Technical Data Sheet

SilGrip™ PSA915 Pressure Sensitive Adhesive

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Description

SILGRIP PSA 915 pressure sensitive adhesive is a toluene solution of polysiloxane gum and resin. It is supplied at 60 percent silicone solids and may be further diluted with aromatic, aliphatic or chlorinated solvents. PSA 915 may be blended with SR 545 resin dispersion or with other methyl based silicone pressure sensitive adhesives to obtain specific performance properties. PSA 915 adhesive has been found useful in coating of film and fabric substrates for manufacturing industrial pressure sensitive tapes. PSA 915 adhesive has been developed primarily for use on PTFE coated fabric substrates for use in the PVC welding industry. It is particularly suitable for heat-sealing applications due to its excellent high temperature ageing properties , cohesive strength and tack retention under harsh conditions.

Key Features and Benefits

- Wide temperature range performance; maintains good shear and tack properties at intermittent temperatures up to 287°C with superior long term heat ageing properties
- 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
- Excellent balance of tack and peel properties
- Excellent tack retention after elevated temperature exposure, suitable for PVC welding applications
- Can be processed with traditional PSA coating equipment
- Accepts extending filler for cost reduction

Typical Physical Properties

Property	Value
Silicone Solids, %	60
Viscosity @ 25˚C, cps(1)	22,000
Solvent	Toluene
Specific Gravity, 25˚C	0.99
Colour	Clear to Slightly Hazy

(1) Brookfield RVF, #6 Spindle @10 rpm

Table 2 Typical cured adhesive properties

Property	Value
Tack on 23 µm PET, g/cm^2 (2)	780
Tack on 50 µm PET, g/cm^2 (2)	1130
Tack on 23 µm PI, g/cm^2 (2)	910
Tack on 23 µm PI, 6 hrs/260°C, g/cm^2 (2)	280
Peel on 23 µm PET, g/inch (3)	1134
Peel on 50 µm PET, g/inch (3)	1701
Peel on 23 µm PI, g/inch (3)	794
Lap Shear with 500 g, 260°C, hrs	24
Lap Shear with 500 g, 287°C, hrs	24

(2) Polyken Probe Tack with 1,000 g/cm^2 “F” weight, 1cm/s, 1 sec. contact time, 38 µm dry thickness, 2% benzoyl peroxide based on silicone solids, cure cycle: 10 minutes air dry, 2 minutes at 177°C

(3) 180° peel off stainless steel @ 300 mm per minute after 20 minutes dwell , 38 µm dry thickness, 2% benzoyl peroxide based on silicone solids, cure cycle: 10 minutes air dry, 2 minutes at 177°C

Patent Status

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Product Safety, Handling and Storage

Correctly stored in its original, unopened container at or below 25°C PSA 915 has a shelf life of 730** days from the date of manufacturing. **Please see also use-before/expiry date on product label and certificate.

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Processing Recommendations

Application

PSA 915 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 94°C, 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 to 90°C. A typical drying cycle is 2 minutes at 90°C.

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. Longer exposure time and higher temperature, up to 204°C, 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(4) 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. 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.

(4) Available from: Laporte or Pergan.

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 Table 3 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 3 Typical Primer[5] Formulation

Component	Parts by Weight
SS 4191A	13.30
SS 4191B	0.16
SS 4192c	0.50
SS 4259c	0.30
Solvent[6]	85.74

(5) Refer to the Technical Data Sheet of SS 4191 Silcone Release Coating System, for more information

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

Specifications

Typical product data values should not be used as specifications. Assistance and specifications are available at the technical service department of Momentive Performance Materials.

Availability

PSA 915 may be ordered from Momentive Performance Materials. Sales office nearest you or an authorized Momentive Performance Materials. product distributor.

Containers

0.5 kg sample
18 kg pail
136 kg drum

Limitations

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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* ***All Middle Eastern countries, Africa, India,**	**Japan** +81 3 5544 3111 Direct number **Korea** +82 2 6201 4600

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

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