Industry

Sikasil® IG-25

Silicone Sealant for the Production of Insulating Glass

Product Description	Sikasil® IG-25 is a neutral, 2-part, condensation-curing, elastic silicone sealant with high mechanical strength and outstanding adhesion to many substrates.
Uses	Sikasil® IG-25 is a professional silicone sealant designed for sealing, bonding and mending in construction applications. This silicone sealant is particularly suitable as a secondary edge sealant for the manufacture of multipane insulating glass used in structural glazing façades with high mechanical strength and excellent adhesion to many construction materials such as glass and metal. The two parts component A (base compound) and component B (catalyst paste) must be mixed, and cure at room temperature to form an elastomer.
Characteristics / Advantages	■ Neutral curing system: odourless ■ Solventless ■ Non-sag ■ Ready gunnability at low (+5°C) and high (+40°C) temperatures ■ Very low shrinkage on curing ■ After cure: elastic at low (-40°C) and high (+150°C) temperatures ■ Excellent adhesion on most float, tinted and coated glasses and to plastic and metal spacers ■ Excellent resistance to water and the effects of moisture ■ Excellent UV and weathering resistance ■ Highly load-resistant ■ Abrasion resistant ■ Not corrosive to metals and many plastics ■ Compatible with PVB layer of safety glasses ■ Free of abrasive fillers ■ External quality control ■ Long shelf-life: simplified stockkeeping

Tests

Approvals / Standards	EN 1279-2 and UNI 10593-2: Multipane insulation glass - type testing of air-filled multipane insulation glass. EN 1279-4 and UNI 10593-4: Multipane insulating glass - process for determining the physical properties of the edge seal. DIN 1286-1: Insulating glass units; air filled; aging behaviour. DIN 1286-2: Multiple walled insulation glazing units; gas-filled; aging behaviour (for insulation glazing units with special edge seal). EOTA ETAG No. 002 - 1998: European technical approval guidelines for structural sealant glazing systems. 1. For glass-glass bonds (insulating glasses in structural glazing systems) 2. Structural glazing bonding of glass coated with Sikasil® IG-25 GB16776 - 1997: Chinese approval for structural glazing silicone sealants. CEKAL: Approval for insulating glass secondary sealants.

Product Data

Form

Colour	Sikasil® IG-25 is available in black. Colour Component A: creamy white Colour Component B: black
Packaging	Component A: 200 l drum: 260 kg, 187.1 litres Component B: IG-25 Standard and IG-25 FC: 20 l pail: 20 kg, 18.5 litres IG-25 OC: 30 l pail: 26 kg, 24.1 litres Other types of packaging can be supplied on request. The product can be applied by 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	2-part silicone, condensation-curing
Density	*Unmixed Components IG-25 Standard A (base compound) and B (catalyst paste)* ~ 1.39 kg/l (Comp. A) (ISO 1183-B) ~ 1.08 kg/l (Comp. B) *Uncured compound (IG-25 Standard): mixture of base compound and catalyst paste in weight ratio 13 : 1 or volume ratio 10 : 1* ~ 1.37 kg/l (ISO 1183-B)
Movement Capability	*Cured rubber (after 2 weeks +23°C / 50% r.h.)* ± 12.5% (ISO 9047) 25% (ASTM C920)
Viscosity	*Unmixed components IG-25 Standard A (base compound) and B (catalyst paste)* 1'100'000 mPas (Comp. A) (+23°C / D = 0.85 s^{-1}) 150'000 mPas (Comp. B) (+23°C / D = 0.85 s^{-1})

Extrusion Rate

Uncured compound IG-25 Standard: mixture of base compound and catalyst paste in weight ratio 13 : 1 or volume ratio 10 : 1

