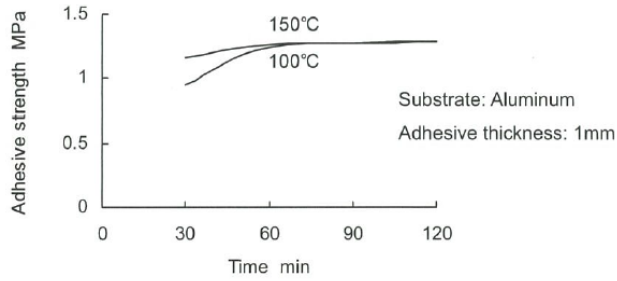
Typical properties are average data and are not to be used as or to develop product specifications

<sup>(1)</sup>Aluminum Lap Shear <sup>(2)</sup>In-house test method <sup>(3)</sup>ASTM D570 <sup>(4)</sup>ASTM D495



Note: Test data. Actual results may vary.

**CURE TEMPERATURE vs. LAP SHEAR ADHESIVE STRENGTH**



Note: Test data. Actual results may vary.

**ADHESION PROPERTIES**

SUBSTRATE	NO PRIMER	WITH PRIMER
Aluminum	○	○
Copper	○	○
Stainless steel	○	○
Brass	○	○
Mild steel	△	○
PBT	○	○
ABS	○	○
Epoxy resin	○	○
Phenol resin	○	○
PPS	△	○
Nylon-6	△	○
Polycarbonate	x	○
Acryl resin	x	x
Melamine resin	x	○
Glass	○	○
Ceramics	○	○

