

SilGrip™ PSA HP20

Pressure Sensitive Adhesives

SilGrip PSA HA20

Additive

Product Description

SilGrip PSA HP20 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 PSA HP20 adhesive can be blended with SilGrip PSA HA20 dispersion to obtain special high bonding performance with low surface energy materials such as different Si-rubber and Si-foam substrates. SilGrip PSA HP20 adhesive with SilGrip PSA HA20 additive may be used as a coating on film and fabric substrates in the manufacture of industrial pressure sensitive tapes. The total solution can deliver excellent peel strength on Si-rubber and Si-foam substrates which also can be adjusted based on different ratios and formulations.

Key Features and Typical Benefits

- Adhesion to low surface surfaces especially on Si-rubber and Si-foam
- Flexibility to adjust the formulation to meet different bonding requirements
- Resistance to moisture, weathering (ozone, sunlight), chemicals (acids, alkalis, oils)

Typical Physical Properties

1. SilGrip PSA HP20 silicone pressure sensitive adhesive

Property	Value
Color	Colorless

Silicone Solid, %	~61.0
Viscosity at 25 °C (77 °F), cps (Brookfield RVF, #4 Spindle)	100,000
Flash Point (ASTM D93) (PMCC), °C (°F)	4 (40)
Solvent	Toluene

2. SilGrip PSA HP20 silicone pressure sensitive adhesive

Property	Value
Color	Colorless
Solvent	Toluene/Xylene

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

3. Typical formulation

Components ⁽¹⁾	PSA HP20	PSA HA20
Ratio (wet to wet)	100	7 ⁽²⁾

(1)Recommended: 1.0~1.5% benzoyl peroxide (dry to dry), curing cycle: 120 seconds at 85°C, 120 seconds at 165°C.

(2)Can adjust PSA HA20 ratio from 5~10 parts based on actual bonding performance need.

Peel force on Si-rubber(**) silgrip psa hp20 chart

****Note: Test results. Actual results may vary. PSA dry thickness: 40um & PET film thickness: 25um All data based on Momentive Lab conditions and Momentive internal materials**

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 the cohesive and shear strength of the adhesive, but will also reduce its adhesive strength and thus its tack and peel values.

Potential Applications

Film and fabric substrates for manufacturing industrial pressure sensitive tapes.

General Considerations for Use

SilGrip PSA HP20 pressure sensitive adhesive and SilGrip PSA HA20 additive is an excellent candidate for a variety of applications, especially for bonding with silicone rubber and other low energy surfaces, including but not limited to

- Mobile device parts
- Wearable devices
- Keypads
- Wireless chargers
- Medical tubes
- Door seals

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 can cause a 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 85 °C (185 °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). 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), may 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⁽²⁾ 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 ⁽³⁾	85.74

⁽²⁾ Refer to document #CDS4994, SS4191 Silicone Release Coating System, for more information

⁽³⁾ Typical solvents: toluene, heptane, toluene/heptane mixtures

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).

Current Packaging

Currently available in 18kg pail and 180kg drum.

Patent Status

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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.

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