8 ml/10 s at +23°C (3 mm nozzle, p = 0.21 N/mm^2) 10 minutes after mixing

Tack-free Time

Uncured compound: mixture of base compound and catalyst paste in weight ratio 13 : 1 (IG-25 Standard and IG-25 FC) and 10 : 1 (for IG-25 OC) or volume ratio 10 : 1 (IG-25 Standard and IG-25 FC) and 7.5 : 1 (IG-25 OC)

120 - 180 minutes

Sag Flow

Uncured compound: mixture of base compound and catalyst paste in weight ratio 13 : 1 (IG-25 Standard and IG-25 FC) and 10 : 1 (for IG-25 OC) or volume ratio 10 : 1 (IG-25 Standard and IG-25 FC) and 7.5 : 1 (IG-25 OC)

Non-sag (ISO 7390-A + B -20 x 10 mm)

Water Vapour Diffusion Coefficient

Cured rubber (after 2 weeks +23°C / 50% r.h.)

15 g /m^{-2} d^{-1} (2.2 mm film) (DIN 53122-A)

Service Temperature

Cured rubber

-40°C to +150°C after 2 weeks (+23°C / 50% r.h.)

Mechanical Properties

Shear Strength

Cured rubber (after 2 weeks +23°C / 50% r.h.)

Glass substrate; bond dimension: 12 x 12 x 50 mm

Shearing direction	transverse	longitudinal
Tensile strength	0.8 N/mm^2	0.8 N/mm^2
Elongation at break	200%	250%*
Fracture type	cohesive	cohesive

*with respect to the 12 x 12 mm bond cross-section

Tear Strength

Cured rubber (after 2 weeks +23°C / 50% r.h.)

~ 6.0 N/mm (ISO 34-C)

Shore A Hardness

Cured rubber (after 2 weeks +23°C / 50% r.h.)

~ 42 (ISO 868)

Uncured compound IG-25 Standard: mixture in weight ratio 13 : 1 or volume ratio 10 : 1

Shore A Hardness, change at curing at +23 C / 50% RLF

2 hours	5
4 hours	11
6 hours	19
24 hours	35
3 days	39

E-Modulus

Cured rubber (after 2 weeks +23°C / 50% r.h.)

1.00 N/mm^2 at 100% elongation (ISO 37, rod S2)
0.90 N/mm^2 at 100% elongation (ISO 8339-A)
0.50 N/mm^2 at 25% elongation (ISO 8339-A)

Tensile Strength

Cured rubber (after 2 weeks +23°C / 50% r.h.)

1.80 N/mm^2 (ISO 37, rod S2)
0.90 N/mm^2 (ISO 8339-A)

Elongation at Break

Cured rubber (after 2 weeks +23°C / 50% r.h.)

~ 200% (ISO 37, rod S2)
~ 100% (ISO 8339-A)

Elastic Recovery

Cured rubber (after 2 weeks +23°C / 50% r.h.)

96% (elongation to 160% for 24 hours) (ISO 7389)

Sealant Design Strength for Supported Structures (Insulating glass units in SG systems)

Cured rubber (after 2 weeks +23°C / 50% r.h.)

0.14 N/mm^2
140 kPa

Alternating Stress

1'000 cycles; 1 cycle per minute; ± 12.5% elongation (DIN EN 29046)
Storage: 14 days at +23°C / 50% r. h.
14 days at +70°C / 50% r. h.
1 day at +23°C / 50% r. h.

	Reference value	Value after 1'000 h
Tensile strength	0.90 N/mm^2	0.95 N/mm^2
Elongation at break	100%	106%
E-Modulus at 50% elongation	0.73 N/mm^2	0.71 N/mm^2
E-Modulus at 25% elongation	0.50 N/mm^2	0.49 N/mm^2
Fracture type	cohesive	cohesive

Resistance

Aging Resistance

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

	Reference value	Value after 1'000 h
Tensile strength	0.90 N/mm^2	0.77 N/mm^2
Elongation at break	100%	260%
E-Modulus at 50% elongation	0.73 N/mm^2	0.43 N/mm^2
E-Modulus at 25% elongation	0.50 N/mm^2	0.30 N/mm^2
Fracture type	cohesive	cohesive

System Information

Application Details

Consumption

Joint Design

The joint height (contact area of the sealant with the glass surface) must be determined on a project-by-project basis taking into account factors such as wind loads, climatic loads and glazing unit dimensions. It must be between 6 and 50 mm. However, a larger size may be required for larger pane dimensions and temperature fluctuations. The ratio of joint height to joint width must be no more than 4:1.

