Sikasil® SG-18

High Performance 1-Part Silicone Sealant and Adhesive for Glass Facades

**Product Description**
Sikasil® SG-18 is a neutral, 1-part, moisture, elastic joint sealant based on silicone with high mechanical strength and excellent adhesion to many construction materials such as glass and metal.

**Uses**
Sikasil® SG-18 is a professional silicone sealant designed for sealing, bonding and mending in construction applications. It is universally applicable for the structural bonding of façade elements. Sikasil® SG-18 is particularly suitable for bonding glass and metal in structural glazing structures and as high-quality edge sealant for multipane insulation glazing.

Because of its optimized rheological properties, Sikasil® SG-18 can be readily processed with commercial cartridge or sausage bag guns, or applied by machine from a drum or bucket.

**Characteristics / Advantages**
- Neutral curing system
- Ready to use
- Solventless
- Non-sag
- Ready gunnability at low (+5°C) and high (+40°C) temperatures
- Rapid curing: quickly becomes tack-free
- Low shrinkage on curing
- After cure: elastic at low (-40°C) and high (+150°C) temperatures
- Excellent adhesion without primer to a variety of substrates, such as glass, coated glass, anodized aluminium, stainless steel, concrete, enamel, many plastics and many powder paints
- Excellent resistance to water and the effects of moisture
- Excellent resistance to weather and UV
- Not corrosive to metals
- High mechanical strength
- Free of abrasive fillers
Tests

Approvals / Standards
ASTM C920: Elastic joint sealants: Type S, Grade NS, Class 25, Use NT, G, A and M.
TT-S-001543 A: Sealing compound: silicone rubber base (for caulking, sealing and glazing in buildings and other structures). Class A - compounds resistant to 50% maximum total joint movement.
TT-S-00230 C: Sealing compound: elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures), type II, class A.

Product Data

Form
Colour
Sikasil® SG-18 is available in black.

Packaging
600 ml sausages, 20 sausages per box
310 ml cartridges, 25 cartridges per box
300 ml cartridges, 25 cartridges per box
20 litre pails: 25 kg, 16.9 litres
200 litre drums: 250 kg, 169 litres
The product can also be applied by air-operated guns and almost all industrial dispensing equipment.

Storage
Storage Conditions / Shelf Life
15 months from date of production if stored in undamaged original sealed containers, in dry conditions at temperatures between +5°C and +25°C.

Technical Data

Chemical Base
1-part silicone, moisture curing

Density
~ 1.48 kg/l (ISO 1183-B)

Extrusion Rate
200 g/min (3 mm metal nozzle at 6.3 bar)

Skinning Time
~ 30 minutes (+23°C / 50% r.h.)

Tack-free Time
~ 90 minutes

Curing Rate
~ 3.9 mm / 24 h (+23°C / 50% r.h.)
~ 6.2 mm / 72 h (+23°C / 50% r.h.)

Movement Capability
± 12.5% 25% (ISO 9047) (ASTM C920)

Joint Dimensions
6 mm min. bite / 15 mm max. bite
6 mm min. width / 12 mm max. width

Sag Flow
Non-sag (ISO 7390, Profile U20)

Service Temperature
-40°C to +150°C (after vulcanisation)

Mechanical Properties

Tear Strength
~ 6.0 N/mm² after 4 weeks (+23°C / 50% r.h.) (ISO 34-C)

Shore A Hardness
~ 44 after 4 weeks (+23°C / 50% r.h.) (ISO 868)

E-Modulus
After 4 weeks (+23°C / 50% r.h.)
~ 1.21 N/mm² at 100% elongation (ISO 37, rod S2)
~ 0.81 N/mm² at 50% elongation (ISO 8339-A)
~ 0.48 N/mm² at 25% elongation (ISO 8339-A)

Tensile Strength
After 4 weeks (+23°C / 50% r.h.)
~ 1.85 N/mm² (ISO 37, rod S2)
~ 1.06 N/mm² (ISO 8339-A)

Elongation at Break
After 4 weeks (+23°C / 50% r.h.)
~ 320% (ISO 37, rod S2)
~ 80% (ISO 8339-A)
Resistance

Aging Resistance

Test acc. to ISO 11431; method A, procedure 1

<table>
<thead>
<tr>
<th>Property</th>
<th>Reference value</th>
<th>Value after 1'000 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength</td>
<td>1.06 N/mm²⁴</td>
<td>1.01 N/mm²⁴</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>80%</td>
<td>76%</td>
</tr>
<tr>
<td>E-Modulus at 50% elongation</td>
<td>0.81 N/mm²⁴</td>
<td>0.79 N/mm²⁴</td>
</tr>
<tr>
<td>E-Modulus at 25% elongation</td>
<td>0.48 N/mm²⁴</td>
<td>0.50 N/mm²⁴</td>
</tr>
<tr>
<td>Fracture type</td>
<td>cohesive</td>
<td>cohesive</td>
</tr>
</tbody>
</table>

System Information

Application Details

Consumption

Joint Design

The joint design must be determined on a project-by-project basis. The determination of the joint bite (contact area of the sealant with the glass or metal surface) must take into account factors such as wind loads and glazing unit dimensions. It must be between 6 and 15 mm. The minimum joint width (distance between the surfaces to be bonded) for structural glazing bonds must be at least 6 mm. The joint width required may increase for larger pane dimensions and in case of temperature fluctuations. The ratio of joint bite to joint width must be at least 1 : 1 but no more than 3 : 1. A ratio of 2 : 1 is ideal.

