



# TSE3221

## TSE3221

### Description

TSE 3221 is a one-component, flowable, heat curing adhesive which is translucent in color and offers primerless adhesion to a wide variety of substrates. This product requires an elevated temperature cure and exhibits very low linear shrinkage.

### Key Features and Benefits

- One component product-no mixing required
- Fast cure at elevated temperature
- Primerless adhesion to many types of substrates
- No cure by-products, low linear shrinkage
- Non-corrosive to metals and sensitive substrates
- Excellent dielectric properties
- Outstanding performance over a wide thermal range

### Typical Physical Properties

Uncured Properties	
Color	Translucent
Viscosity, cps	55,000
Cured Properties (cured 1 hour at 150C)	
Specific Gravity	1.03
Hardness, (JIS A)	28
Tensile Strength, psi (kgf/cm <sup>2</sup> )	341 (24)
Elongation, %	290
Adhesion, psi (kgf/cm <sup>2</sup> ) (Al to Al)	284 (20)
Dielectric Strength, volts/mil	534
Dielectric Constant	2.8
Volume Resistivity, ohm-cm	2x10 <sup>15</sup>

### 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

**CAUTION**

Uncured TSE 3221 silicone adhesive can generate flammable hydrogen gas upon contact with acidic, basic, or oxidizing materials. Such contact should be avoided.

The warranty period for TSE 3221 silicone adhesive is 6 months from date of shipment from Momentive Performance Materials if stored in the original unopened container at or below 10C (50F).

Customers should review the latest Material Safety Data Sheet (MSDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, and any special storage conditions required for safety. MSDS are available at [www.momentive.com](http://www.momentive.com) or, upon request, from any Momentive Performance Materials (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****Compatibility**

TSE 3221 silicone adhesive 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 cure inhibition. Cure inhibition is characterized by a gummy appearance of the TSE 3221 silicone adhesive at the interface between the adhesive and the substrate to be bonded. It is recommended that a patch test be performed with the TSE 3221 silicone adhesive to determine substrate compatibility.

**Surface Preparation**

The adhesive performance of any polymer system is highly dependent upon proper surface preparation. In order to maximize the adhesion of TSE 3221 silicone adhesive and minimize the potential for cure inhibition, all parts should be as clean and dry as possible prior to the application of the adhesive.

**Bonding**

TSE 3221 silicone adhesive offers outstanding adhesion characteristics to a wide variety of different substrates without the need of a primer.

For difficult-to-bond substrates, or where more aggressive chemical adhesion is desired, the adhesion may be enhanced by using SS4155 silicone primer, available from Momentive Performance Materials. To apply the primer, thoroughly clean the surface and let dry. Then apply a uniform film (0.01-0.02 mm/ 0.5-1.0 mil) of SS4155 silicone primer and allow the primer to air dry for one hour or more. For more details on priming and adhesion, please refer to Momentive Performance Materials product data sheet on silicone primers (#1873).

**Curing**

TSE 3221 silicone adhesive requires the use of elevated temperatures in order to achieve full cure. Typical cure times and temperatures are as follows:

Temperature	TSE 3221
100C	3 hours
125C	90 minutes
150C	1 hour

The actual cure time is affected by such things as cross-sectional thickness of the TSE 3221 silicones adhesive, heat capacity of the overall assembly and efficiency and type of oven used (i.e. convection, infrared). If an oven is used, it should be well ventilated.

**Limitations**

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

From automotive to healthcare, from electronics to construction, products from Momentive Performance Materials Inc. are practically everywhere you look. We are a global leader in silicones and advanced materials with a 70+ year heritage of innovation and being first to market – with performance applications that improve everyday life. By knowing our customers' needs and creating custom technology platforms for them, we provide science based solutions to help customers increase performance, solve product development issues and engineer better manufacturing processes.

**Contact Information** For product prices, availability, or order placement, contact our customer service by visiting [momentive.com/ContactSilicones](https://www.momentive.com/ContactSilicones).

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

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