SurABond®

ADHESIVE

1104-1

Excellent for optical components such as lens & filter systems, fiber optic components & microelectronic circuits

Product Information

Adhesive **SurABond® 1104-1**

*The **SurABond® 1104-1** adhesive is RoHS-compliant in accordance to the European directive 2011/65/EC. All ingredients are pre-registered according to REACH Regulation (EC) No. 1907/2006*

1. Introduction

This product information seeks to ensure the proper use of the **SurABond® 1104-1** adhesive and prevent eventual mistakes, which can lead to quality insufficiencies or adverse effects.

The properties of the SurABond® 1104-1 adhesive corresponds to the properties of the predecessor adhesive SurABond® 1104. The substitution of the hardening agent from a toxic to a non-toxic compound leads to a safer application.

SurABond® 1104-1 is a heat-curing two-component structural adhesive based on epoxy resins with very low water absorption suitable for metals, glass and ceramics.
The SurABond® 1104-1 adhesive is inorganically filled as well as additionally flexibilized. SurABond® 1104-1 is suitable for climate-, moisture- and chemical-stable, especially autoclavable bondings of optical components, *e.g.*, lenses and filter systems, fibre-optic components and micro-electronic circuits.

The SurABond® 1104-1 adhesive is well-suited for the autoclavable final sealing of endoscopes as well as chemical- and solvent-stable bondings on components in sensor and measurement technology.

SurABond® 1104-1 can be applied to avoid lateral light reflection.

Distinguished properties:

- **climate-stable** ✓
- **chemical-stable** ✓
- **autoclavable** ✓
- **vacuum-tight** ✓
- **low-shrinkage** ✓

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2. Performance Tests

Tensile shear strength test based on DIN 53283 standard – adhesive surface 20 mm²

The adhesion of SurABond® 1104-1 was tested by the determination of the tensile shear strength based on DIN 53283 standard. The jointing materials used were sandblasted stainless steel with a surface of 20 mm². The surface was pretreated with the SurASil® process and an appropriate adhesion promoter. The tensile shear strength of the bonded materials was measured without strain as well as after 20 hours boil-test.

The results (Figure 1) show a very high tensile shear strength of 35 N/mm² for stainless steel. The strain test (4 hours in boiling water) revealed a minor influence of the adhesion of SurABond® 1104 and the tensile shear strength decrease slightly by max. 3%.

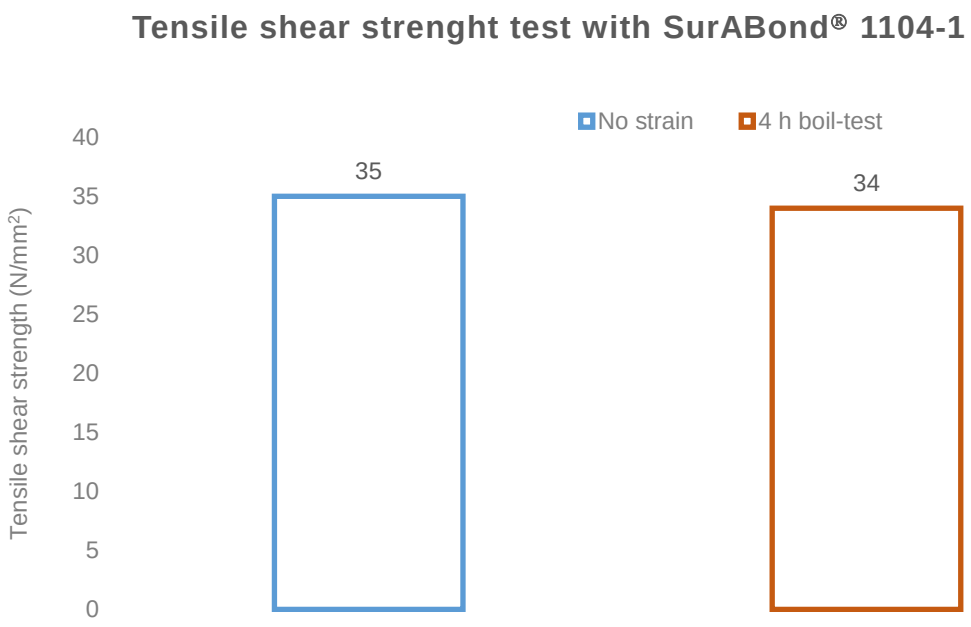

Figure 1: Tensile shear strength test using the SurABond® 1104-1 adhesive on stainless steel (adhesive surface 20 mm²)

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3. Surface Pretreatment

The surface to be adhering should be dry as well as free of dust and other impurities. We recommend acetone, ethyl acetate, chlorinated hydrocarbons or other cleaners established for optical components for the surface cleaning.

