

SCS1200 Construction

Silicone Glazing Sealant

Product Description

SCS1200 construction silicone glazing sealant is a one-component, high strength, acetoxy silicone adhesive for structural, butt joint and general purpose glazing applications. The material is supplied as a paste, which cures into a durable rubber when exposed to atmospheric moisture.

Key Features and Typical Benefits

- **Silicone Durability** –Cured silicone provides excellent longterm resistance to natural weathering, humidity and high & low temperatures with negligible change in elasticity.
- **Fast Cure Time**–Fast cure technology minimizes tack free and cure times (compared to other sealant chemistries).
- **Primerless Adhesion**–Bonds to many conventional substrates and finishes including glass, glass coatings, ceramic frits, fluoropolymer and powder coated paints, conversion coatings and anodized aluminum (Momentive recommends testing of all substrates for primerless adhesion).
- **±25% Movement Capacity**–Can accommodate 25% movement in both extension and compression and has excellent recovery after cycling.
- **Stable Consistency (uncured)**–Supplied as a lightweight paste, the consistency of which remains relatively unchanged over a wide temperature range. The paste can be easily gunned and tooled under hot or cold conditions.
- **Cured Thermal Stability**–Once cured, the material remains fully elastic over a temperature range of -55°F (-48°C) to 400°F (204°C).

Potential Applications

- SCS1200 sealant is a candidate to consider in structural glazing applications.
- SCS1200 sealant may be used as a weatherseal product for general purpose glazing, butt glazing and for glass-stiffened lobby systems.
- SCS1200 sealant may be considered for sealing air conditioning, vents or other wall penetrations; glass block, metal/plastic signs or marine hardware.

Packaging

SCS1200 sealant is available in 55 gallon steel drums and 10.1 fl. oz. (299 ml) plastic caulking cartridges with removable nozzles. Cases contain 24 cartridges.

Colors

SCS1200 sealant is available in 4 standard colors plus Translucent: White, Black, Gray and Bronze.

Typical Physical Properties

Typical property values of SCS1200 sealant as supplied and cured are set forth in the tables below.

Typical Physical Properties - Supplied

Property	Value ⁽¹⁾	Test Method
Consistency	Paste	-
Polymer	100% Silicone	-
VOC	23 g/l	WPSTM C1454
Work Life (tooling time)	10 minutes	-
Tack Free Time	15-20 minutes (@ 75°F (24°C), 50% RH)	ASTM C679
Sag/Slump	0.1" (2.54 mm) max	ASTM D2202

Typical Physical Properties - Cured

Property	Value ⁽¹⁾	Test Method
Hardness, Durometer (Type A Indentor)	26	ASTM D2240
Ultimate Tensile Strength	260 psi (1.78 MPa)	ASTM D412
Ultimate Elongation	406%	ASTM D412
Shear Strength (@ 1/4" thickness)	170 psi (1.18 MPa)	ASTM C961
Peel Strength (average); (21-day cure @ 75°F, 50% RH)	15 pli (2.63 N/mm)	ASTM C794
Joint Movement Capability	±25%	ASTM C719
Service Temperature Range	-55°F to +400°F (-48°C to 204°C)	-
Cure Time	48 hours (1/4" or 6 mm deep section @ 75°F, 50% RH)	-
Full Cure (most common bead sizes)	7-10 days	-

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

Installation

Surface Preparation

Sealants may not adhere or maintain long-term adhesion to substrates if the surface is not prepared and cleaned properly before sealant application. Using proper materials and following prescribed surface preparation and cleaning procedures is vital for sealant adhesion. Momentive Performance Materials (MPM) can provide quality control information and suggestions to user upon request.

Materials

- Use clean, fresh solvent as recommended by the sealant manufacturer's test report. When handling solvents, refer to manufacturer's SDS for information on handling, safety and personal protective equipment. Isopropyl Alcohol (IPA) is commonly used and has proven useful for most substrates encountered in SSG systems. Xylene and Toluene have also been found useful on many substrates.
- Use clean, white cloths free of lint or other lint-free wiping materials.
- Use a clean, narrow-blade putty knife when tooling.
- Use primer when required.

