



European Technical Assessment

ETA 08/0286
of 12/10/2013

GENERAL PART

Technical Assessment Body issuing the ETE :

CSTB (Centre Scientifique et Technique du Bâtiment)

Trade name of the construction product

KÖDIGLAZE S

Product family to which the construction product belongs

Structural sealant for use in structural sealant glazing systems

Manufacturer

KOMMERLING
Chemische Fabrik GmbH
Zweibrücker Strasse 200
DE-66954 Pirmasens

Manufacturing plant(s)

KOMMERLING
Chemische Fabrik GmbH
Zweibrücker Strasse 200
DE-66954 Pirmasens

This European Technical Assessment contains

11 pages including 2 Annexes which form an integral part of this assessment.

Annex(es) contain(s) confidential information and is/are not included in the European Technical Assessment when that assessment is publicly disseminated

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

ETAG 002, edition 2000, used as European Assessment Document (EAD)

This ETA replaces

ETA 08/0286, issued on 12/10/2008

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es) referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

SPECIFIC PART

1. Technical description of the product

The structural sealant KÖDIGLAZE S is silicone based sealants to be used in structural sealant glazing kit or system (SSGS) as defined in ETAG 002 for use as façade, roof glazing or part of it. The kit itself is not covered by this ETA.

Proprieties and characteristics of structural sealant :

Properties & Characteristics		KÖDIGLAZE S
Design stress in tension ($\gamma_m = 6$)	$\sigma_{des} =$	0,14 MPa
Design stress in dynamic shear	$\tau_{des} =$	0,21 MPa
Elastic modulus in tension or compression tangential to the origin	$E_o =$	2,8 MPa
Elastic modulus in shear tangential to the origin	$G_o =$	0,93 MPa
Design shear stress under permanent load	$\Gamma_{\infty} =$	0,0105 MPa
Color		black
Working time at 23°C 50% RH		> 20 min
Skin over time at 23°C 50% RH		-
Tack free time at 23°C 50% RH		< 120 min
Minimum time before transportation of the bonded frame		7 days *
* : Nevertheless, earlier transportation on work site is allowed if the following two conditions are respected (see ETAG Table 10 "Checks during the production") : the tested H-samples give the following results : rupture 100 % cohesive and breaking stress $\geq 0,7$ Mpa.		

Test	ETAG reference	Result
Specific mass	5.2.1.1	1,38 (kg/dm ³)
Hardness A	5.2.1.2	At least 38 after 24 hrs
Thermo gravimetric analysis	5.2.1.3	Cue kept in the ETA technical file
Color	5.2.1.4	Black

Complementary products of structural seal adhesion surface preparation

Cleaning product to be used :

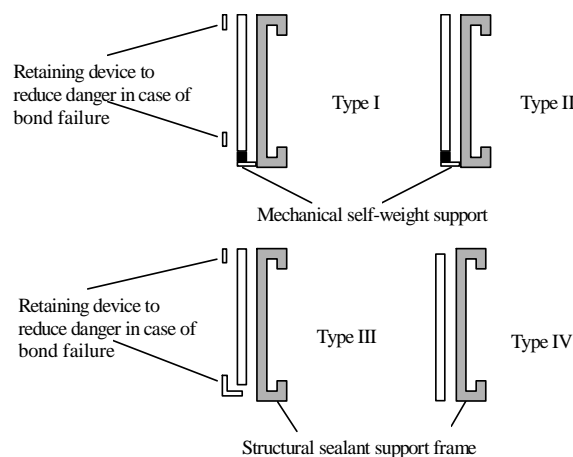
On glass and on anodised aluminium and stainless steel : Körasolv GL from KÖMMERLING.

Primer to be used only for anodised aluminium and stainless steel : Körabond HG 78 from KÖMMERLING.

2. Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The structural sealant KÖDIGLAZE S is to be used in structural sealant glazing system (SSGS) to bond glazing products on metallic structural seal support frames. The suitable substrates are defined for each sealant in the present document.

The sealant KÖDIGLAZE S is a single component sealant which can be used in types I to IV as per ETAG 002 SSGS.



