

SS511 SILICONE WEATHER-PROOFING SEALANT

DESCRIPTION

SS511 Silicone Weather-Proofing Sealant is a one-component neutral curing silicone sealant with excellent adhesion, weatherability and elasticity for weathersealing in curtainwall and building facades. It easily extrudes in any weather and quickly cures at room temperature by reaction with moisture in the air to form a durable, flexible silicone rubber seal.

CHARACTERISTICS

- Extension/compression movement capability of up to $\pm 25\%$ of the original joint width
- Odorless, non-corrosive cure system
- Excellent weatherability and high resistance to ultraviolet radiation, heat and humidity, ozone and temperature extremes
- Remains flexible over a temperature range of $-58^{\circ}\text{ F}(-50^{\circ}\text{ C})$ to $302^{\circ}\text{ F}(150^{\circ}\text{ C})$
- Excellent unprimed adhesion to wide range of substrates including coated, enameled and reflective glasses, anodized and painted aluminum profiles
- Good compatibility with other neutral silicone sealants

APPLICATIONS

- Weather sealing in glass curtainwall joints;
- Weather sealing in metal, enamel curtainwall joints;
- Sealing in expansion joints for concrete, plastic and metal etc.;
- Sealing in roof joints;
- Many other uses.

TYPICAL PROPERTIES

Property	Result
As Supplied	
Color	Black, gray, white
Tack free time($23^{\circ}\text{C}/73^{\circ}\text{F}$, 50% RH)	55 minutes
Full Adhesion	14-21 days
Flow, Sag or Slump	0.1 inches max
Working Time	10-15 minutes
As Cured	
Durometer Hardness, Shore A	48
Joint Movement Capability	$\pm 25\%$

Specifications: Typical property data values should not be used as specifications. Assistance with specifications are available by contacting Guangzhou Baiyun Chemical Industry CO., LTD.

APPLICABLE STANDARDS

SS511 Silicone Weather-Proofing Sealant meets or exceeds the requirements of the following standards for one-part sealants.

ASTM Specifications:

- C920; Type S, Grade NS, Class 25, Use NT, A, G, O

INTERNATIONAL STANDARD ISO11600:

- ISO11600-G-25HM

COLORS

SS511 Silicone Weather-Proofing Sealant is available in black, gray, white or other colors on request.

PACKAGING

SS511 Silicone Weather-Proofing Sealant is available in 10.1 fl. oz. (300 ml) plastic caulking cartridges and 16.9 fl. oz. (500 ml) foil sausage packs.

LIMITATIONS

SS511 Silicone Weather-Proofing Sealant should not be used, applied or is not recommended:

- In structural glazing applications or where the sealant is intended as an adhesive.
- In areas where abrasion and physical abuse are encountered.
- In totally confined spaces as the sealant requires atmospheric moisture for cure.
- On frost-laden or damp surfaces
- To building materials that bleed oils, plasticizers or solvents – materials such as impregnated wood, oil-based caulks, green or partially vulcanized rubber gaskets or tapes.
- In below-grade applications
- On substrates made of polypropylene, polyethylene, polycarbonate and polytetrafluoroethylene.
- Where movement capability greater than $\pm 25\%$ is required.
- Where painting of the sealant is required, as the paint film may crack and peel
- For structural adhesion on bare metals or surfaces subject to corrosion (i.e., mill aluminum, bare steel, etc.)
- To surfaces in contact with food
- For use underwater or in other applications where the product will be in continuous contact with water.

JOINT DESIGNS AND DIMENSIONS

Joint Movement

The dimensions of joints in typical construction applications change daily as a result of solar heat gain and building sway, and throughout the year due to seasonal changes. The movement in a sealant bead installed on the sun-side of a building or during the hottest portion of the day will be almost entirely in extension during the cold season

or cycle; while the movement of a bead installed during the coldest condition will be almost entirely in compression during the hotter season or cycle. In addition to these above movements, the designer should consider the effect of construction tolerances in his/her project to minimize the occurrence of over-sized or under-sized joints during construction. All moving (dynamic) joints must be designed so as not to allow three-sided adhesion of the sealant to occur. Three-sided adhesion hinders the ability of the sealant to extend and compress freely as desired and can lead to early joint failure.

Joint Width

When using SS511 Silicone Weather-Proofing Sealant, the designed joint width must be at least twice the total anticipated joint movement. For example, if the total anticipated movement in an expansion joint in which SS511 Silicone Weather-Proofing Sealant is to be installed is 1/4", the designed joint width must be at least 1/2". The designer may want to consider additional width to accommodate construction tolerances. Large panels or lites should allow a minimum width of 1/4" for the sealant bead, mostly to allow for a proper installation (very small/ narrow beads become difficult to install and can accommodate less movement). Glazing of plastic or larger-sized metal panels may require larger than usual joint widths due to the greater movement potential (higher coefficients of thermal expansion). Consult with BAIYUN Technical Services for recommendations on large or unusual applications.

