Technical Data Sheet

SilGrip™ PSA510 Silicone Pressure Sensitive Adhesive

Product Description

SilGrip PSA510 silicone pressure sensitive adhesive is a toluene solution of polysiloxane gum and resin. It is supplied at 58 - 62 percent silicone solids and may be further diluted with aromatic or aliphatic solvents. SilGrip PSA510 silicone pressure sensitive adhesive may be blended with SR545 resin dispersion or with other methyl based silicone pressure sensitive adhesives to obtain specific performance properties. SilGrip PSA510 silicone pressure sensitive adhesive's excellent balance of peel strength, tack, cohesion strength and flexibility provides it with the versatility to be considered for use in a wide variety of applications.

Key Features and Typical Benefits

- Maintains good shear and tack properties at wide temperature range up to 260 °C (500 °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) and biological (fungus) attack
- Good balance of tack and peel adhesion properties
- Low viscosity for good penetration through fabric or porous sheet

Typical Product Data

Property	Value
Haze	Clear to slightly hazy

Color	Light straw
Silicone Solid, %	60
Viscosity @ 25 ºC (77 ºF), cps (Brookfield RVF, #4 Spindle)	72,000
Flash Point (ASTM D93) (PMCC), ºC (ºF)	4 (40)
Solvent	Toluene

Typical Cured Adhesive Properties:

Peel Adhesion [(1)], oz/in	35
Tack[(2)], g/cm2	700

(1) 2 mil dry adhesive thickness, 1mil 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, 1mil 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 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 properties are average data and are not to be used as or to develop specifications.

Potential Applications
SilGrip PSA510 silicone pressure sensitive adhesive is an excellent candidate to consider for use in a wide variety of applications including the coating of film and fabric substrates for manufacturing industrial pressure sensitive tapes.

General Considerations for Use
Application
SilGrip PSA510 silicone pressure sensitive adhesive is supplied at a viscosity generally able to be used in 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° (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° (180°F) to 90° (194°F). A typical drying cycle is 2 minutes at 90° (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° (329°F). Longer exposure time and higher temperature, up to 204° (400°F), typically 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 generally 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° (270°F), typically can be used. It should be noted that 2,4-dichlorobenzoyl peroxide may generate polychlorinated biphenyls during the curing process. Please refer to United States Code of Federal Regulations, title 40, part 761 (and/or other applicable laws and regulations) 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 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.

Table 1. Typical Primer(4) Formulation

Component	Parts by Weight
SS4191A	13.3
SS4191B	0.16
SS4192C	0.5
SS4259C	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

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.

Current Available Packaging

SilGrip PSA510 silicone pressure sensitive adhesive drum, 180kg
SilGrip PSA510 silicone pressure sensitive adhesive pail sample, 18k

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* +704 805 6946 Direct Number	**Brazil** +55 11 4534 9650 Direct Number	**Europe** +390510924300 Direct number	**China** 800 820 0202 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

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