

SilGrip™ and SPUR+™

High Performance
Pressure Sensitive Adhesives



MOMENTIVE
inventing possibilities

Formulating Success with Momentive PSAs



SilGrip and Spur+ Pressure Sensitive Adhesives

Around the globe and for more than 75 years, Momentive pressure sensitive adhesives (PSAs) have been helping tape and label manufacturers outpace their competition. How? Through innovative collaboration, focused on the design of formulations that offer an excellent combination of performance attributes in each tape or label product.

Momentive scientists have worked with industry leading tape and label manufacturers, to expertly determine the properties needed in each of their customers' applications. Listening carefully to these industry experts, our scientists have created a versatile portfolio of PSAs, each formulated to offer a specific combination of the desired properties, such as tack, peel adhesion, shear resistance, clean removal, high temperature stability and chemical resistance.

Tailored Formulations, Expertly Produced

The same proven silicone PSA composition that Momentive pioneered in the mid-1950s is the basis for today's SilGrip PSA brand. Our long-standing experience, coupled with our culture of innovation, allows us to expertly tailor PSA performance properties. We know just how to manipulate the MQ resin and polysiloxane molecular weights, their ratios, as well as key aspects of manufacturing processes.

Our expert tailoring is also applied to our SPUR+ silylated polyurethane PSAs.

The resulting product grades within our portfolio offer a range of cure chemistries, temperature performance, coating options, and adhesive properties that can perform well on a variety of substrates.

Our finely tuned engineering of PSA chemistries has been mastered by our manufacturing facilities. Not only can our customers count on the careful design of our PSAs; but also on their cost-effective, predictable and reproducible adhesive and release performance.

Versatile Performance Attributes

Customers choose Momentive's silicone-based PSAs over organic PSAs because they are broadly known for delivering greater flexibility, longer-lasting bonds and better seals in harsh chemical environments and extreme temperatures. SilGrip and SPUR+ PSAs can perform effectively in the following ways:

- Well balanced tack and peel adhesion that can promote extended high-temperature lap shear performance
- Effective adhesion to low surface-energy films and fabric substrates
- Solvent resistance to retain key adhesive properties in the presence of solvents, oils and other fluids
- Chemical stability in many harsh environments
- Electrically insulating performance (dielectric strength ~ 400 V/mil)
- Clean removal in diverse applications at extreme temperatures
- Resistance to moisture, sunlight and weather extremes
- Resistance to biological attack (fungus, mildew)
- Clarity/optical properties
- Less aggressive adhesion than organic adhesives at room temperature
- Retention of performance at high and low temperatures



Wide Range of Carriers

Momentive's SilGrip and SPUR+ PSA 3.0 are typically applied to substrates via web coating equipment. Our portfolio can work effectively with a noteworthy range of substrates, including:

