

## SilGrip™ PSA595 Pressure Sensitive Adhesive

### SilGrip\* PSA595 Pressure Sensitive Adhesive

#### Description

PSA595 silicone pressure sensitive adhesive is a xylene solution of polysiloxane gum and resin. It is supplied at 55 percent silicone solids and may be further diluted with aromatic, aliphatic or chlorinated solvents. PSA595 may be blended with SR545 resin dispersion or with other methyl based silicone pressure sensitive adhesives to obtain specific performance properties. PSA595 adhesive has been found useful in coating of film and fabric substrates for manufacturing industrial pressure sensitive tapes. It may be an excellent choice suitable for masking tapes used in electronic assembly applications and for electrical insulation tapes.

#### Key Features and Benefits

- Wide temperature range performance, maintains good shear and tack properties at intermittent temperatures up to 550 ° F
- Adhesion to a wide variety of surfaces including low energy surfaces (silicones, fluoropolymers, polyolefines)
- Resistance to moisture, weathering (ozone, sunlight), chemical (acids, alkalis, oils, flux, reverse current stripping) and biological (fungus) attack
- Minimum silicone residue on applied surfaces (e.g. printed circuit boards)
- Excellent lap shear and creep resistance

#### Typical Physical Properties

Property	Value
----------	-------

Silicone Solids, %	55
Specific Gravity	0.95
Density, lbs/gal	8.05
Viscosity @ 25° C (77° F), cps (Brookfield RVF)	57,000
Color	Light Straw
Flash Point (ASTM D93) , C (° F)	27.2 (81)
Solvent	Xylene

### TYPICAL CURED ADHESIVE PROPERTIES

• Peel Adhesion <sup>(1)</sup> , oz/inch	39
• Tack <sup>(2)</sup> , g/cm <sup>2</sup>	730

(1) 2 mil dry adhesive thickness, 1mil polyester film, 1.5% benzoyl peroxide<sup>(3)</sup>, curing cycle: 10 minutes air dry, 90 seconds at 177°C, stainless steel, 12 inches/minute, 180° angle

(2) Luperox® A98 from Elf Atochem North America, Inc.

(3) Polyken Tack Tester, 100g weight, 0.5 sec dwell time, 0.5 cm/sec draw speed, 2 mil dry adhesive thickness, 1mil polyester film, 1.5% benzoyl peroxide<sup>(3)</sup>, curing cycle: 10 minutes air dry, 90 seconds at 177°C

The properties of a cured silicone adhesive are affected by several factors such as type and amount of catalyst, cure cycle, adhesive thickness and backing type and thickness. Higher catalyst concentration will increase cohesive strength of the adhesive and improve shear strength, but it will reduce its adhesive strength resulting in lower tack and peel values. Typical adhesive strength of PSA595 adhesive as a function of

adhesive build for two benzoyl peroxide concentrations is illustrated in Figure 1.



### **Patent Status**

Standard copy to come

### **Product Safety, Handling and Storage**

The warranty period is 6 months from date of shipment from Momentive Performance Materials if stored in the original unopened container at 25°C (77°F).

Standard copy to come

### **Processing Recommendations**

#### **Application**

PSA595 silicone adhesive is supplied at a viscosity suitable for conventional tape coating equipment. If necessary, it may be thinned with toluene, xylene or other compatible solvents. After the adhesive is applied to the backing, it is exposed to a two step process: solvent removal and curing.

#### **Solvent Removal**

To achieve optimum adhesive properties, it is essential to optimize the drying step of the process in order to assure that the solvent is removed from the adhesive film before the curing step of the process starts. Improper drying will result in residual solvent entrapment within the adhesive. If the adhesive is then exposed to temperatures higher than 93.5 ° C (200 ° F), decomposing peroxide catalyst can cause crosslinking reaction between solvent and adhesive through methyl groups on siloxane chains and on solvent molecules and adversely affect the properties of the adhesive. Typical temperature range for the drying step of the process is 83 ° C (180 ° F) to 90 ° C (194 ° F). A typical drying cycle is 2 minutes at 90 ° C (194 ° F).

#### **Curing Process**

Once the solvent is removed from the adhesive film, the peroxide cure should be initiated by exposure to heat. A typical curing cycle is 2 minutes at 165 ° C (329 ° F). Longer exposure time and higher temperature, up to 204 ° C (400 ° F), can be used without adverse effects. The exact conditions required to achieve a complete cure will depend on oven length and efficiency, peroxide type and type of substrate used, and should be established during experimental trials on the machine.

## Catalysts

High purity, 98% benzoyl peroxide <sup>(3)</sup> in the quantity of 1 to 3% based on silicone solids, has been found to give the most consistent results in curing of silicone pressure sensitive adhesives. In applications requiring low temperature cure, 2,4-dichlorobenzoyl peroxide, which is activated at 132 ° C (270 ° F), can be used. It should be noted that 2,4-dichlorobenzoyl peroxide may generate polychlorinated biphenyls during the curing process. Please refer to Code of Federal Regulations, title 40, part 761 regarding incidental PCB byproducts if 2,4-dichlorobenzoyl peroxide is utilized.

The peroxide should be dispersed in solvent before it is mixed with the adhesive. Thorough mixing of the peroxide and adhesive to achieve homogeneous dispersion is essential for consistency of finished product.

(3) Available from: Elf Atochem North America, Inc.,

## Priming

In certain applications, the anchorage of the adhesive to the backing may be insufficient and the coating of a primer prior to the adhesive coating may be required.

A typical formulation for a primer may be found in Table1 below. The formulation may need to be adjusted depending on required bath life, coating equipment and backing material. The primer may be coated by direct gravure, wire wound rod or other coating technique suitable for solvent based coatings, and must be cured prior to adhesive application. The curing conditions will depend on equipment capabilities, substrate type

and formulation used and should be established during experimental trials on the machine.

**Table1. Typical Primer <sup>(4)</sup> Formulation**

<b>Component</b>	<b>Parts by Weight</b>
SS4191A	13.30
SS4191B	0.16
SS4192c	0.50
SS4259c	0.30
Solvent <sup>(5)</sup>	85.74

(4) Refer to document #CDS4994, SS4191 Silicone Release Coating System, for more information

(5) Typical solvents: toluene, heptane, toluene/heptane mixtures

**Limitations**

Standard copy to come

**Contact Information**

Email

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

**Telephone**

**Americas**

+1 800 295 2392

Toll free\*

+704 805 6946

Direct Number

**Latin America**

**Brazil**

+55 11 4534 9650

Direct Number

**EMEAI- Europe, Middle East, Africa & India**

**Europe**

+390510924300

Direct number

**ASIA PACIFIC**

**China**

800 820 0202

Toll free

+86 21 3860 4892

Direct number

*All American countries	<b>Mexico</b> +52 55 2169 7670 Direct Number	<b>India, Middle East &amp; Africa</b> + 91 44 71212207 Direct number*	<b>Japan</b> +81 3 5544 3111 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 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.