Cleaning Procedures

- Remove all loose material (such as dirt and dust), plus any oil, frost or other contaminants from the substrates to which the structural silicone will be adhered.
- Do not use detergent to clean the substrate as residue may be left on the surface.
- Clean the substrates receiving the sealant as follows: Using a two-rag wipe technique. Wet one rag with solvent and wipe the surface with it, then use the second rag to wipe the wet solvent from the surface BEFORE it evaporates. Allowing solvent to dry on the surface without wiping with a second cloth can negate the entire cleaning procedure because the contaminants may be re-deposited as the solvent dries.
- Change the cleaning rags frequently, as they become dirty. It is easier to see the soiling if white rags are used. Do not dip used wipe cloths into solvent as this can contaminate the solvent. Cleaning with contaminated solvent can result in sealant adhesion issues. Always use clean containers for solvent use and for solvent storage.
- When cleaning deep, narrow joints, wrap the cleaning cloth around a clean, narrow-blade putty knife. This permits force to be applied to the cleaned surface.
- Clean only as much area as can be sealed in one hour. If cleaned areas are again exposed to rain or contaminants, the surface must be cleaned again.

Primers

SCS1200 sealant will bond to many clean surfaces without the aid of a primer. For difficult-to-bond substrates, the use of a primer or special surface preparation should be evaluated. An evaluation should be made for each specific application/substrate to determine quality of bond. Consult MPM primer datasheet(s) for specifics and recommendations for use.

Installation - Continued

Masking

- To simplify clean up of excess sealant, use easy to release, pressure sensitive tape to mask adjacent surfaces before applying the sealant.
- Start from the top down and overlap the runs. Tool in direction of over-lap so that masking is not disturbed during tooling.
- Remove masking immediately after application of silicone or as soon as possible or practical.

Sealant Application

- Apply the sealant by pushing the bead ahead of the nozzle and making sure that the entire cavity or joint is filled. Tooling should be done neatly, forcing the sealant into contact with the sides of the joint, thus helping to eliminate any internal voids and assuring good substrate contact.
- Sealant application is not recommended when the temperature is below 40°F (4°C) or if frost or moisture is present on the surfaces to be sealed. Contact MPM technical services when using under colder conditions.
- SCS1200 sealant works best when applied to surfaces below 122°F (50°C).
- Due to the smooth consistency of SCS1200 sealant, tooling agents such as water, soap or detergent solutions are not necessary or recommended. Dry tooling is recommended.
- SCS1200 sealant should not be applied in totally confined spaces since the sealant requires exposure to air a to cure properly and develop typical properties. In deep SSG cavities, cure depths up to 3/4" (19 mm) from an air interface will generally cure satisfactorily and reach maximum properties within 2-3 weeks. Cure depths > 3/4" (19 mm) may take significantly longer time to cure and when applied in a single application may not cure satisfactorily. Consult MPM technical services for additional information on depth of cure for this product.

Method of Application

SCS1200 sealant is easily dispensed directly from cartridges using standard caulking guns or air operated guns. Maximum recommended pressure for air operated guns is 45 psig (3.2 kgs/cm²). Mixing, heating and refrigeration are not required.

Storage Conditions

SCS1200 sealant should be stored in the original unopened container at or below 90°F (32°C).

Joint Designs and Dimensions

Silicone contact width and thickness (see Figure 1) will vary by project with the design wind load and glass size. Contact width can be calculated using the following formula: [Design Wind Load (PSF) x Longest Short Span of Glass or Panel (Ft.)] divided by 480. A minimum sealant thickness of 1/4" (6mm) between substrates is required to accommodate thermal expansion and contraction (see Figure 2) of most systems and should be used in order to assure that sealant can be injected into the structural cavity obtaining full contact with both the glass and metal surfaces while remaining free of air voids. Greater joint thickness may be required to accommodate movement in some larger-sized SSG systems.