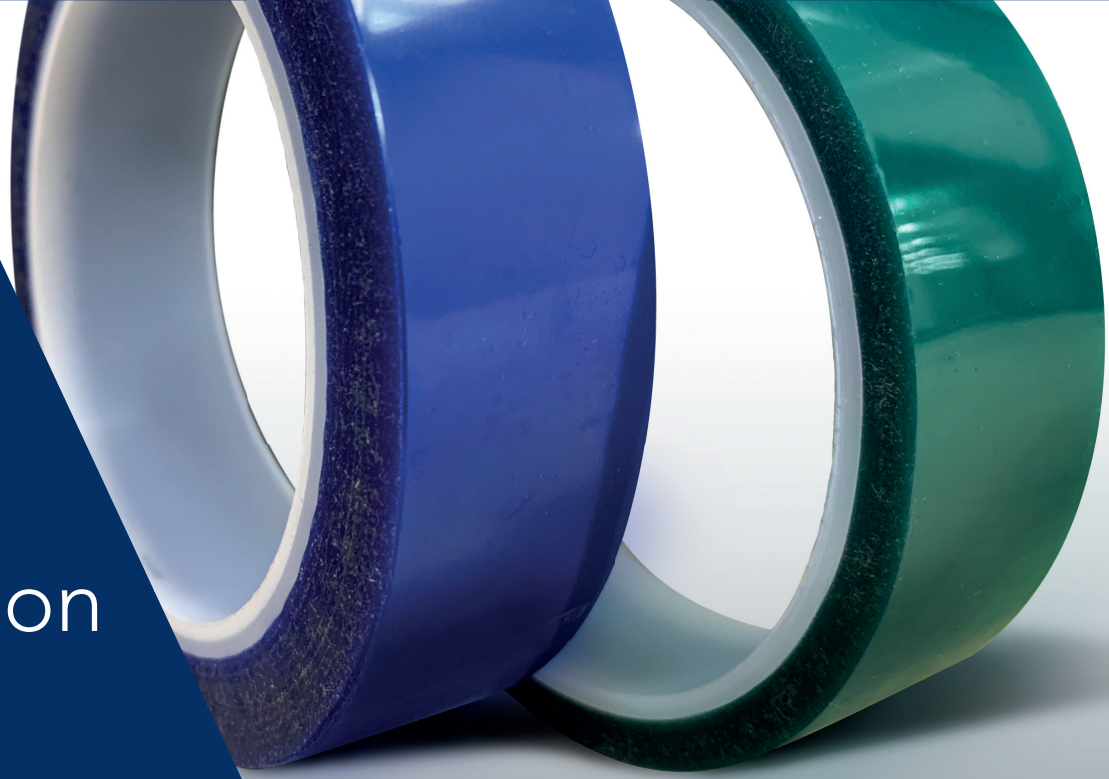
- Polyester
- PTFE
- Polyimide
- Glass Cloth



Exceptional Breadth of Application

SilGrip and SPUR+ pressure sensitive adhesives are used to manufacture a diverse number of tape and label products:

- Splicing Tapes
- Electrical Insulation Tapes
- Electronic Masking Tapes
- Thermal Spray Masking Tapes
- Impregnating Binder for Rigid and Flexible Mica
- Heat Shield Tapes
- Heat Seal Tapes
- Vibration Damping Tape
- EMI/RFI Shield Tape
- Solvent Resistant Tapes
- Laminating Adhesives
- Transfer Tapes



PSA Application Guide

Momentive's broad PSA portfolio offers versatile solutions for the tape and label industry.

Splicing Tape

Splicing tape applications typically require high adhesion to low-energy surfaces, as well as high tack. PSAs are used to help you join siliconized paper or films during the converting process, particularly in applications that demand high shear strength and thermal stability.

Products: SilGrip PSA510[†], SilGrip PSA590[†], SilGrip PSA820, SilGrip PSA915

KEY FEATURES AND TYPICAL BENEFITS

- Good adhesion to a variety of surfaces
- High temperature shear resistance
- Quick stick to silicone surfaces
- Chemical resistance

POTENTIAL APPLICATIONS

- Pressure sensitive tapes and labels
- Converting process
- Silicone release liner splicing
- Photographic film
- Flexible circuitry

Electrical Insulation Tapes

SilGrip PSAs for electrical insulation tapes used in wrapping and insulating a variety of components that will be exposed to extreme temperatures, high voltages and currents. They offer a strong barrier to moisture, oil and solvents as well as exceptional durability, even in harsh environments.

Products: SilGrip PSA518, SilGrip PSA595, SilGrip PSA610, SilGrip PSA820, SilGrip PSA915, SilGrip XR37-B6722[†]

