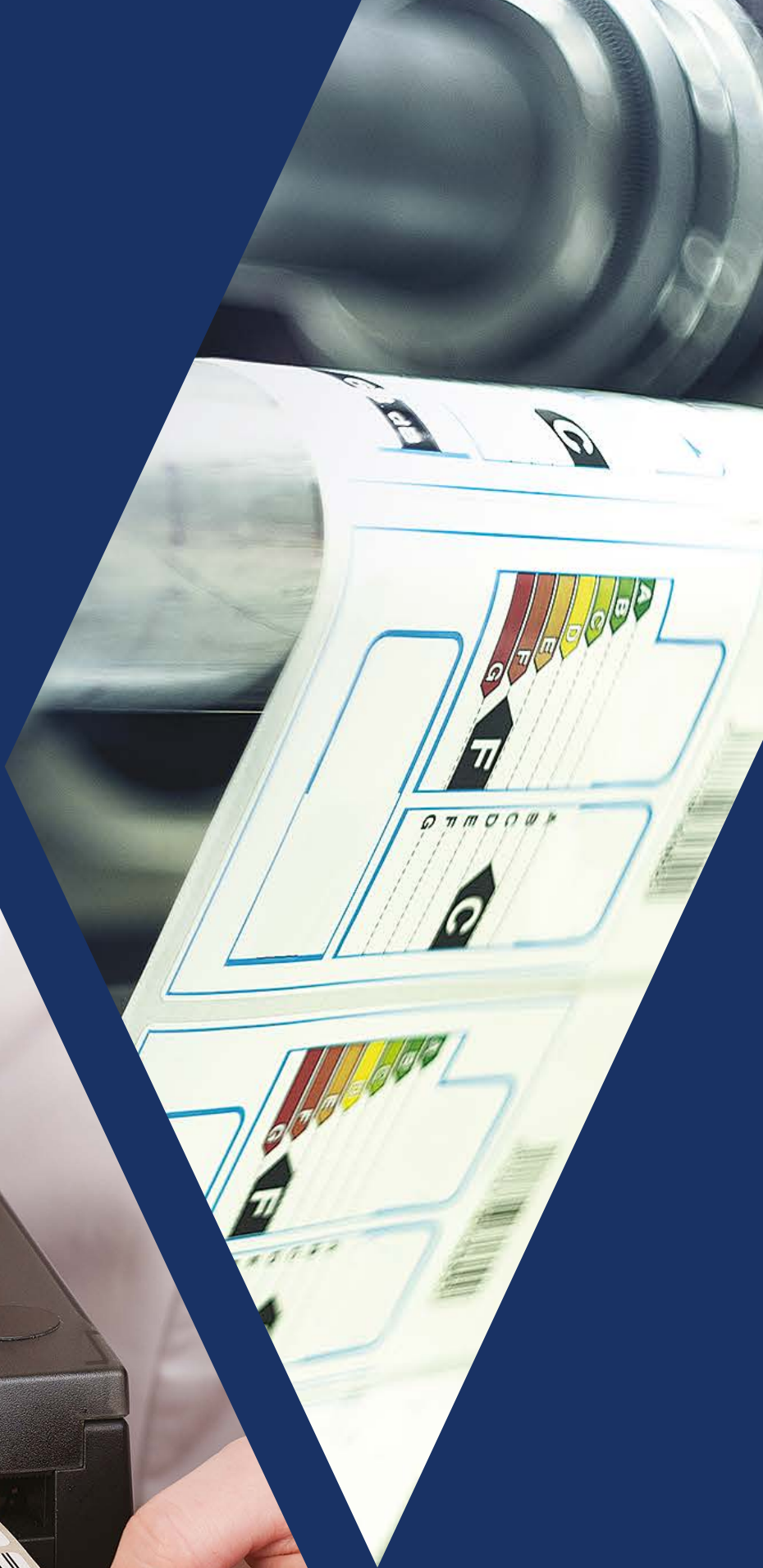


MOMENTIVE™
inventing possibilities

SilForce* Release Coatings



SilForce* Release Coatings

Momentive Performance Materials is a global supplier of a full portfolio of silicone release coating technologies that are widely used in the manufacturing of tapes, labels and specialty release liners. Behind every product is a team of experts and dedicated individuals.

