

SilGrip PSA810 Pressure Sensitive Adhesive

Description

SilGrip PSA810 silicone pressure sensitive adhesive is a toluene solution of polysiloxane gum and resin that is supplied at 61 percent silicone solids, and which can be further diluted with aromatic, aliphatic or chlorinated solvents. SilGrip PSA810 adhesive can be blended with SR545 resin dispersion or with other methyl based silicone pressure sensitive adhesives to obtain specific performance properties. SilGrip PSA810 adhesive is used as a coating of film and fabric substrates in the manufacture of industrial pressure sensitive tapes. SilGrip PSA810 adhesive can deliver excellent balance of peel strength, tack, cohesion strength and flexibility, and thus versatility for use in a wide variety of applications.

Key Features and Typical Benefits

- Maintenance of good shear and tack properties at 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)
- Excellent balance of tack and peel adhesion properties
- Viscosity that allows good penetration through fabric or porous sheet

Typical Physical Properties

Property	Value
Haze	Clear to slightly hazy
Color	Light straw

Silicone Solid, %	62.5
Viscosity at 25 °C (77 °F), cps (Brookfield RVF, #4 Spindle)	85,000
Flash Point (ASTM D93) (PMCC), °C (°F)	5 (41)
Solvent	Toluene

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

Typical Cured Adhesive Properties

Peel Adhesion, ⁽¹⁾ oz/in	36
Tack, ⁽²⁾ g/cm ²	450

(1) 2 mil dry adhesive thickness, 1 mil polyester film, 2.0% benzoyl peroxide(3), curing cycle: 10 minutes air dry, 120 seconds at 165°, stainless steel, 12 inches/minute, 180° angle

(2) Polyken Tack Tester, 100g weight, 0.5 sec dwell time, 0.5 cm/sec draw speed, 2 mil dry adhesive thickness, 1 mil polyester film, 2.0% benzoyl peroxide(3), curing cycle: 10 minutes air dry, 120 seconds at 165°

(3) Sinopharm Group Chemical Reagent Co., Ltd.

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 benzoyl peroxide catalyst concentration will generally increase cohesive and shear strength of the adhesive, but will also reduce its adhesive strength and thus its tack and peel values.

Storage Stability

Product stability is warranted for a period 6 months from the date of shipment from Momentive when stored in the original unopened container at 25 °C (77 °F).

Potential Applications

- Film and fabric substrates for manufacturing industrial pressure sensitive tapes

General Considerations for Use

Application

SilGrip PSA810 silicone adhesive is supplied at a viscosity that can accommodate most conventional tape coating equipment. If necessary, it may be thinned with toluene,

xylene or other compatible solvents. After the adhesive is applied to the substrate, 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 cross-linking 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 in the quantity of 1 to 4% 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.

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 sample formulation⁽¹⁾ for a primer is provided in Table 1 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.

(1) Product formulations are included as illustrative examples only. Momentive makes no representation or warranty of any kind with regard to any such formulations, including, without limitation, concerning the efficacy or safety of any product manufactured using such formulations.

Table 1. Sample Primer⁽⁴⁾ Formulation

Component	Parts by Weight
Momentive SS4191A silicone base polymer	13.3
Momentive SS4191B methyl hydrogen crosslinker	0.16
Momentive SS4192C tin catalyst	0.5
Momentive SS4259C cure accelerator	0.3
Solvent ⁽⁵⁾	85.74

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

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

Current Packaging

Currently available in 18kg pail and 180kg drum

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 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

Telephone

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

For literature and technical assistance, visit our website at: 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.

*SilGrip™ is a trademark of Momentive Performance Materials Inc.

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.