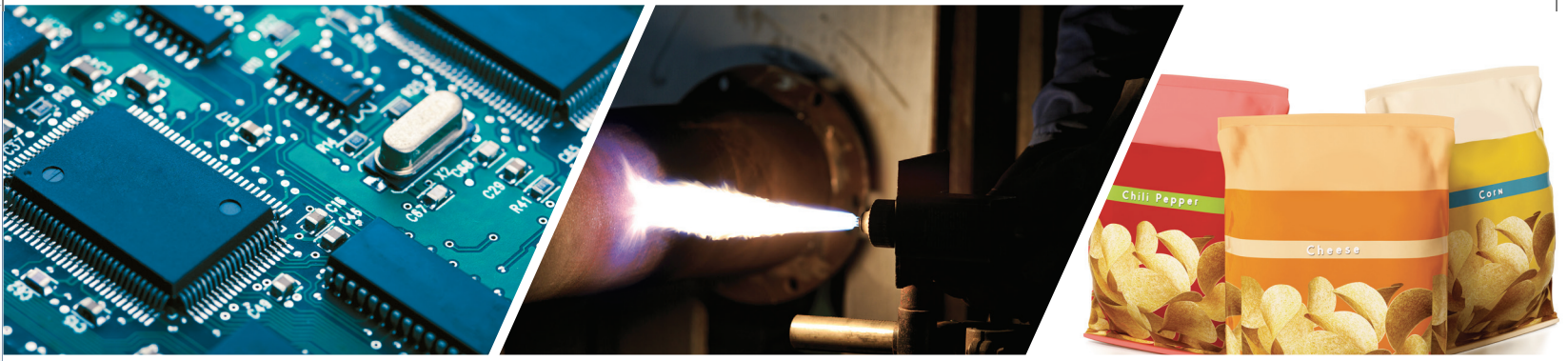
KEY FEATURES AND TYPICAL BENEFITS

- Excellent electrical insulating properties
- Non-corrosive
- High temperature resistance
- Low temperature flexibility
- Resistant to moisture, oil and solvents

POTENTIAL APPLICATIONS

- Wrapping and insulating motors
- Coils and transformers
- Wire harness wrap
- Cable repair splicing tape for automotive, aerospace, oil and gas

[†] Available in Asia-Pacific only



Electronic Masking Tapes

PSAs for electronic masking tapes, commonly known as platers tape, are used in the manufacture of printed circuit boards, for a variety of roles where good adhesion and high temperature resistance are required.

Products: SilGrip PSA510[†], SilGrip PSA595, SilGrip PSA610, SilGrip PSA810, SilGrip PSA820, SilGrip XR37-B6722[†]

KEY FEATURES AND TYPICAL BENEFITS

- Conforms to irregular surfaces
- No lifting at elevated temperatures
- Clean removal, leaves no residue
- Solvent/chemical resistance
- Low defect rates, consistently solid, masked lines

POTENTIAL APPLICATIONS

- Hot air leveling
- Gold plating of circuit board fingers
- Tin and lead stripping

Thermal Spray Masking Tapes

Thermal spray masking tapes are used in processes that involve metals or high temperature ceramics being brought to their melting points and sprayed to form a thin coating, such as plasma and flame sprays.

Products: SilGrip PSA518, SilGrip PSA6574, SilGrip PSA810, SilGrip PSA820, SilGrip XR37-B6722[†]

KEY FEATURES AND TYPICAL BENEFITS

- Extreme temperature resistance
- Clean removal, no residue or ash
- Excellent adhesion
- Accommodates parts with complex shapes
- Low cost and reduced start-up relative to many hard masks

POTENTIAL APPLICATIONS

- Gas turbine blades
- Aircraft leading edges and nose cones (manufacturing and MRO operations)
- Medical implant manufacturing
- Pumps for the oil and gas industry

Heat Seal Tapes

Many industrial heat seal tape applications require limited friction, easy and quick release and smooth material flow. These applications require the inherent anti-stick properties of PTFE; SilGrip PSAs for heat seal tapes are distinctly able to adhere well to etched PTFE and offer excellent resistance to high temperatures.

Products: SilGrip PSA518, SilGrip PSA595, SilGrip PSA610, SilGrip PSA820, SilGrip PSA915

KEY FEATURES AND TYPICAL BENEFITS

- High temperature resistance
- Excellent adhesion to etched PTFE backing
- Long term durability
- No adhesive residue when removed
- Enablement of fast tape replacement

POTENTIAL APPLICATIONS

- Snack bag production
- Process roll protective wrap
- Composite molding release
- Plastic mold welding, such as vinyl window frames

[†] Available in Asia-Pacific only



Heat Shield Tapes

Heat shield tapes are used to protect thermally sensitive components, typically those in automotive and aerospace engines. The PSA and glass cloth provide thermal insulation, while the aluminum foil laminate provides heat reflectance.