Momentive's SilForce silicone release coating technologies include:

Thermal addition-cure solventless

UV radiation-cure solventless

Thermal addition and condensation-cure solvent-based

Thermal addition-cure water-based



General Portfolio Overview

Thermal Addition-Cure Solventless¹

- Stable aged and differential release
- Fast cure at low temperatures
- Compatibility with non-inhibitive substrates
- Broad adhesive compatibility
- Low misting
- Developed for multi-roll coating

Thermal Addition and Condensation-Cure Solvent-Based¹

- Optical clarity
- Good anchorage on filmic substrates
- Low coating weights and COF
- Developed for gravure, reverse roll, knife and wire rod
- Embossable for air egress (Sn)
- Broad adhesive and substrate compatibility (Sn)

UV Radiation-Cure Solventless¹

- Low temperature cure
- Atmospheric cure and no nitrogen required (cationic)
- Compatibility with non-inhibitive temperature sensitive substrates
- Developed for multi-roll coating
- Formulation flexibility

Thermal Addition-Cure Water-Based¹

- Compatibility with open substrates
- Readily accepting of thickeners
- Developed for gravure, reverse roll, knife and wire rod
- Comparable release performance to thermal addition-cure solventless

¹ Consult with a Momentive expert for the proper selection of silicone chemistry, substrate, adhesive and process design.



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Thermal Addition-Cure Solventless

| Commercial Grades | Base Polymers | Polymer Type | Viscosity (mPa.s @ 25°C) | Si Solids (%) | Release Type | Key Features/ Typical Benefits | Adhesives |
|---|-----------------|--------------------|--------------------------|---------------|--------------------------------------|---|---|
| SilForce* SL3842 | SilForce SL3654 | Easy Release | 250 | 100 | Specialty | Release from very aggressive adhesives | Bitumen Mastic |
| SilForce SL3932 | SilForce SL3900 | Easy Release | 300 | 100 | Specialty | Ultra-low release | Aggressive PSA's |
| SilForce SL5000 | SilForce SL5000 | Easy Release | 500 | 100 | Specialty | Unique stability with many adhesive types Compatibility with porous substrates | Aggressive PSA's |
| SilForce SL6000 SilForce SL6062 | SilForce SL6000 | Easy Release | 400 | 100 | Dynamic | Industry standard Long chain vinyl end-stopped Compatibility with porous substrates | Rubber & Hot Melt |
| SilForce SL6100 SilForce SL6161 SilForce SL6162 | SilForce SL6100 | Easy Release | 250 | 100 | Dynamic | Industry standard Medium chain vinyl end-stopped | General Purpose Release Acrylics, Hot Melt, Rubber |
| SilForce SL6500 SilForce SL6561 SilForce SL6562 | SilForce SL6500 | Easy Release | 300 | 100 | High Speed Flat | Industry standard multi-functional | Acrylics |
| SilForce SL6723S | SilForce SL6700 | Easy Release | 300 | 100 | High Speed Flat | Faster cure version of SilForce SL6500 | Acrylics |
| SilForce SL6844 | SilForce SL6800 | Easy Release | 200 | 100 | Dynamic | Industry standard Medium chain vinyl end-stopped | General Purpose Release Acrylics, Hot Melt, Rubber |
| SilForce SL6900 SilForce SL6961 SilForce SL6962 | SilForce SL6900 | Easy Release | 130 | 100 | Hybrid Dynamic/High Speed Flat | Low viscosity for films & fast cure Short chain vinyl end-stopped | General Purpose Release Acrylics, Hot Melt, Rubber |
| SilForce SL7025 SilForce SL7061 | SilForce SL7000 | Easy Release | 280 | 100 | Specialty | Excellent converting & adhesive compatibility Fast low temperature, branched curing | General Purpose Release Acrylics, Hot Melt, Rubber |
| SilForce SL7562S | SilForce SL7500 | Easy Release | 200 | 100 | Next Generation High Speed Flat | Fast cure multi-functional Lower viscosity for films | General Purpose Release Acrylics, Hot Melt, Rubber |
| SilForce SL5030 | SilForce SL5030 | Controlled Release | 500 | 65 | Ultra High | Industry standard MQ resin | Removable Microsphere |
| SilForce SL5130 SilForce SL5132 | SilForce SL5130 | Controlled Release | 3,000 | 90 | Next Generation Ultra High | Smokeless version of SilForce SL5030 | Removable Microsphere |
| SilForce SL6030 SilForce SL6031 | SilForce SL6030 | Controlled Release | 2,100 | 92 | High | Industry standard MQ resin | General Purpose Release Acrylics, Hot Melt, Rubber |
| SilForce SL8030 | SilForce SL8030 | Controlled Release | 1,500 | 100 | High | Alpha olefin free & proprietary resin | Acrylics |