Butt Jointing

A thin installation of silicone sealant can better accommodate more movement than a deep installation, as the deeper bead will result in additional stress being imposed on both the sealant and the bonding surfaces during joint movement. Figure 1 illustrates the general guidelines for installation of SS511 Silicone Weather-Proofing Sealant into a typical butt joint configuration of widths up to 2".

- 1.) The recommended sealant profile is an hourglass shape with the depth of the sealant over the crown of the backer rod to be no thinner than 1/8" and no thicker than 3/8", and
- 2.) A minimum of 1/4" of adhesive bonding contact must be made to all surfaces to which the sealant is intended to adhere.

When used in joints exceeding 2" in width:

- 3.) The recommended sealant profile is an hourglass shape with the depth of the sealant over the crown of the backer rod to be no thinner than 1/4" and no thicker than 3/8", and
- 4.) A minimum of 3/8" of adhesive bonding contact must be made to all surfaces to which the sealant is intended to adhere.

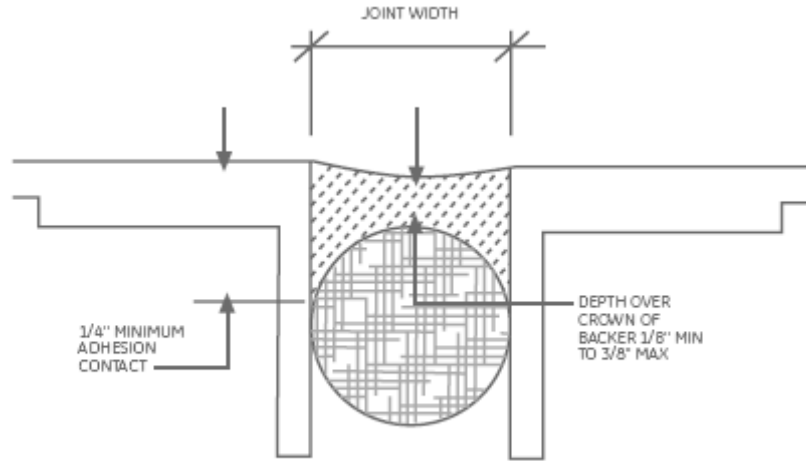


Figure 1

Joint Backer Materials

Backer materials, typically backer rod, provide the following benefits to aide in the correct application of SS511 Silicone Weather-Proofing Sealant.

- 1.) To control and provide the desired sealant depth.
- 2.) Create a formed joint cavity that allows for the desired hourglass sealant shape.
- 3.) Provide a firm backup which helps attain full wetting of the substrates when the sealant is tooled.
- 4.) Act as a bond breaker to eliminate adhesion on the backside of a joint (three-sided adhesion).

Non-gassing polyethylene, polyolefin or polyurethane foam rod is the recommended back-up material for use with SS511 Silicone Weather-Proofing Sealant. If the joint is too shallow to allow foam rod, use a polyethylene tape (as a bond breaker to eliminate three-sided adhesion). On EIFS and porous substrate applications, a closed cell backer rod is recommended (open cell backer materials absorb and hold water which can affect long-term sealant adhesion on these materials). Backer rod should be 25-25% greater (confirm with manufacturer of backer rod as to type selected) than the width of the joint, thereby providing continuous pressure against the joint walls, and expanding and contracting with the joint movement without pushing the sealant out of the joint during the compression cycle or falling away during the extension cycle. Rubber backup materials may stain the sealant and are not recommended, unless tested and verified for compatibility.

Guangzhou Baiyun Chemical Industry CO., LTD. will not:

- Design sealant joints.
- Provide long-term performance data.

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. Guangzhou Baiyun Chemical Industry CO., LTD. can provide quality control information and suggestions to user upon request.

Materials(Glass, Metals, Plastics, Ceramics, etc.)

- Clean by 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 the solvent to dry on the surface without immediately wiping with a second cloth can negate the cleaning procedure because the contaminants may simply be re-deposited as the solvent dries). In all cases where used, solvents should be wiped dry with a clean, white cloth or other lint-free wiping materials. Change the cleaning rags frequently, as they become dirty. It is easier to see the dirt accumulating on the rag if white rags are used. Do not dip used cleaning rags into the cleaning solvent as this can contaminate the solvent (cleaning with contaminated solvent can result in sealant adhesion issues). Always use clean solvent-resistant containers for solvent use and storage.
- When cleaning deep, narrow structural glazing cavities, wrap the cleaning cloth around a clean, narrow-blade putty knife. This permits force to be applied to the cleaned surface.
- Isopropyl Alcohol (IPA) is a commonly-used solvent and has proven useful for most non-porous substrates encountered in architectural construction applications. Xylene and Toluene have also been found useful on many substrates. When handling solvents, refer to manufacturer's MSDS for information on handling, safety and personal protective equipment.
- Architectural coatings, paints and plastics should be cleaned with a solvent approved by the manufacturer of the product or which does not harm or alter the finish.
- Cleaning of surfaces should be done within 1 to 2 hours of when the sealant is to be applied.
- Difficult or nearly impossible to see on a joint substrate, frost is likely to develop on substrates when temperatures drop near the freezing point. Since frost and moisture will interfere with proper sealant adhesion, it is important to confirm that substrates are dry prior to application of the sealant.