Products: SilGrip PSA595, SilGrip PSA610, SilGrip PSA820, SilGrip PSA915, SilGrip PSA6574

KEY FEATURES AND TYPICAL BENEFITS

- High temperature resistance
- Low temperature flexibility
- Chemical resistance, including engine fluids
- Long service life with repeated temperature cycling

POTENTIAL APPLICATIONS

- Automotive
- Aerospace

Noise, Vibration and Harshness (NVH)

SilGrip and SPUR+ can be used for NVH applications, providing strong tack, peel and shear properties, as well as strong damping in extreme high or low temperatures and the ability to withstand a variety of harsh environmental conditions.

Products: SilGrip PSA6573A, SilGrip PSA6574, SPUR+ PSA 3.0

KEY FEATURES AND TYPICAL BENEFITS

- Strong tack, peel and shear
- High damping performance
- UV light resistance
- Resistance to water and solvents
- Customizability to meet specific damping requirements
- Excellent performance in extreme temperatures

POTENTIAL APPLICATIONS

- Automotive vibration damping
- Noise reduction for trucks, rail and small engines
- Light powered vehicle harshness reduction
- Aerospace engine vibration reduction
- Aviation noise insulation for passenger cabins

EMI/RFI Shielding Tapes

SilGrip PSAs are used with EMI/RFI shielding tapes as an economical solution for containing signals emitted from electronic components. They offer good electrical insulation while being resistant to high temperatures as well as chemicals and solvents.

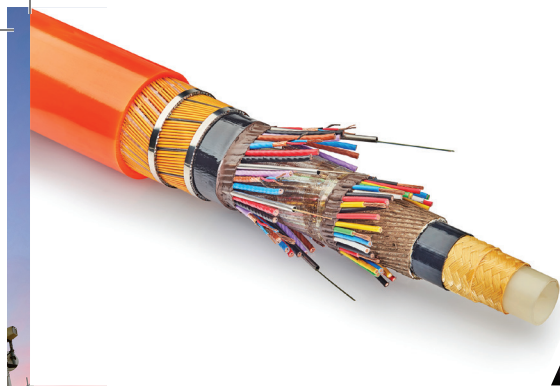
Products: SilGrip PSA595, SilGrip PSA610, SilGrip PSA820, SilGrip PSA915

KEY FEATURES AND TYPICAL BENEFITS

- High temperature resistance
- Low temperature flexibility
- Good electrical insulation
- Good chemical resistance
- Long service life with repeated temperature cycling

POTENTIAL APPLICATIONS

- Automotive underhood
- Aerospace
- Construction equipment
- Telecommunications equipment



Mica Tapes

SilGrip pressure sensitive adhesives have shown to work well with mica tapes, to provide necessary electrical insulation, chemical resistance and fire resistance characteristics. These PSAs can be formulated with low viscosity for greater impregnation.

Products: SilGrip PSA5080, SilGrip PSA590, SilGrip PSA610, SilGrip PSA915

KEY FEATURES AND TYPICAL BENEFITS

- Excellent electrical insulation
- High temperature and fire resistance
- High tack, high adhesion
- Low viscosity for better impregnation
- Low dust options for cleaner processability

POTENTIAL APPLICATIONS

- Electrical wiring and cable
- Commercial construction requiring fire resistance

Laminating Adhesives

Laminating adhesives are used to join high temperature substrates such as glass cloth and polyimide films, as well to bond silicone rubber sheets. These PSAs feature good adhesion to a variety of surfaces, high temperature resistance, low temperature flexibility and can be cured at room temperature with SilGrip SRC18 cross-linker. They are found in applications such as silicone rubber gaskets and thermal insulation blankets, as well as high temperature-resistant composites.

Products: SilGrip PSA529 and SilGrip PSA6573A

Transfer Tapes

SilGrip PSAs are used to make functional transfer adhesives for a variety of bonding applications. These transfer adhesives can perform well over a broad temperature range and in harsh environments, demonstrate good electrical properties, and enhance adhesion to silicone elastomers and foams.

Products: SilGrip PSA6574

Additives and Primers

Additives and primers are used with our SilGrip PSAs to improve anchorage to tape backings, increase peel and cohesion and act as a catalyst for certain processes, such as mica and laminating.