The fitness for use of kits using this structural sealant shall be verified separately by means of a complementary ETA based on ETAG 002.

The essential requirements BWR2 Safety in case of fire, BWR 3 Hygiene, health and environment, BWR 4 Safety in use, BWR 6 Energy economy and heat retention shall be fulfilled, and failure of the structural bond would cause risk to human life and/or have considerable economic consequences.

The provisions made in this European Technical Evaluation are based on the assumed working life of the SSGS of 25 years. The assumed working life of a system cannot be taken as a guarantee given by the producer, but are to be used as a mean for selecting the appropriate product 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

Performances of the structural sealant, related to the basic requirements for construction works (hereinafter BWR), were determined according to section 2 of the ETAG 002.

These performances, given in the following paragraphs, are valid as long as the components are the ones described in § 1 of this ETA.

3.1 Mechanical resistance and stability (BWR 1)

Not relevant.

3.2 Safety in case of fire (BWR 2)

Reaction to fire: class F (No performance determined).

3.3 Hygiene, health and the environment (BWR 3)

Dangerous substances :

The manufacturer made a declaration of conformity to the Council Directive 76/769/EEC and its amendments.

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the sealants (e.g. transposed European legislation and national laws, regulations and administrative provisions).

In order to meet the provisions of the EU Construction Product Directive, these requirements need also to be complied with, when and where they apply.

3.4 Safety and accessibility in use (BWR 4)

The characteristics of the sealants have been established on the basis of test results in accordance to chapter 5.1.4. of ETAG 002 section 1.

3.5 Protection against noise (BWR 5)

Not relevant.

3.6 Energy economy and heat retention (BWR 6)

Determination of thermal insulation and susceptibility to condensation: calculation method.

As a function of the design and the glazing chosen for the SSGS kits, thermal modelling can be undertaken with various computer software packages. To use the results of these programs, it is necessary to ensure that they are at least two-dimensional and cover all the required parameters.

The generally accepted value of the thermal conductivity (λ -value) of the structural sealant to be used in thermal modelling for assessment of the thermal performance is 0,35 W/(m.K) (EN 12524-04.2000).

3.7 Sustainable use of natural resources (BWR 7)

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

3.8 Durability

Durability of fitness for use of the KÖDIGLAZE S in structural seal:

All the specific aspects of durability have been covered. Under above headings, more particularly BWR4 SAFETY IN USE and EN 1279.

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

According to Decision 97/556/EC (Decision of the Commission of 14 July 1997, L 229 of 20.8.1997, p. 15), as amended by Decision 2001/596/EC (Decision of the Commission of 8 January 2001, L 209 of 2.8.2001, p. 33)¹, the systems of AVCP given in the following table apply :

Product	Intended use	System
Structural sealant	Kit Types II and IV	1
	Kit Types I and III	2+

The structural sealants can be used as components of any of SSGS kit I, II, III or IV. As a consequence, only system 1 applies.

Tasks and responsibilities are described in annex 1.

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 at the CSTB.

The control plan is given in Annex 2.

Issued in Marne-la-Vallée

The original version is signed by

Charles BALOCHE, Technical Manager of the CSTB

¹ Decisions are published in the *Official Journal of the European Union (OJEU)*, see www.new.eur-lex.europa.eu/oj/direct-access.html.

Responsibilities

1. Tasks of the manufacturer, factory production control

1.1 Factory production control

The sealant manufacturer exercises permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. This production control system ensures that the product is in conformity with the European Technical Approval (ETA).

The FPC involves the following tests for KÖDIGLAZE S:

Base component (A-Component)

Test	Method	Criteria	Frequency	Record
Colour	Kömmerling 100040	Comparable to first sample	Each Batch	Yes
Density	Kömmerling 100031	$1,37 \pm 0,02 \text{ g/cm}^3$	Each 5 th Batch	Yes
Extrusion Rate	Kömmerling 100005	$200 \pm 100 \text{ g/min.}$	Each Batch	Yes

Catalyst Component (B-Component)

Test	Method	Criteria	Frequency	Record
Colour	Kömmerling 100040	Comparable to first sample	Each Batch	Yes
Density	Kömmerling 100031	$1,37 \pm 0,02 \text{ g/cm}^3$	Each Batch	Yes
Viscosity	Kömmerling 100001	$1000 \pm 400 \text{ Pa.s}$	Each Batch	Yes