MPM can be contacted to assist in determination of proper joint thickness to accommodate expected movement in structurally glazed applications.

SDS - Sealant Design Stress:

Dynamic (wind) loading: ≤20 psi (138 kPa)

Permanent (dead) loading: ≤1 psi (7 kPa)

Figure 1

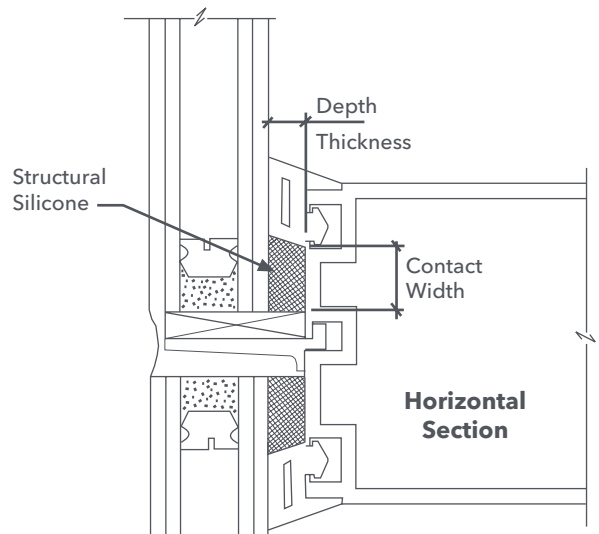
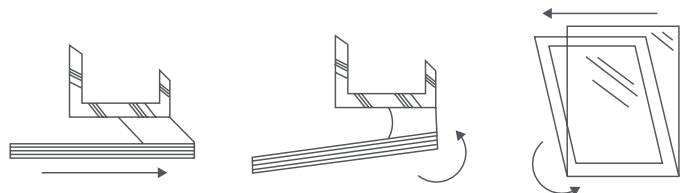


Figure 2: Movement from thermal expansion and contraction and/or glass rotation.



Joint Designs and Dimensions - Continued

The following materials are required to be submitted to MPM to receive suggestions for the use of SCS1200 sealant.

- Architectural and shop drawings for review and comment.
- Design wind load requirement(s) for project.
- Glass or panel sizes.
- Production samples of metal, glass, gaskets, spacers and setting blocks with type and manufacturer identified.
- Specification and/or identification of paint or finish to which SCS1200 sealant is intended to adhere (i.e., 215-R1 anodized or if paint; manufacturer, finish system and ID#).

MPM will provide the following, after reviewing the materials above:

- Determination as to whether the submitted joint dimensions meet the minimum design criteria necessary for the use of SCS1200 sealant.
- Short-term adhesion data using (typically) the ASTM C794 and/or ASTM C1135 test method. Other test methods may be employed.
- Short-term compatibility test results on gaskets, spacers and setting blocks and other accessories per ASTM C1087 or MPM test method for compatibility.
- Information regarding suggested primers, when required.

MPM will not:

- Design sealant joints.
- Provide comments on the structural integrity of overall framing system(s).

The design professional has final responsibility for the determination of structural sealant joint dimensions based on project conditions, design wind load(s), glass or panel sizes, anticipated thermal, seismic or other movement of the system.

The ASTM C1401 Standard Guide for Structural Sealant Glazing provides a thorough overview of design topics and information for use in SSG systems.

Applicable Standards

SCS1200 sealant meets the requirements of the following specifications:

ASTM: C1184; C920, Type S, Class 25, Use G and A

USDA: MPM has on file documentation from USDA which states that SCS1201, SCS1202, SCS1203, SCS1209 and SCS1297 sealants comply with 21 CFR 177.2600 "Rubber Articles Intended For Repeated Use" and are chemically acceptable for use on surfaces in official establishments operating under the Federal Meat and Poultry Inspection Program. For further information, contact Momentive Product Regulatory Compliance. The final granting of authorization for the proposed use of such compounds is the responsibility of the inspector in charge of the official plant. Technical assistance will be provided by the Product Safety Branch of USDA upon request.