Substrate Preparation / Priming

For detailed information about surface preparation please contact your nearest Sika subsidiary or the Sika Facade Competence Centre.

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 3 days.

Substrate Humidity

Dry

Application Instructions

Application Method / Tools

Before processing, mix the two components A (base material) and B (catalyst paste) homogeneously and air bubble-free. Mix the two components in a ratio of:

For IG-25 Standard and IG-25 FC according to:

Weight:	13 parts of Comp. A (base compound) 1 part of Comp. B (catalyst paste)
Volume:	10 parts of Comp. A (base compound) 1 part of Comp. B (catalyst paste)

For IG-25 OC according to:

Weight:	10 parts of Comp. A (base compound) 1 part of Comp. B (catalyst paste)
Volume:	7.5 parts of Comp. A (base compound) 1 part of Comp. B (catalyst paste)

I.e. 10 parts (7.5 parts in the case of IG-25 OC; by volume) or 13 parts (10 parts in the case of IG-25 OC; by weight) of base compound are mixed with 1 part of catalyst paste. This must be followed to an accuracy of ±10%.

When mixing the two pastes, do not entrain air in the mixture. If this can't be avoided, de-gas compound under vacuum after mixing.

While component A (base compound) of Sikasil® IG-25 is stable in air, component B (catalyst paste) is hydrolysis sensitive and must only be exposed briefly to moist air.

If you have any questions concerning the manufacture of insulating glass units, please contact your nearest Sika subsidiary or the Sika Facade Competence Centre.

Potlife

Uncured compound:
Mixture of base compound and catalyst paste in weight ratio 13 : 1 (IG-25 Standard and IG-25 FC) and 10 : 1 (for IG-25 OC) or volume ratio 10 : 1 (IG-25 Standard and IG-25 FC) and 7.5 : 1 (IG-25 OC)

IG-25 FC:	~ 30 minutes
IG-25 OC:	~ 60 minutes
IG-25 Standard:	~ 90 minutes

Notes on Application / Limits

Sikasil® IG-25 is not a structural glazing sealant for bonding glass to metal. Sikasil® SG-20 or SG-500 must be used instead.

Sikasil® IG-25 may not be used on natural stone, such as marble, granite and quartzite, as it may cause staining. Sikasil®-355 is preferred here.

Do not use Sikasil® IG-25 on pre-stressed polyacrylate and polycarbonate elements as it may cause environmental stress cracking (crazing).

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

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

To avoid rare allergic reactions, we recommend the use of protective gloves. Change soiled work clothes and wash hands before breaks and after finishing work.

Component A of condensation-curing Sikasil® IG-25 grade contains only substances that have been found to both non-toxic and non-aggressive over many years of experience, and no special precautions are therefore necessary.

Component B of Sikasil® IG-25 must be handled with care. Avoid contact with the skin and mucous membranes, since the substance can cause irritation. Do not smoke or eat. If contact must occur, wash the skin with soap and water, rinse the eyes well with water. Consult a doctor if symptoms or irritation occur.

Since Sikasil® IG-25 releases alcohol on curing, ensure good ventilation indoors. Cured Sikasil® IG-25 can be handled without any risk to health.

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

Sika Egypt for Construction Chemicals
El Abour City
1st industrial zone (A)
Section # 10 Block 13035
Tel.: +202-46100714/15/16/17/18
Fax: +202-46100759
Mob: +2012-3908822/55
www.sika.com.eg