NOTE: Above SilForce SL grades can be provided as custom preblends with various inhibitors (i.e. maleates, alkynol alcohols) and/or Pt ppm levels (e.g. maleate inhibited only). Consult with a Momentive Performance Materials Technical Sales Representative to choose the correct SilForce system for your end use release and process requirements. Typical properties are average data and are not to be used as or to develop specifications.

UV Radiation-Cure Solventless

| Commercial Grades | Polymer Type | Viscosity (mPa.s @ 25oC) | Solids (%) | UV Type | Release Force | Key Features/ Typical Benefits | Adhesives |
|-------------------|---------------------------|--------------------------|------------|----------|---------------|--|---|
| SilForce* UV9300 | Easy Release | 300 | 100 | Cationic | Low-Medium | General Purpose Suitable for paper and supported film substrates Some migration | Acrylics, Hot Melt, Rubber |
| SilForce UV9315 | Easy Release | 240 | 100 | Cationic | Medium | High modulus coating Very fast cure and compatibility with filmic substrates No migration Efficient high release response with SilForce UV9430 | Acrylics, Hot Melt, Rubber |
| SilForce UV9400 | Easy Release | 225 | 100 | Cationic | Low | Medium modulus coating Fast cure and suitable for filmic substrates No migration | Acrylics, Hot Melt, Rubber |
| SilForce UV9500 | Easy Release | 300 | 100 | Cationic | Specialty | Release from very aggressive adhesives Reduced or no initiation spike Some migration | Bitumen Mastic Self-crosslinking acrylics, Hydrogels |
| SilForce UV9600 | Easy Release | 400 | 100 | Cationic | Specialty | Smooth release from aggressive adhesives Low migration | Aggressive PSA's |
| SilForce UV9700 | Easy Release/ Modifier | 6,000 | 100 | Cationic | Low | Release from very aggressive adhesives High viscosity for open substrates Smooth release modifier for SilForce UV9XXX polymers Some migration | Bitumen Mastic |
| SilForce UV9440E | Modifier | 1,000 | 100 | Cationic | Specialty | Smooth release additive to reduce zippiness and COF | Aggressive PSA's |
| SilForce UV9320 | Controlled Release | 300 | 100 | Cationic | Specialty | Release dependent on adhesive and SilForce UV9320 concentration Less efficient than SilForce UV9430 Excellent miscibility with SilForce UV9380C and SilForce UV9390C | Acrylics, Hot Melt, Rubber |
| SilForce UV9430 | Controlled Release | 500 | 100 | Cationic | High | General purpose high release polymer Most efficient response when combined with SilForce UV9315 or SilForce UV9400 | Acrylics, Hot Melt, Rubber |
| SilForce UV9380C | Photoinitiator | 100 | 100 | Cationic | n/a | Bis(dodecylphenyl)iodonium hexafluoroantimonate salt plus photosensitizer in a glycidel ether reactive diluent Suitable for epoxy silicone & non-silicone acid polymerized cycloaliphatic resins, vinyl ethers, oxetanes and glycidal ethers UV absorption peaks @ 255 nm (major) and 385 nm (minor) Mercury vapour (medium pressure) UV lamp curing capable No nitrogen inerting required | n/a |
| SilForce UV9387C | Photoinitiator | 100 | 100 | Cationic | n/a | No photosensitizer Bis(dodecylphenyl)iodonium hexafluoroantimonate salt in a glycidel ether reactive diluent Suitable for epoxy silicone & non-silicone acid polymerized cycloaliphatic resins, vinyl ethers, oxetanes and glycidal ethers UV absorption peak @ 255 nm Suitable for medium pressure mercury vapor UV lamps No nitrogen inerting required | n/a |
| SilForce UV9388C | Photoinitiator | powder | 100 | Cationic | n/a | Antimony free, 100% active powder Suitable for non-silicone UV cationic-cure inks, varnishes and coatings Sensitizer an option dependent on ink color Also suitable for non-silicone cycloaliphatic resins, vinyl ethers, oxetanes, epoxidized olefins and epoxidized unsaturated natural oil functional materials High reactivity and efficient photoresponse No benzene release during process No nitrogen inerting required | n/a |
| SilForce UV9390C | Photoinitiator | 100 | 100 | Cationic | n/a | Bis(dodecylphenyl)iodonium hexafluoroantimonate salt plus photosensitizer in a glycidel ether reactive diluent Suitable for epoxy silicone & non-silicone acid polymerized cycloaliphatic resins, vinyl ethers, oxetanes and glycidal ethers UV absorption peaks @ 255 nm (major) and 385 nm (minor) Suitable for medium pressure mercury vapor UV lamps No nitrogen inerting required | n/a |