KEY FEATURES AND TYPICAL BENEFITS

- Improved anchorage to tape backings
- Improved shear resistance
- Increased peel adhesion
- Improved release off of release liner
- Increased reliability

PRODUCTS

- SilGrip SR500, SilGrip SS4191 and SilGrip SS4195 primer systems
- SilGrip SRC18 catalyst
- SilGrip SR545 and SilGrip SR1000 resins for enhanced peel and shear strength
- SilForce™ FSR2000 release agent

Tape and Label Manufacturing Best Practices with SilGrip and Spur+ PSA 3.0

PSA Technologies

Solvent-based methyl silicone PSAs are frequently used for masking and insulation tapes in the electronics, electrical and automotive industry, as well as specialty applications that include EMI/RFI shielding and mica tapes and sheets.

Phenyl silicone PSAs offer excellent low and high temperature performance to applications such as electrical insulation and masking tapes used for thermal spray masking tape and NVH applications.

SPUR+ PSA 3.0 is based on silylated polyurethane resin and offers excellent adhesive properties for tapes and labels or other applications requiring long-term exposure to chemicals and solvents.

Primer System

If a corona treatment or chemical etching is not sufficient to secure good anchorage on film substrates or PTFE glass fabric, in some cases a primer is needed to ensure proper anchorage of the adhesive layer. Momentive has silicone-based primer coatings that can be applied prior to the PSA.

We have developed two primer coating technologies (multi-components), each specific to one of two PSA chemistries:

- SilForce SS4191 system: primer for methyl based PSAs
- SilForce SS4195 system: primer for phenyl based PSAs

Typical Curing Process

For optimal PSA performance, benzoyl peroxide (BPO) (1-3% of the silicone solids) is added and then exposed to a 2-step process to dry and cross-link the PSA. The first step is performed at 83-90°C to evaporate the solvent from the PSA. The second step is performed at 165-204°C to cross-link the PSA with the free radicals generated by the BPO.

Fine Tuning Final Properties

Cross-linking of the silicone PSA may increase the temperature, chemical and shear resistance of the finished product. Peroxide curing may also partially decrease tack and peel properties. Therefore, curing with peroxide is carefully engineered to achieve the desired final properties.

To increase cohesion and shear strength, the addition of SilGrip SR545 (MQ resin) can be considered at a dosage of up to 20 percent of the final formulation.

For PSAs not requiring elevated temperature performance, the solvent removal step may, in some cases, be all that is needed. Such grades typically exhibit higher tack, but lower shear strength and chemical resistance.