STRUCTURAL SEALANT

Tasks and responsibilities

ANNEX 1 (1/3)
of ETA-08/0286

Mixture (A-Component : B-Component = 10 : 1)

Test	Method	Criteria	Frequency	Record
Pot life	Kömmerring 100040	20 – 70 min.	Each Batch	Yes
Shore A Hardness	Kömmerring 100107	6h ≥ 18	Each Batch	Yes
Shore A Hardness	Kömmerring 100107	24h ≥ 38	Each Batch	Yes
Slump	Kömmerring 100121	≤ 3 mm	Each Batch	Yes
Adhesion (before immersion in high humidity and temperature)	Kömmerring 100086	24h 23°C/50% RF (Standard Climate) > 4 N/mm (> 90 % Cohesive)	Each Batch	Yes
Adhesion (after immersion in high humidity and temperature)	Kömmerring 100086	24h 50°C/100% RF (High Humidity Climate) > 7 N/mm (> 90 % Cohesive)	Each Batch	Yes

1.2 Testing of samples taken at the factory – prescribed Test Plan

In the context of structural sealants, it is necessary for the manufacturer to undertake adhesion / cohesion tests to rupture after thermal conditioning as described in ETAG 002 part 1 § 8.3.2.4.

STRUCTURAL SEALANT	ANNEX 1 (2/3) of ETA-08/0286
Tasks and responsibilities	

2. Tasks of notified bodies

2.1 Initial type test

For initial type testing, the results of the tests performed as part of the assessment for the European Technical Evaluation shall be used unless there are changes in the production line or plant. In such cases, the necessary initial type testing has to be agreed between the Centre Scientifique et Technique du Bâtiment and the notified body involved.

2.2 Initial inspection of the factory and factory production control

The approved body shall ascertain that, in accordance with the prescribed test plan, the factory and the factory production control are suitable to ensure continuous and orderly manufacturing of the sealant according to the specification given in chapter 2.1 of the ETA.

2.3 Continuous surveillance

The approved body shall visit the factory twice a year.

It has to verify the continuing conformity to the ETA taking into account the prescribed test plan.

This continuous surveillance is performed as per ETAG 002 § 8.3.

2.4 Certification

When all criteria for conformity attestation are fulfilled, the notified body shall issue a certificate of conformity with this ETA (for System 1).

3. CE marking

The CE marking shall be affixed on each cartridge or packaging of sealant. The symbol "CE" shall be accompanied by the following information:

- Name of identifying mark of the producer and plant.
- Identification number of the approved body.
- Identity of the product (commercial name).
- ETA number.
- Number of EC certificate of conformity.

STRUCTURAL SEALANT		ANNEX 1 (3/3) of ETA-08/0286
Tasks and responsibilities		

1. Manufacturing

The sealants are manufactured by KÖMERLING (Chemische Fabrik GmbH – Zweibrü Straße 200 – D-66954 Pirmasens - GERMANY) in accordance with the provisions of the European Technical Approval using a specific manufacturing process as identified during inspection of the plant by the Centre Scientifique et Technique du Bâtiment and the approved body and laid down in the technical document.

The KÖDIGLAZE S is manufactured and packaged by Kömmerling in Pirmasens (Germany).

The maximum storage duration of the sealant is 12 months for base and 12 months for catalyst after the fabrication date in its original unopened packaging, when stored below 30°C.

2. Installation

2.1 Design rules of the sealant

The section of the structural sealant bead is calculated in accordance with ETAG 002-1 annex 2 where W is defined in national design codes.

Water stagnation is not allowed in the vicinity of structural seal. The SSGS shall then be designed with an efficient water tightness assisted by drainage and ventilation or by the absence of any void or cavity closed to the IG seal.

2.2 Suitable substrates for structural adhesion surface

The suitable substrates are given hereafter:

The uncoated soda-lime glass and anodized aluminium was verified to be suitable substrate for structural adhesion.