FDA: SCS1201, SCS1202 and SCS1203 sealants may be used in food contact applications for repeated use under FDA Regulation 21 CFR 175.105 "Adhesives" and 175.300 "Resinous and Polymeric Coatings". SCS1209 Construction may be used in food applications for repeated use under FDA Regulation 21 CFR 175.300 "Resinous and Polymeric Coatings".

The use of these adhesive sealants is subject to the following conditions:

- The adhesive sealant is applied in accordance with Good Manufacturing Practice at a thickness not to exceed 6mm (1/4 inch) from an exposed edge.
- As a continuous film between joints acting as a functional barrier between the food and the substrate (area underneath the joint).
- The adhesive sealant must be cured for a minimum of 14 days at 25°C (77°F) and 50% Relative Humidity.
- The operating temperature of the adhesive sealant after cure must not exceed 400°F (204°C).

The above sealants mentioned should be evaluated to determine bond strength for each specific substrate and application. If enhanced adhesion is desired, the evaluation of SS4179 primer is recommended. Only SS4179 primer may be used in repeated contact with food under 21 CFR 175.300 "Resinous and Polymeric Coatings".

Applicable Standards - Continued

NSF: SCS1201, SCS1202, SCS1203, SCS1209 and SCS1297 sealants are listed under NSF International Standard No. F-51 "Plastic Materials and Components for use in Food Equipment" as satisfactory for use on food contact surfaces, temperatures not to exceed 400°F (204°C).

Technical Services

For additional technical resources, please contact your local customer service center. (See Customer Service Centers section herein for contact information). Any technical advice furnished by MPM or any representative of MPM concerning any use or application of any MPM product is believed to be reliable, but MPM makes no warranty, expressed or implied or suitability for use in any application for which such advice is furnished.

Limitations

SCS1200 sealant should not be used, applied or is not recommended:

- In structural glazing applications unless MPM has reviewed shop drawings for applicability and has performed adhesion and compatibility tests on project substrates, spacer materials and all accompanying accessories. Review and testing is done on a project-by-project basis. No blanket approval is given by MPM for structural glazing applications. Structural glazing industry guidelines (ASTM C1401) suggest that drawings and details are to be reviewed by all parties involved in the manufacture of an SSG system and for each building project.
- For use on mirrors.
- For use on wet, damp, frozen or contaminated surfaces.
- For use on masonry, stone, marble, lead, zinc coated metal, bare metal or surfaces subject to corrosion. Contact MPM technical services for use on granites and marbles for interior applications.
- For use as the structural adhesive when bonding some IG unit types. Contact Momentive technical services for guidance.
- Under exceedingly hot or cold conditions (see Sealant Application section for more information).
- For horizontal decks, patio, driveway or terrace joints where abrasion or physical abuse is encountered.
- Contact Momentive technical services for applications where sealant is used underwater or in continuous contact with water.

- This material requires atmospheric moisture to cure from paste to rubber and may not attain its listed final cured properties when used in designs or applications where silicone is encapsulated and without access to atmospheric moisture.
- Some materials that bleed plasticizers or oils can cause a discoloration on the surface of sealants. When sealing to or over items such as rubberized gaskets, bituminous-based materials, butyl or oil-based products, oily woods, tapes, etc., MPM recommends that compatibility testing be performed prior to use to confirm the suitability of the use of these materials when in contact with each other.
- Customers must evaluate MPM products and make their own determination as to the fitness of use in their particular applications.

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 considering the use of this product should review the latest Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Safety Data Sheets are available at www.siliconesforbuilding.com or, upon request, from any MPM representative. Use of other materials in conjunction with MPM sealants products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

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