PSA Product Overview

	Grades	Reaction Type	Solid Content %	Adhesion Strength	Tack	Viscosity (25°C) cp	Key Features and Typical Benefits	Potential Applications
Methyl Type Silicones PSA (Addition Cure)	SilGrip TSR1512	Addition Cure	60	900 g/inch ⁽³⁾	700 g/cm ²⁽⁴⁾	40,000	Pre-blend Pt catalyst addition cure silicone PSA; excellent adhesion on fluorocarbon resin, polyimide, silicone	Polyimide tapes, fluorocarbon tapes and electronics tapes
	SilGrip TSR1516	Addition Cure	60	1000 g/inch ⁽³⁾	300 g/cm ²⁽⁴⁾	15,000	Pre-blend Pt catalyst addition cure silicone PSA; excellent adhesion on fluorocarbon resin, polyimide, silicone	Polyimide tapes, fluorocarbon tapes and electronics tapes
Methyl Type Silicones PSA (BPO Cure)	SilGrip PSA6573A	Peroxide Cured	60	2200 g/inch ⁽¹⁷⁾	200 max g/cm ²⁽¹⁸⁾	19,000	Low tack at room temperature, high shear and creep resistance	Films and foils, bonding applications as a replacement for mechanical fasteners and as a base for printing inks
	SilGrip PSA529	Peroxide Cured	55	2350 g/inch ⁽¹⁹⁾	440 g/cm ²⁽²⁰⁾	2,500	Room temperature cure with SCR18 catalyst, wide temperature range performance	Films and foils, in bonding applications as a replacement for mechanical fasteners
	SilGrip PSA590	Peroxide Cured	60	1135 g/inch ⁽⁵⁾	870 g/cm ²⁽⁶⁾	18,000	Excellent tack and adhesion strength, low dusting option	Standard adhesion tape, splicing tape
	SilGrip PSA595	Peroxide Cured	55	1106 g/inch ⁽⁵⁾	730 g/cm ²⁽⁶⁾	57,000	Thermal stability; clean removal; creep resistance	Masking and electrical insulation tape in electronic assembly
	SilGrip PSA510	Peroxide Cured	60	992 g/inch ⁽⁷⁾	700 g/cm ²⁽⁸⁾	72,000	Good shear and tack, wide temp range, cost-effectiveness	Tapes for shoes masking, electronic assembly masking tape, insulation tape
	SilGrip PSA610	Peroxide Cured	59	1106 g/inch ⁽⁷⁾	740 g/cm ²⁽⁸⁾	90,000	Excellent balance of tack and peel adhesion	Tapes for electrical insulation, electronics and thermal spray masking, EMI/RFI shielding and splicing
	SilGrip PSA810	Peroxide Cured	62.5	1020 g/inch ⁽⁷⁾	550 g/cm ²⁽⁸⁾	85,000	High thermal stability; high temp lap shear; clean removal	Tapes for electrical insulation and thermal spray masking
	SilGrip PSA820	Peroxide Cured	62	935 g/inch ⁽⁷⁾	700 g/cm ²⁽⁸⁾	90,000	High thermal stability; high temp lap shear; clean removal	Tapes for heat sealing, electrical insulation and thermal spray masking
	SilGrip PSA915	Peroxide Cured	60	1701 g/inch ⁽⁹⁾	1,130 g/cm ²⁽¹⁰⁾	22,000	Excellent long-term heat aging properties; excellent balance of tack and peel adhesion	Tapes for splicing, electrical insulation and thermal spray masking
	SilGrip PSA5080	Peroxide Cured	50	1106 g/inch ⁽⁹⁾	200 g/cm ²⁽¹⁰⁾	60,000	Excellent balance of adhesion and dry/tack free	Mica product
Phenyl Type Silicones PSA (BPO Cure)	SilGrip PSA518	Peroxide Cured	56	1049 g/inch ⁽¹¹⁾	910 g/cm ²⁽¹²⁾	65,000	Phenyl PSA, excellent low to high temperature performance	Tapes for electrical insulation and thermal spray masking.
	SilGrip PSA6574	Peroxide Cured	55	2700 g/inch ⁽¹³⁾	1420 g/cm ²⁽¹⁴⁾	17,000	Phenyl PSA, excellent low to high temperature performance	Tapes for electrical insulation, thermal spray masking, and vibration damping.
	XR37-B6722	Peroxide Cured	55	1505 g/inch ⁽¹⁵⁾	400 g/cm ²⁽¹⁶⁾	10,000	Phenyl PSA, excellent low to high temperature performance, possible to use with TPR6600 silicone release coating system	Tapes used for electrical insulation, electronics and thermal spray masking, transfer tapes and extreme temperatures
Silylated Polyurethane PSA	SPUR+ PSA 3.0	Condensation Cured	41	1130 g/inch ⁽²¹⁾	400 g/cm ²⁽²²⁾	7,000	Excellent resistance to solvents and chemicals	Laboratory tape, floor marking tape
Silicones Additives	SilGrip SRC18	-	-	-	-	-	Catalyst for room temperature cure	Used with PSA6573A and PSA529
	SilGrip SR545	-	60	-	-	11	Increased peel and shear strength	Mixture in a range of ratios with virtually all types of silicone PSA
	SilGrip SR1000	-	100	-	-	-	Blends with silicone PSA	Silicone PSAs requiring increased peel adhesion
Silicones Primer	SilGrip SR500	Condensation Cured	9-13	-	-	5	Improved anchorage to substrates	Silicone rubber panel, gap gasket
	SilForce SS4191	Condensation Cured	28-30	-	-	-	Improved anchorage to tape backing	Primer for methyl-based silicone PSA
	SilForce SS4195	Condensation Cured	29-31	-	-	-	Improved anchorage to tape backing	Primer for phenyl-based silicone PSA
Release Agent for Silicones PSA	SilForce FSR2000	Addition Cured	100	-	-	230	Fluoro release coating for silicone PSAs	Release coating for silicone PSA such as PSA6574