Exterior Insulation and Finish Systems (EIFS)

- The use of an appropriate silicone primer is required on all EIFS substrates. Consult BAIYUN Technical Services for sealant primer-substrate recommendations.
- Confirm with the EIFS supplier which finish the sealant should be applied to (*i.e.*, base coat or base coat with EIFS primer).
- All EIFS surfaces must be clean, dry and sound and in an acceptable condition to receive sealant. Confirm with the EIFS supplier or project architect or consultant, what joint conditions are considered acceptable for sealant installation to proceed. If unacceptable conditions are found, cease installation of sealant until corrections are made.

- To clean EIFS, lightly abrade the joint surfaces using a synthetic brush or pad and then remove dust and other remaining loose particles with a soft bristle brush or using an oil-free air blow.
- Cleaning of surfaces should be done within 1 to 2 hours of when the sealant is to be applied.
- Since EIFS materials can absorb and retain moisture, it is important to confirm that the EIFS materials are dry prior to application of the sealant.

Primers

SS511 Silicone Weather-Proofing 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. When properly used, primers help assure strong and consistent sealant adhesion to surfaces that may be difficult to bond. Most primers are a blend of organic and inorganic chemicals, resins and solvents. Obtaining the proper materials, as well as following the prescribed procedures, is vital to ensure the successful use of primers. **PRIMER APPLICATION IS NOT A SUBSTITUTE FOR SURFACE PREPARATION.** Consult Guangzhou Baiyun Chemical Industry CO., LTD. primer datasheet(s) for specifics and recommendations for use.

CAUTION

Primers may contain solvents. When handling solvents, refer to manufacturer's MSDS for information on handling, safety and personal protective equipment.

Masking

The use of masking tape is recommended where appropriate to ensure a neat job and to protect adjoining surfaces from over application of sealant. Masking tape can prevent contact of sealant with adjoining surfaces that otherwise would be permanently marred or damaged by such contact or by cleaning methods required to remove sealant systems. When tooling, use care not to spread the sealant over the face of the substrates adjacent to the joint or masking as the silicone can be extremely difficult to remove on rough or porous substrates. Do not allow masking tape to touch clean surfaces to which the silicone sealant is to adhere (adhesive on masking tape can interfere with adhesion of silicone). Masking tape should be removed immediately after tooling the sealant and before the sealant begins to skin over (tooling time).

- To simplify clean up of excess sealant, use easy to release, pressure sensitive tape to mask adjacent surfaces before applying the structural silicone 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.
- Drop cloths can be used to cover any surfaces likely to collect excess sealant removed during tooling operations.

Sealant Application

- Apply sealant in a continuous operation, horizontally in one direction and vertically from the bottom to the top of the joint opening, applying a positive pressure adequate to properly fill and seal the joint width.
- Tool or strike the sealant with a concave tool applying light pressure to spread the material against the back-up material and the joint surfaces to ensure a void-free application.
- In glazing applications, tool the sealant at the sill so that precipitation and cleaning solutions will not pool.
- Excess sealant should be cleaned from glass, metal and plastic surfaces while still uncured. On porous surfaces the excess sealant should be allowed to progress through the initial cure or set-up. It should then be removed by abrasion or other mechanical means.
- Due to the smooth consistency of SS511 Silicone Weather-Proofing Sealant, tooling agents such as water, soap, or detergent solutions are not necessary or recommended. Dry tooling is recommended.
- 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.
- Application of SS511 Silicone Weather-Proofing Sealant is not recommended to surfaces above 104° F (40° C).
- The cure rate of this product is dependent upon temperature and the availability of atmospheric moisture. Under Standard Conditions (relative humidity of 50 ± 5% at an air temperature of 73.4 ± 2° F [23 of ± 1° C]) this material can attain a cured thickness of 2-3 mm per 24 hours (assuming ample access to atmospheric moisture). As temperature decreases, the cure rate slows down (and vice versa). Low moisture environments will also reduce the cure rate. Near-confined spaces which limit the overall access to atmospheric moisture will cure only from that surface which has access to the atmosphere. Colder temperatures can significantly increase cure times and can open the possibility of sealant irregularities if joint movement occurs while sealant is not fully cured.

HANDLING AND SAFETY

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE FROM BAIYUN SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING BAIYUN CUSTOMER SERVICE.

USABLE LIFE AND STORAGE

When stored at or below 27°C (80°F) in the original unopened containers, this product has a usable life of 9 months from the date of manufacture.

PRODUCT SAFETY

Customers considering the use of any of Guangzhou Baiyun Chemical Industry CO., LTD. products should consult the latest Material Safety Data Sheets and labels for product safety information. Customers must evaluate Guangzhou Baiyun Chemical Industry CO., LTD. products and make their own determination as to fitness of use in their particular applications. For Material Safety Data Sheets contact the Guangzhou Baiyun Chemical Industry CO., LTD. sales office nearest you. Customers must ensure that all applicable federal, state, and local requirements have been met before handling any of the products mentioned in the text.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that Guangzhou Baiyun Chemical Industry CO., LTD.'s products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

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