NOTE: Above SilForce UV grades are customizable to your specific needs. Consult with a Momentive Performance Materials Technical Sales Representative to choose the correct SilForce system for your end use release and process requirements. Typical properties are average data and are not to be used as or to develop specifications.

Thermal Addition and Condensation-Cure Solvent-Based

| Commercial Grades | Polymer Type | Viscosity (mPa.s @ 25°C) | Si Solids (%) | Solvent | Catalyst Type | Release Force | Key Features/ Typical Benefits |
|---------------------|--------------------|--------------------------|---------------|----------------|---------------|---------------|--|
| SilForce* SS4191A | Easy Release | 14,000 | 30 | Toluene | Sn | Low | General purpose condensation-cure Aggressive adhesive compatibility Embossable for air egress applications |
| SilForce SS4331 | Easy Release | 12,000 | 30 | VM&P Naptha | Pt | Low | Fast & low temperature cure Low migration & COF |
| SilForce SS6800 | Easy Release | 15,000 | 30 | Toluene/Xylene | Pt | Low | Fast & low temperature cure Low migration |
| SilForce TPR6700N | Easy Release | 15,000 | 30 | Toluene/Xylene | Pt | Low-Medium | General purpose 2-component, low migration |
| SilForce TPR6712 | Easy Release | 15,000 | 30 | Toluene | Pt | Medium | General purpose 2-component, low migration |
| SilForce XS56-C0548 | Easy Release | 15,000 | 55 | Toluene/Xylene | Pt | Medium | High Solids 2-component, low migration |
| SilForce XS56-C4434 | Easy Release | 15,000 | 30 | Toluene | Pt | Medium | Anti-exposure 2-component & low migration |
| SilForce XS56-C4617 | Easy Release | 15,000 | 30 | Toluene | Pt | Low-Medium | Anti-exposure 2-component & low migration |
| SilForce XS56-C4880 | Easy Release | 13,000 | 30 | Toluene | Pt | Low | Anti-exposure 2-component & low migration |
| SilForce XSR7029A | Controlled Release | 17,000 | 30 | Toluene/Xylene | Pt | Ultra High | Stable high release, low migration |

NOTE: Above SilForce SS, TPR & XS56 grades are customizable to your specific needs.
Consult with a Momentive Performance Materials Technical Sales Representative to choose the correct SilForce system for your end use release and process requirements.