(1) 15-18 µm dry adhesive thickness on 75 µm polyester film. Glass plate, 20 hrs at 70° C aging, 0.3 m/min, 180° peel angle
 (2) 15-18 µm dry adhesive thickness on 75 µm polyester film. Polyken probe tack tester
 (3) 40 µm dry adhesive thickness on 50 µm polyimide film. Stainless steel plate, 0.3 m/min, 180° peel angle
 (4) 40 µm dry adhesive thickness on 50 µm polyimide film. Polyken probe tack tester
 (5) 2 mil dry adhesive thickness, 1 mil polyester film, BPO 1.5%, 10 min air dry, 90 sec at 177° C, stainless steel, 12 inch/min, 180° peel angle
 (6) Polyken probe tack tester, 100 g weight, 0.5 sec dwell time, 0.5 cm/sec draw speed, 2 mil dry adhesive thickness, 1 mil polyester film
 (7) 40-50 µm dry adhesive thickness on PET film, BPO 1.5-2.0%, stainless steel panel, 12 inch/min, 180° peel angle
 (8) 40-50 µm dry adhesive thickness on PET film, BPO 1.5-2.0%, Polyken probe tack tester
 (9) 180° peel angle, stainless steel, 300 mm/min, 20 min dwell, 38 µm dry adhesive thickness, BPO 2%, 10 min air dry, 2 min at 177° C
 (10) Polyken probe tack tester, 1000 g/cm² *F* weight, 1 cm/sec, 1 sec contact time, 38 µm dry adhesive thickness
 (11) 1.5 mil dry adhesive thickness, 1 mil polyester film, BPO 1.5%, 10 min air dry, 90 sec at 177° C
 (12) Polyken probe tack tester, 100 g weight, 0.5 sec dwell time, 0.5 cm/sec draw speed, 1.5 mil dry adhesive thickness, 1 mil polyester film
 (13) 2 mil dry adhesive thickness, 1 mil polyester film, uncatalyzed, curing cycle: 10 min air dry, 90 sec at 177° C
 (14) Polyken probe tack tester, 1000 g weight, 1 sec dwell time, 1 cm/sec draw speed, 2 mil dry adhesive thickness, 1 mil polyester film
 (15) 30 µm dry adhesive thickness on 50 µm polyimide film. Bakelite plate, 0.3 m/min, 180° peel angle

(16) 30 µm dry adhesive thickness on 50 µm polyimide film. Polyken probe tack tester
 (17) 2 mil polyester film, stainless steel, 2 mil dry adhesive build, 180° peel angle, 12 inch/min at 24° C
 (18) Polyken probe tack tester, 200 g load
 (19) 2 mil dry adhesive thickness, 2 mil polyester film, uncatalyzed, 10 min air dry, 10 min at 150° C, stainless steel, 12 inch/min, 180° peel angle
 (20) Polyken probe tack tester, 1000 g weight, 1 sec dwell time, 0.5 cm/sec draw speed, 2 mil dry adhesive thickness, 2 mil polyester film
 (21) 25 µm dry adhesive thickness on 50 µm polyester film. 180° peel at 305 mm/min off stainless steel after 1 hour dwell
 (22) 25 µm dry adhesive thickness on 50 µm polyester film. Polyken probe tack tester. 100 g/cm² weight, 1 sec dwell time, 1 cm/sec draw speed

Notes:
 1. For detail test conditions, please refer to related product data sheet
 2. Typical product data should not be regarded as product standard. If you need assistance for related standard, please contact Momentive Performance Materials.

General Application Cross Reference Guide

Our PSAs offer a range of cure chemistries, temperature performance, coating options, adhesive properties and release profiles.