Adhesion to three surfaces must be avoided.

Substrate Preparation / Priming

Cleaning:

Sikasil®-SG-18 may only be applied to surfaces which are clean, dry, free of all loose material, dirt, rust or oil and other contaminants. Contaminated surfaces may be cleaned mechanically, if porous, or with a solvent if nonporous. Glass may be cleaned with water containing a surfactant or with a solvent. Metals may also be cleaned with a solvent. In the latter case, apply the solvent with a clean, oilfree, lintfree cloth. Remove residual solvent with a fresh, clean dry cloth before it evaporates.

For structural glazing projects, the cleaning agent must be determined on project-by-project basis.

Priming:

Whether or not a primer is needed with Sikasil®-SG-18 must be determined through project-specific adhesion tests.

Sikasil® Primers are primers, not cleaning agents. Therefore clean the surface as described for “Cleaning” by the two cloths method.

Subsequently:

- Pour a small amount of primer onto a clean, lint-free, dry cloth and apply it in one operation. Never dip the cloths into the primer!
- Only apply Sikasil® Primers (esp. Sikasil® Primer-790) in a thin layer, since otherwise the surface will be cracked and brittle and Sikasil®-SG silicone adhesives may no longer bond properly.
- Once the primer has been applied, it is essential that no more solvent gets onto the surface and that there is no further contamination.
- Allow to dry for the time given below and then apply Sikasil®-SG silicone adhesives within the flash-off mentioned.
Substrate Preparation / Priming (cont.)

Sikasil® Primer-790:
- For metals e.g. aluminium, stainless steel, galvanised steel
- For powder coatings, e.g. polyester, EP and PU coatings, PVDF coatings
- Flash off time: min. 20 minutes, max. 2 hours

Sikasil® Primer-783:
- For porous substrates e.g. concrete, aerated concrete and cement plaster
- Flash off time: min. 30 minutes, max. 8 hours

Application
Conditions / Limits

Substrate Temperature
+5°C min. / +40°C max.

Air Temperature
+5°C min. / +40°C max.

Optimum gunning temperatures are between +15°C and +30°C and a rel. humidity of 40% to 95%. If curing takes place under these conditions, bonded elements can be subject to loading after 21 days.

Substrate Humidity
Dry

Application Instructions

Application Method / Tools
Sikasil® SG-18 is ready to use.

After suitable joint preparation and properly prepared substrate, the sealant is gunned into place and tooled with a spatula or suitable smoothing liquid.

Tooling of the joint and removal of any masking tapes used must be carried out before the skin forms. Never use tooling agents such as soap or detergent solutions, since they may affect the bonding.

Sika Façade Competence Centres can supply detailed recommendations for cleaning and pre-treatment of surfaces to obtain a perfect bond, and will carry out tests if necessary.

Cleaning of Tools
Clean all tools and application equipment with sealant remover / Sikasil® Cleaner immediately after use. Hardened / cured material can only be mechanically removed.

Notes on Application / Limits
Subject to individual testing for structural glazing projects Sikasil® SG-18 is readily applied to most types of glass (float or laminated glass, coated or uncoated, reflective or enamelled glass), ceramic tiles, glazed tiles, enamel, to metals such as aluminium, anodized aluminium, powder coated aluminium, steel, stainless steel, copper, zinc, lead, brass and impregnated, varnished or painted wood, and to plastics such as uPVC, epoxies, polyester and many other materials.

Sikasil® SG-18 may not be used on natural stone, such as marble, granite and quartzite, as it may cause staining. Sikasil®-355 is preferred here.

Sikasil® SG-18 may only be used by experienced professionals and after a detailed examination of the corresponding project. The examination must at least include the following:
- Joint design
- Adhesion and compatibility tests
- Cleaning and priming
- Quality control

Sika Façade Competence Centres provide such examination as well as further product information upon request.

Take great care in selecting glazing products, since incompatible materials will not only discolour the sealant, but also affect the mechanical properties and adhesion.

Please refer to our application guideline “Ideal Processes Produce Perfect Results - Structural Glazing” for further information.

Technical service:
Please contact your supplier for more details of available laboratory facilities, applications support and other technical services as well as comprehensive technical information and literature.
Health and Safety Information

Protective Measures
Do not allow uncured sealant to come into contact with the eyes or mouth as it may cause irritation. Must such contact occur, flush eyes or rinse mouth immediately with water and, if necessary, consult a doctor. Avoid prolonged contact of uncured sealant with the skin - use a dry cloth or paper to remove it. Change soiled work clothes and wash hands before breaks and after finishing work. Keep out of reach of children.

Since Sikasil® SG-18 releases a volatile, aggressive substance on curing, ensure good ventilation indoors. If this substance is inhaled in high concentrations over a long period of time, it can produce an allergic reaction.

Local regulations as well as health and safety advice on packaging labels must be observed.

Detailed health and safety information as well as detailed precautionary measures, e.g., physical, toxicological and ecological data can be obtained from the safety data sheet. It is available on request from your supplier or Sika subsidiary.

Important Notes
All technical data stated in this Product Data Sheet are based on laboratory tests. Actual data may vary due to changing conditions beyond our control.
Residues of material must be removed according to local regulations. Fully cured material can be disposed of as household waste under agreement with the responsible local authorities.

Legal Notes
The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika’s current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika’s recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product’s suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.