Float glass conforming to EN 572 “Glass in Building Basic Products”, Part 1.2.4.5 and possibly thermally treated glass (conform to EN 1863 “Glass in Building - Heat Strengthened Glass”, EN 12150 “Glass in Building – Thermally Strengthened Safety Glass and EN 14179 Glass in building – Heat soaked thermally toughened soda lime silicate safety glass).

For any other substrate, the evaluation shall be performed by reference to ETAG 002-1 § 5.1.4 and has to be certificated by an approved body.

For particular substrate included in a generic family, the evaluation rules are given ETAG 002-1 § 5.3. The coated glass if complies with the requirements of the ETAG 002 §5.2.3.3., if not, it must be totally removed from the structural adhesion surface.

STRUCTURAL SEALANT		ANNEX 2 (1/3) of ETA-08/0286
Assumptions under which the fitness of the product(s) for the intended use was favourably assessed		

2.3 Transfer of the infill loading on the building structure via the structural sealant

Under the scope of this ETA, KÖDIGLAZE S is suitable to be used in SSGS type I, II, III or IV as defined in ETAG 002 part 1. This means that the SSGS must be equipped with mechanical self-weight retention devices in order to transfer the dead load of the glass to the façade structure in the case of type I and II.

2.4 Design of Structural Sealant Glazing System

Water stagnation is not allowed in the vicinity of the structural seal. The SSGS shall be designed to provide sufficient drainage and ventilation near the sealant section.

The SSG system shall be designed to allow the realisation of a regular, rectangular structural sealant bead without insert or discontinuous substrate.

Under the scope of this ETA, the KÖDIGLAZE S is suitable to be used in SSGS type I and II as defined in ETAG 002. This means that the SSGS must be equipped with mechanical self-weight retention devices in order to transfer the dead load of each glass pane of the IGU to the façade structure.

2.5 Application of the sealant

Description of the structural sealant application

The ETA's for structural sealant glazing kits describe the sealant application, in particular, the ETA's give the cleaning product to be used as well as the primer, if needed, and method of application.

General technical conditions

The KÖDIGLAZE S sealant has to be prepared and applied between 15 and 35°C in a dust free location. The seal needs to be tooled immediately after application, preferably within 10 minutes after the extrusion. It is important to realize that the pot life can vary with temperature and relative humidity.

However it is strongly recommended not to apply the sealant below 15°C in order to avoid risks on surface condensation.

The FPC criteria to take into account by the manufacturer of the SSGS kit used in structural application are the following :

- a) In case of IGU (insulating glass unit) without structural function, the hardness of the sealant must be minimal 30 SHORE A before transport.
- b) In case of IGU with structural function the transportation of the insulating glass is allowed if the following 2 conditions are respected (see ETAG table 10 "Checks during the production") : the tested H samples give a 100 % cohesive rupture and a breaking stress $\geq 0,7$ MPa.

STRUCTURAL SEALANT	
Assumptions under which the fitness of the product(s) for the intended use was favourably assessed	ANNEX 2 (2/3) of ETA-08/0286

2.6 Recommendation for façade cleaning product

It is recommended to use the following product for facades cleaning:

Cleaning agent EXTRAN 02 Neutral MERCK dilution 2 %

Nevertheless, the assessment of the façade cleaning agent must be done in the framework of the ETA for the kit to check compatibility aspect with other components.

2.7 Chemical compatibility

The chemical compatibility has to be assessed in the framework of the ETA for system as required by the ETAG 002 SSGS part 1, § 5.1.4.2.5.

In the assessment procedure of the present ETA, the following products combinations were evaluated as required:

The KÖDIGLAZE S sealant is compatible with the:

- Kömmerling sealants GD 823 N and GD 826 N
- Glazing tapes Norton Normount V2100 and Vito Glazingmount 400

2.8 Responsibility of the ETE holder

It is the responsibility of the ETE holder to ensure that the information on the related component requirements and their fabrication and setting is given to the person concerned. This information may be made by reproduction of the relevant parts of the European Technical Approval.

STRUCTURAL SEALANT	
Assumptions under which the fitness of the product(s) for the intended use was favourably assessed	ANNEX 2 (3/3) of ETA-08/0286