	PSA510 [†]	PSA518	PSA529	PSA590	PSA595	PSA610	PSA810	PSA820
End Use Application								
Release Liner Splicing Tape	•			•				•
Electronics Masking Tape	•				•	•	•	•
Thermal Spray Masking Tape		•					•	•
Solvent Resistant Tapes								
Heat Seal Tape		•			•	•		•
Heat Shield Tape					•	•		•
Electrical Insulation Tape		•			•	•		•
Transfer Tape								
Laminating Adhesive			•					
Noise, Vibration, Hardness								
EMI/RFI Shielding Tapes					•	•		•
Mica Tape				•		•		
Catalyst								
Benzoyl Peroxide	•	•		•	•	•	•	•
Dichlorobenzoyl Peroxide	•	•		•	•	•	•	•
SRC18			•					
Platinum Catalyst								
Primer								
SS4191 Multi-component Primer for Methyl PSAs	•		•	•	•	•	•	•
SS4195 Multi-component Primer for Phenyl PSAs		•						
AnchorSil™ 1000								

[†] Available in Asia-Pacific region only.

General Application Cross Reference Guide *(continued)*

	PSA915	PSA5080	PSA6573A	PSA6574	XR37-B6722 [†]	TSR1512 [†]	TSR1516 [†]	SPUR+ [*] PSA 3.0
End Use Application								
Release Liner Splicing Tape	•							
Electronics Masking Tape					•			
Thermal Spray Masking Tape				•	•			
Solvent Resistant Tapes								•
Heat Seal Tape	•							
Heat Shield Tape	•			•				
Electrical Insulation Tape	•				•			
Transfer Tape				•				
Laminating Adhesive			•					
Noise, Vibration, Hardness			•	•				•
EMI/RFI Shielding Tapes	•							
Mica Tape	•	•						
Catalyst								
Benzoyl Peroxide	•	•	•	•	•			
Dichlorobenzoyl Peroxide	•	•	•	•	•			
SRC18			•					
Platinum Catalyst						•	•	
Primer								
SS4191 Multi-component Primer for Methyl PSAs	•	•	•					
SS4195 Multi-component Primer for Phenyl PSAs				•	•			
AnchorSil 1000						•	•	

[†] Available in Asia-Pacific region only.





www.momentive.com

260 Hudson River Rd.
Waterford, NY 12188 USA

Customer Service Centers

Email: commercial.services@momentive.com

Americas	EMEAI	China	Japan	South Korea	South East Asia, Australia & New Zealand
+1 800 295 2392 +1 704 805 6946	+40 213 044229	800 820 0202 +86 21 3860 4892	0120 975 400 +81 27620 6182	+82 2 6201 4600	+60 3 9206 1543

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.

THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC., MOMENTIVE PERFORMANCE MATERIALS USA INC., MOMENTIVE PERFORMANCE MATERIALS ASIA PACIFIC PTE. LTD., MOMENTIVE PERFORMANCE MATERIALS WORLDWIDE INC., MOMENTIVE PERFORMANCE MATERIALS GmbH, THEIR SUBSIDIARIES AND AFFILIATES DOING BUSINESS IN LOCAL JURISDICTIONS (collectively "SUPPLIERS"), ARE SOLD BY THE RESPECTIVE LEGAL ENTITY OF THE SUPPLIER SUBJECT TO SUPPLIERS' 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, SUPPLIERS MAKE 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 SUPPLIERS' PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. AFOREMENTIONED EXCLUSIONS OR LIMITATION OF LIABILITY ARE NOT APPLICABLE TO THE EXTENT THAT THE END-USE CONDITIONS AND/OR INCORPORATION CONDITIONS CORRESPOND TO THE RECOMMENDED CONDITIONS OF USE AND/OR OF INCORPORATION AS DESCRIBED BY SUPPLIER IN ITS PRODUCT DATA SHEET AND/OR PRODUCT SPECIFICATIONS. EXCEPT AS PROVIDED IN SUPPLIERS' STANDARD CONDITIONS OF SALE, SUPPLIERS AND THEIR 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 Suppliers' 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 Suppliers' 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 Suppliers' Standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Suppliers. 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 Suppliers or any of its subsidiaries or affiliates 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.

The use of the "TM" symbol designates registered or unregistered trademarks of Momentive Performance Materials Inc. or its affiliated companies.