

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-05/0068**  
**of 20 January 2016**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Sikasil® IG-25

Product family  
to which the construction product belongs

Structural Sealant for use in Insulating glass units

Manufacturer

SIKA SERVICES AG  
Tüffenwies 16  
8048 Zürich  
SCHWEIZ

Manufacturing plant

SIKA ENGINEERING SILICONES srl  
Via L. Einaudi 6  
20068 Peschiera Borromeo ( MI)  
ITALIEN

This European Technical Assessment  
contains

7 pages including 1 annex which form an integral part of  
this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

Guideline for European technical approval of "Structural  
sealant glazing systems", ETAG 002 Part 1: "Supported  
and unsupported systems", ETAG 002-1,  
used as European Assessment Document (EAD)  
according to Article 66 Paragraph 3 of Regulation (EU)  
No 305/2011.

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## Specific part

### 1 Technical description of the product

The structural sealant Sikasil® IG-25 is a two-component silicone-based sealant to be used in insulating glass units that have a structural function. The structural sealant is only one component of the kit. The kit as such is not covered by this ETA.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

The structural sealant Sikasil® IG-25 is to be used in structural sealant glazing systems (SSGK) within the scope of ETAG 002-1<sup>1</sup> to fabricate insulating glass units by structurally bonding two glass panes together. Each glass pane in the insulating glass unit must be supported to transfer the dead load (Type I and II). This European Technical Assessment expressly does not cover the bonding of glass with other building materials.

The fitness for use of systems (or kits) in which the structural sealant is used will have to be verified separately, in particular by means of a complementary ETA for kits based on ETAG 002-1 used as European Assessment Document (EAD).

The sealant Sikasil® IG-25 may be used in structural sealant glazing kits of either of the following two types referred to in ETAG 002-1 and shown in Figure 1. Whether devices to reduce danger in the event of bond failure are required or not depends on national regulations that are applicable at the location of use.

Type I: Mechanical transfer of the dead load of the infill to the sealant support frame and from there to the structure. The structural seal transfers all other actions. Devices are used to reduce danger in the event of a bond failure.

Type II: Mechanical transfer of the dead load of the infill to the sealant support frame and thence to the structure. The structural seal transfers all other actions and no devices are used to reduce danger in the event of bond failure.

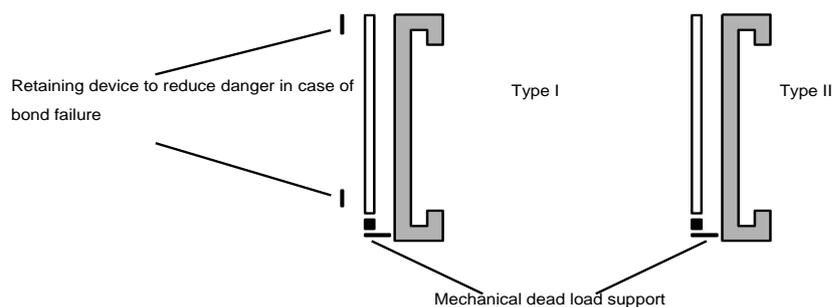


Figure 1 - Schematic examples of the different types of SSGK

<sup>1</sup> ETAG-002-1:2009-08 Guideline for European technical approval for Structural Sealant Glazing Systems (SSGS), Part 1: Supported and unsupported systems

The performances given in Section 3 are only valid if the structural sealant Sikasil® IG-25 is used in compliance with the specifications and conditions given in Section 3.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the structural sealant Sikasil® IG-25 of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Mechanical resistance and stability (BWR 1)

Requirements with respect to the mechanical resistance and stability of non-load bearing parts of the works are under the Essential Requirement safety in use, Section 3.4. Indications for design calculation see Annex 1

#### 3.2 Safety in case of fire (BWR 2)

| Essential characteristic | Performance                         |
|--------------------------|-------------------------------------|
| Reaction to fire         | Class F (no performance determined) |

The resistance to fire shall be assessed within the framework of the European Technical Assessment for the kit.

#### 3.3 Hygiene, health and the environment (BWR 3)

Contents and/or release of dangerous substances:

The chemical composition of the structural sealant has to be in compliance with the composition deposited at the Technical Assessment Body (DIBt).

Within the scope of this European Technical Assessment there may be other requirements applicable to the product (e.g. due to national laws, regulations and administrative provisions). These requirements need also to be complied with if applicable.

#### 3.4 Safety and accessibility in use (BWR 4)

##### 3.4.1 Essential characteristics for the structural bond according ETAG 002-1

| Essential characteristic   | Performance        |
|--|--------------------|
| Characteristic stress at rupture – tension $R_{U,5}$                           | 0.84 MPa           |
| Characteristic stress at rupture – dynamic shear $R_{U,5}$                     | 0.61 MPa           |
| Characteristic shear at rupture – static shear $R_{U,5}$                       | 0.06 MPa           |
| Modulus of elasticity in tension or compression tangential to the origin $E_o$ | 2.2 MPa            |
| Modulus of elasticity in shear tangential to the origin $G_o$                  | 0.73 MPa           |
| Working time (at 23 °C, 50 % R.H.)   | 20 minutes         |
| Tack-free time (at 23 °C, 50 % R.H.)   | 180 to 300 minutes |
| Time before transport of the bonded frame*                                     | 3 days             |

\* An earlier transportation on work site is possible if the following two conditions are respected (see ETAG 002-1 Table 10 Checks during the production): The tested H-samples give the following result: Rupture 100 % cohesive and breaking stress  $\geq 0.7$  MPa.

