Technical Data Sheet

SilGrip™ PSA610 & PSA610E Pressure Sensitive Adhesive

Description

PSA610 & PSA610E silicone pressure sensitive adhesives are a toluene solution of polysiloxane gum and resin. They are supplied at 60 percent silicone solids and may be further diluted with aromatic, aliphatic or chlorinated solvents. PSA610 & PSA610E may be blended with SR545 resin dispersion or with other methyl based silicone pressure sensitive adhesives to obtain specific performance properties. PSA610 & PSA610E adhesives have been found useful in coating of film and fabric substrates for manufacturing industrial pressure sensitive tapes. Possible applications include tapes for electrical insulation, electronic assembly masking, flame and plasma spray masking, EMI/RFI shielding, and splicing operations.

Key Features and Typical Benefits

- Wide temperature range performance, maintaining 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, polyolefins)
- Resistance to moisture, weathering (ozone, sunlight), chemical (acids, alkalis, oils) and biological (fungus) attack
- Minimum silicone residue on applied surfaces (e.g. printed circuit boards) Excellent balance of tack and peel adhesion properties

Typical Physical Properties

	PSA610	PSA610E
Property	**Value**	
Silicone Solids, %	59	61
Viscosity @ 25º (77ºF), cps (Brookfield RVF, #6 Spindle,10rpm)	95,000	106,000
Color	Gardner	Gardner
Flash Point (ASTM D93) (PMCC), ºC(ºF)	4 (40)	4 (40)
Solvent	Toluene	Toluene

Typical cured adhesive properties

	PSA610	PSA610E
Property	**Value**	
Peel Adhesion(1) , oz/inch	39	39
Tack(2), g/cm2	820	820

(1) 2 mil dry adhesive thickness, 1mil polyester film, 1.5% benzoyl peroxide(3), curing cycle: 10 minutes air dry, 90 seconds at 177oC, stainless steel, 12 inches/minute, 180oangle
(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, 1.5% benzoyl peroxide(3), curing cycle: 10minutes air dry, 90 seconds at 177oC
(3) Luperoxâ A98 from Elf Atochem North America, Inc.

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.

Processing Recommendations Application

PSA610 & PSA610E 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 twostep 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 ensure 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), the decomposing peroxide catalyst may cause a 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 between 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 (3) 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 polychlorinatedbiphenyls (PCBs) 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 products.

(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 (4) Formulation

Component	Parts by Weight
SS4191A	13.30
SS4191B	0.16
SS4192c	0.50
SS4259c	0.30
Solvent (5)	85.74

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

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

Patent Status

여기에 포함된 어떠한 내용도 관련 특허가 없음을 의미하거나 특허 소유자의 허가 없이 특허에서 다루는 발명을 실행하기 위한 허가, 유도 또는 권고를 구성하는 것으로 해석되어서는 안됩니다.

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

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™는 Momentive Performance Materials Inc.의 상표입니다.