



# SILTECH 500

## TECHNICAL DATA SHEET

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SILTECH 500 sealant & adhesive is a neutral cure silicone suitable for use as both a weather sealant and for glazing applications. SILTECH 500 sealant & adhesive is a one-component, medium-modulus silicone useful on a wide variety of materials in new or remedial applications. SILTECH 500 sealant & adhesive is supplied as a paste and upon cure, produces a durable, form-in-place silicone rubber joint sealant.

Property	Unit	Value
Colours	Visual	White, black, grey, bronze, limestone
Density	g/cm <sup>3</sup>	1.39
Tack free time	Hrs.	6-9
Sag / slump	mm	2.54
Hardness	Shore A	20
Application temperature	°C	+5 to +60
Tooling time	Min	30
Tensile Strength	MPa	1.6
Tensile Modulus @ 100% elongation	MPa	0.40
Elongation at break	%	700
Tensile Adhesion modulus @ 100% elongation	MPa	0.35 (Glass substrates)
Tensile adhesion strength at break	MPa	0.50 (Glass substrates)
Tensile elongation at break	%	300
Peel Adhesion Strength	kN/m	7
Elastic recovery	%	>90
Service temperature (after cure)	°C	-50 to +100
Cure time (6mm deep section)	Days	3 – 4 (@ 24°C 50% RH)
Full cure	Days	10 - 14
<ul style="list-style-type: none"> <li>• Actual drying times depends on wind, humidity, temperature and film thickness</li> <li>• High humidity or low temperature and heavy films extend drying times</li> <li>• To determine if primer is required, sample should be tested</li> <li>• Primer selection is dependent on substrate</li> </ul>		
Tested in accordance with ISO11.600F + G25LM specifications		

## PERFORMANCE PROPERTIES

- Durability – Cured silicone rubber exhibits excellent long-term resistance to natural weathering, including; ultra-violet radiation, high and low temperatures and rain and snow, with negligible change of elasticity.
- Low VOC - significantly lower VOC emission than the South African legal limit. Legislation permits 100g/l emission while SILTECH 500 emits 20g/l. Neutral cure by-product with low odour.
- Adhesion – primerless adhesion with too many substrates and finishes.
- Surfaces - suitable for use with numerous construction-related materials, including; glass, polycarbonate, vinyl, numerous plastics, treated and untreated wood, fluoropolymer and powder coated paints, conversion-coated and anodized aluminum, EIFS, brick, terra-cotta, ceramic and porcelain materials, concrete and natural stones. Some finishes or substrates may require a primer.
- $\pm 50\%$  Movement Capacity - 50% movement accommodation in both extension and compression and has excellent recovery after cycling.
- Thermal Stability (cured state) - Once cured, the material remains elastic over a range of  $-48^{\circ}\text{C}$  to  $149^{\circ}\text{C}$  and up to  $204^{\circ}\text{C}$  under intermittent short-term exposure.
- High Performance Properties - SILTECH 500's combination of high tensile strength, high tear strength and the capacity to absorb high deformations (elongation) make this product an outstanding for protective glazing designs and seismic applications.
- Extended Work Life - Designed to allow the user sufficient time for placement and tooling.
- Low Sag or Slump - Useful for application to horizontal, vertical or overhead surfaces.
- Product Versatility - full adhesive and chemical compatibility with GE sealants' silicone elastomeric coating (Sil-Shield\* SEC2400) and silicone pre-cured weather-strip (Ultra-Span\* US1100).
- Compatible with these GE sealants insulating glass products: IGS3703, IGS3713-D1, IGS3729, IGS3723, IGS3733, IGS3743.
- Compatible with these GE sealants weatherproofing product lines: SCS2700, SCS9000, SCS2800, US1100, SEC2400.
- Compatible with these GE sealants structural products SSG4000, SSG4000AC, SSG4800J, SSG4400.

## RECOMMENDED APPLICATIONS

- WEATHER-SEALING: SILTECH 500 sealant & adhesive is useful as a weather-proofing material when sealing between dissimilar or similar materials in either new or remedial glazing and sealing applications.

- WATERPROOFING: SILTECH 500 sealant & adhesive is useful as a water-proofing sealant at window perimeters and punched openings.
- STRUCTURAL GLAZING: SILTECH 500 sealant & adhesive is used in structural sealing with sufficient project review.
- PROTECTIVE GLAZING: SILTECH 500 sealant & adhesive has been successfully tested in protective glazing designs.
- ADHESIVE SILTECH 500 sealant & adhesive can be applied in panel stiffener applications and is useful for adhering GE Ultra-Span US1100 pre-cured silicone weather-strip product line.

## LIMITATIONS

SILTECH 500 is not recommended:

- For use underwater
- For use in food contact applications
- When painting of the cured sealant is desired.
- For structural adhesion

SILTECH 500 sealant & adhesive should not be applied or used:

- In structural glazing applications
- Under exceedingly hot or cold conditions
- On wet, damp, frozen or contaminated surfaces
- On excessively basic or acidic substrates
- In exceedingly large structural cavities

## PRECAUTIONS

- This material requires atmospheric moisture to cure from paste to rubber and may not attain its listed final cured rubber properties when used in designs or applications where the silicone is encapsulated and without access to atmospheric moisture
- When sealing against natural stones, Silicone & Technical Products recommends that stain-testing be performed prior to use to ascertain the visual acceptability of the sealant-stone combination.
- 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., Silicone & Technical Products 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.
- Silicone materials are hydrophobic in nature and if inadvertently over-applied onto adjacent joint surfaces (even if removed immediately), can create a waterproofing effect on some substrate types when the substrate is wet

## **JOINT DESIGNS AND DIMENSIONS - WEATHER SEALING**

**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 coldest condition will be almost entirely in compression during the hotter season or cycle. In addition to three above movements, the designer should consider the effect of construction tolerances in the project to minimize the occurrence of over-sized joints during construction. All moving (dynamic) joints must be designed so as not to allow three-sided adhesion of the sealant to occur (reference ASTM C1193). 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 SILTECH 500 sealant & adhesive, the designed joint width must be at least twice the total anticipated joint movement. For example, if the anticipated movement in an expansion joint in which SILTECH 500 sealant & adhesive is to be installed is approx. 6.35mm (1/4"), the designed joint width must be at least 12.7mm (1/2"). The designer may want to consider additional width to accommodate construction tolerances (reference ASTM C1472). Large panels should allow a minimum width of 6.35mm (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 the Silicone & Technical Product's 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 SILTECH 500 sealant & adhesive into a typical butt joint configuration of widths up to 50.8mm (2").

Each user bears the full responsibility for making its own determination as to the suitability of Supplier material, products, services, recommendations or advice for its own particular purposes. Each user must identify and perform test and analysis sufficient to assure its finished parts will be safe and suitable for use under end-use conditions. Because actual use of products by the user is beyond the control of Supplier, such use is within the exclusive responsibility of the user, and supplier cannot be held responsible for any loss incurred through incorrect or faulty use of the products. Further, 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 Supplier or any of its subsidiaries or affiliated companies, 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.