Thermal Addition-Cure Water-Based

| Commercial Grades | Polymer Type | Viscosity (mPa.s @ 25°C) | Si Solids (%) | Release Type | Key Features/ Typical Benefits | Adhesives |
|-------------------|--------------------|--------------------------|---------------|--------------|--|----------------------------|
| SilForce* SM3300E | Easy Release | 150 | 40 | Dynamic | General Purpose Long chain vinyl end-stopped Comparable to thermal solventless release Used for bakery paper FDA and Kosher approved | Acrylics, Hot Melt, Rubber |
| SilForce SM3628 | Easy Release | 50 | 40 | Specialty | Used for bakery paper and packaging for confectionary, meat and fish. FDA and Kosher approved Also suitable for casting papers | Aggressive PSA's |
| SilForce SM3030 | Controlled Release | 5,000 | 40 | High | General Purpose Industry standard MQ resin Comparable to thermal solventless release | Acrylics, Hot Melt, Rubber |

NOTE: Above SilForce SM grades are customizable to your specific needs.
Consult with a Momentive Performance Materials Technical Sales Representative to choose the correct SilForce system for your end use release and process requirements
Typical properties are average data and are not to be used as or to develop specifications.

Thermal Addition and UV-Cure Anchorage Additives

| Commercial Grades | Silicone Technology | Viscosity (mPa.s @ 25°C) | Solids (%) | Substrates | Corona Treatment | Key Features/ Typical Benefits |
|-------------------|-----------------------|--------------------------|------------|--------------------|----------------------|---|
| AnchorSil* 1000 | Thermal Addition-Cure | 10 | 100 | PET | Treated Untreated | Compatible for solvent or solventless Suitable for protective film PSA's |
| AnchorSil 2000 | Thermal Addition-Cure | 215 | 100 | PET | Treated Untreated | Best in class for industry anchorage additives Requires special handling. Hydrogen containing Must be stored and shipped cold |
| AnchorSil 3000 | Thermal Addition-Cure | 650 | 100 | PET | Treated Only | Shelf stable. No special handling Requires corona treatment Best appearance at lower coating weights |
| AnchorSil 9000 | UV Radiation-Cure | 5 | 100 | PET, BOPP, HDPE | Treated Untreated | General Purpose Compatible with a variety of films |

Specialty Additives

| Commercial Grades | Compatible Silicone Technology | Viscosity (mPa.s @ 25°C) | Solids (%) | Specialty | Key Features/ Typical Benefits |
|-------------------|--------------------------------|--------------------------|------------|--------------------------------|---|
| SLAM* 3000 | Thermal Addition-Cured | 20,000 | 100 | Anti-Misting | Best in class industry anti-misting additive Developed for thermal addition-cure solventless polymers and high speed multi-roll coating High viscosity rheology flow modifier Excellent miscibility |
| Tospearl* TP-120 | Thermal Addition and UV-Cured | powder | 100 | COF Reduction Matting Agent | Monodispersed 100% solids silicone powder resin spheres Particle size diameter = 2.0 microns Excellent thermal stability, non-migratory and inert Primarily used to reduce COF in organic and inorganic coatings but can be used for anti-blocking and hot slip in films |

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



SilForce* Release Coatings

Momentive's SilForce release coatings include easy and controlled release base polymers, crosslinkers, catalysts and performance additives. Our team of formulation and process experts are here to help you design the proper combination of silicone release chemistries for your specific substrate, adhesive and process. Contact a Momentive Representative today to help you meet your specific performance requirements with these and other potential applications.

Momentive's SilForce products are found in a variety of release applications including:

- Thermal transfer and direct thermal labels
- Durable and wine labels
- Graphics and fleet marking signage
- Rolled roofing and shingle release liners
- Casting sheet release liners
- Bakery paper release liners
- Hygienic release liners
- High performance and industrial tapes



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