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3.4.2 Structural sealant – identification characteristics

| Test                                | ETAG 002-1 reference | Result  |
|-------------------------------------|----------------------|---|
| Specific mass (mixed at 13/1 ratio) | 5.2.1.1              | $V_{\text{mean}} = 1.36 \text{ g/cm}^3$                               |
| Hardness Shore A                    | 5.2.1.2              | Mean of 42 (minimum of 34)  |
| Thermogravimetric analysis          | 5.2.1.3              | Curve kept in the technical file of the European Technical Assessment |
| Colour                              | 5.2.1.4              | Black colour  |

This European Technical Assessment is issued for the structural sealant Sikasil® IG-25 on the basis of agreed data/information, deposited with the DIBt, which identifies the product that has been assessed and judged. Changes to the product/production process, which could result in the deposited data/information being incorrect, should be notified to the DIBt before the changes are introduced. The DIBt will decide whether or not such changes affect the European Technical Assessment and consequently the validity of the CE-marking on the basis of the European Technical Assessment and if so whether further assessment/alterations of the European Technical Assessment shall be necessary.

3.4.3 Complementary products for preparing the structural seal adhesion surface

The following product shall be used as a cleaning product for the glass-glass adhesion: "Sika VENTOTEC Cleaner Glass & Metal".

3.5 Protection against noise (BWR 5)

Not applicable

3.6 Energy economy and heat retention (BWR 6)

| Essential characteristic | Performance  |
|--------------------------|--------------|
| Thermal conductivity     | 0.35 W/(m K) |

3.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

3.8 General aspects

The verification of durability is part of testing the essential characteristics. Durability is only ensured if the specifications of intended use according the Sections 3.1 to 3.8 of this ETA are taken into account.

SIKA should ensure that the essential information concerning the structural sealant Sikasil® IG-25 is circulated to the applier of the structural sealant.

The structural sealant Sikasil® IG-25 is fabricated in the manufacturing plant mentioned on page 1.

The maximum storage life of the sealant is given in the date sheet and the labelling.

The structural sealant Sikasil® IG-25 shall be mixed at a ratio base (A) / catalyst (B) by weight of 13/1. It shall be applied between 5 °C and 35 °C under workshop conditions. The bonding shall be tooled before the working time has been reached, preferably within 10 minutes after the extrusion. It is important to realise that the working time may vary depending on temperature and relative humidity. For details the technical service of SIKA should be contacted.

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No relative displacement of the panes in the insulating glass units may occur once the working time has been reached.

In all cases it should be checked that there is no condensation on the substrates prior to the sealant application.

Water stagnation in the vicinity of structural seal shall be eliminated constructively.

For facade cleaning it is recommended to use a 1 % (approx.) solution in water of a neutral detergent with pH-value of 7 approximately.

Nevertheless, the assessment of the facade cleaning product shall be done within the framework of the European Technical Assessment (ETA) for the kit in order to check that those cleaning agents do not affect other kit products (gaskets, weather sealant, etc).

The whole kit, respectively the façade system, in which the structural sealant is used, will have to be verified. For this purpose a complementary European Technical Assessment for the kit according ETAG 002 and an associated control plan are required. In the European Technical Assessment of the kit additional components of the kit, such as mechanical devices, should be assessed and the essential controls should be defined.

**4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base**

According to Decision of the Commission 96/582/EC of 24 June 1996 (Official Journal of the European Communities L 254 of 08.10.1996) the system of assessment and verification of constancy of performance (AVCP) (see Annex V and Article 65 Paragraph 2 to Regulation (EU) No 305/2011) given in the following table applies.

| Product                         | Intended use(s)     | Level or class | System |
|---------------------------------|---------------------|----------------|--------|
| Structural sealant glazing kits | Type II and Type IV | -              | 1      |
|                                 | Type I and Type III | -              | 2+     |

System 1 applies due to the reason that the intended use of the structural sealant is not known at the time the sealant is put on the market.

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 20 January 2016 by Deutsches Institut für Bautechnik

Uwe Bender  
Head of Department

*beglaubigt:*  
Herr

Sikasil® IG-25

Annex 1

### Indications for design calculation

For the calculation of the structural bond the total safety factor  $y_{tot} = 6.0$  is recommended and for permanent loads a creep factor of 10. The following values for calculation result from this:

- Design stress in tension:  $\sigma_{des} = 0.14$  MPa
- Design stress in dynamic shear:  $\tau_{des} = 0.101$  MPa
- Design stress in static shear:  $\tau_{des\infty} = 0.01$  MPa