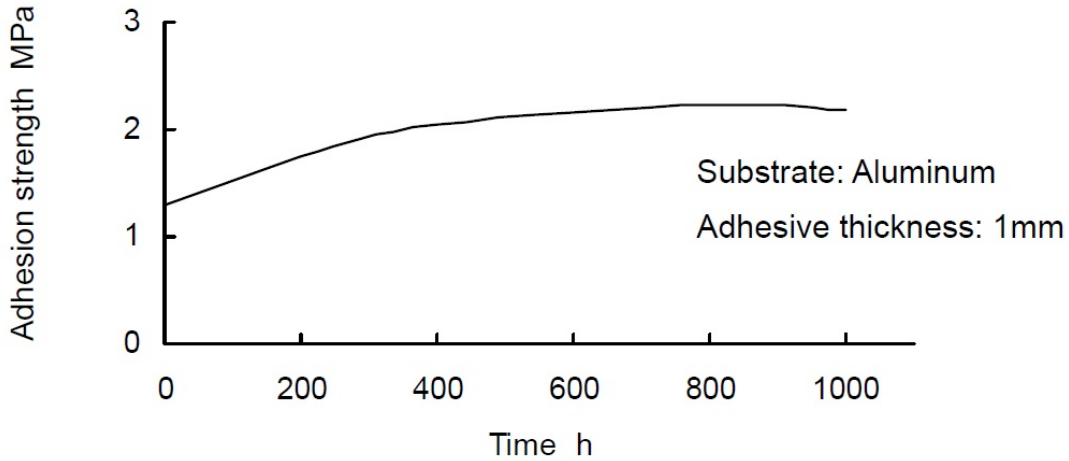
Note Cure condition: 120°C, 1h

Primer: Me153 for plastics and Me151 for others

○: Cohesive failure    △: Cohesive/Adhesive failure    x: Adhesive failure

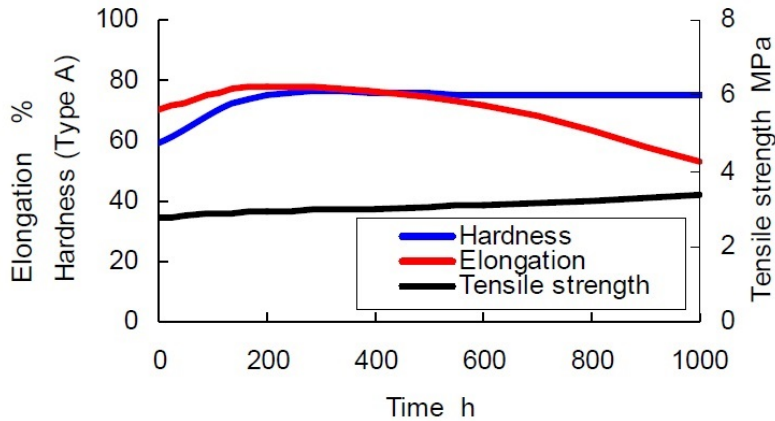
Note: Test results. Actual results may vary.

## HEAT RESISTANCE LAP SHEAR ADHESION STRENGTH (200°C)



Note: Test data. Actual results may vary.

## PHYSICAL PROPERTIES (200°C)



Note: Test data. Actual results may vary.

### Potential Applications

- Potting of electronic parts required flame retardancy
- Potting of high voltage parts
- Moistureproof coating of electronic circuit boards

### General Considerations for Use

1. Components (A) and (B) should be stirred thoroughly before mixing as filler, because filler sedimentation may occur during storage.
2. Weigh out (A) and (B) to the clean container 5 times larger than the volume of silicone compound to be used.
3. Mix (A) and (B) thoroughly with clean tools.
4. De-aerate the mixture for 5 to 10 minutes to remove air entrapped during mixing.
5. Apply and cure at the temperature of above 100°C to ensure good adhesion. Actual cure time will depend on the type and efficiency of the oven used, and the shape and heat capacity of the parts and containers. A sample test should be conducted to determine the appropriate cure time.

Note: All parts should be as clean and dry as possible prior to application, as materials such as water, sulfur, nitrogen compounds, organic metallic salts, phosphorus compounds, etc. left on the surface of the substrate can inhibit curing. Preliminary substrate compatibility testing is recommended.

**Packaging**

TSE3331 components are currently available in:

**TSE3331(A)**

- 1kg can available in cases of 10
- 1.5kg can available in cases of 10
- 6kg can available in cases of 2
- 25kg pail available

**TSE3331(B)**

- 1kg can available in cases of 10
- 1.5kg can available in cases of 10
- 6kg can available in cases of 2
- 25kg pail available

**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](http://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.

**Contact Information**

Email  
[commercial.services@momentive.com](mailto:commercial.services@momentive.com)

**Telephone**

<b>Americas</b>	<b>Latin America</b>	<b>EMEAI- Europe, Middle East, Africa &amp; India</b>	<b>ASIA PACIFIC</b>
+1 800 295 2392	<b>Brazil</b>	<b>Europe</b>	<b>China</b>
Toll free*	+55 11 4534 9650	+390510924300	800 820 0202
+704 805 6946	Direct Number	Direct number	Toll free
Direct Number			+86 21 3860 4892
			Direct number
*All American countries	<b>Mexico</b>	<b>India, Middle East &amp; Africa</b>	<b>Japan</b>
	+52 55 2169 7670	+ 91 44 71212207	+81 3 5544 3111
	Direct Number	Direct number*	Direct number
		<b>*All Middle Eastern countries, Africa, India,</b>	<b>Korea</b>
			+82 2 6201 4600

For literature and technical assistance, visit our website at: [www.momentive.com](http://www.momentive.com)

**DISCLAIMER:**

THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC. AND ITS SUBSIDIARIES AND AFFILIATES (COLLECTIVELY "SUPPLIER"), ARE SOLD SUBJECT TO SUPPLIER'S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SUPPLIER'S STANDARD CONDITIONS OF SALE, SUPPLIER AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of Supplier's materials, services, recommendations, or advice for its own particular use. Each user

## TSE3331 Silicone Potting

must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Supplier's products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Supplier's standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Supplier. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Supplier covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.

The use of the "™" symbol designates registered or unregistered trademarks of Momentive Performance Materials Inc. or its affiliated companies. Momentive and the Momentive logo are trademarks of Momentive Performance Materials Inc.