4. Processing

SurABond® 1104-1 is usable at room temperature after mixing its two components and a pre-reaction time of about 60 minutes. The two components have to be well stirred in the ratio of 1:0.23. The following mixture is recommended as minimum amount:

3.000 g resin
0.690 g hardening agent

SurABond® 1104-1 can be applied by brushing as well as by appropriate dispensing machines or screen printing.

5. Curing Conditions:

SurABond® 1104-1 has to be cured at room temperature for 4 hours and a subsequent curing at 90 °C for 2 hours or at 80 °C for 4 hours.

6. Additional Information

The adhesion of SurABond® 1104-1 on the appropriate substrates can be significantly enhanced by the application of adhesion-promoting surface silication (**SurASil® process**) and the **SurAChem® GE 141** adhesion promoter.

1. Surface silication: The activation of the surface is very advantageous to influence the adhesion of glues, coatings and printing media. The SurASil® process (Figure 2) offers a significant enhancement of the adhesion by the deposition of a reactive silicate layer. The very thin silicate layer arises by the combustion of a silane additive in a combustion-gas atmosphere. The SurASil® process is suitable for metals, glass, ceramics, plastics or composites.

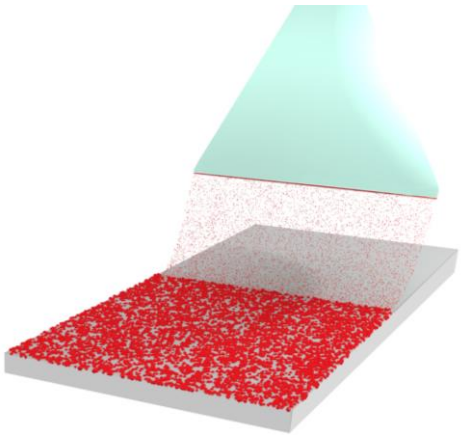

Figure 2: *Schematic representation of the SurASil® process*

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2. Adhesion promoters: The SurAChem® adhesion promoters (Figure 3) are liquid silane-based adhesion enhancing systems, developed especially to apply with the SurABond® adhesives and SurACer® coatings but also with other utilizing products. The SurAChem® adhesion promoters are appropriate for metals, glass, ceramics and, after appropriate activation, for plastic surfaces.

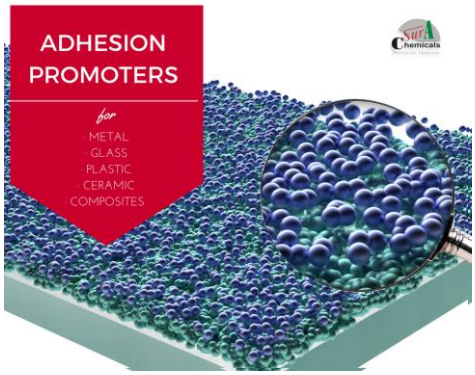

Figure 3: *Schematic representation of an adhesion promoter coating*

7. Delivery Form

SurABond® 1104-1 is available in bottles, starting from 30 g. The adhesive can be also provided in a white color as well as in different viscosities.

8. Storage

The SurABond® 1104-1 adhesive is in unopened condition and at +5 °C stable for 12 months after delivery.

9. Instructions to Occupational and Health Safety

Irritating to eyes and skin. May cause sensitization by skin contact. If on skin, wash immediately with plenty of water and mild soap.

The conversion of all reactive groups is complete after correct curing of the adhesive. Any type of contact is not harmful in that state.

10. Technical Data

Color	Black
Density DIN EN 542	1.22 g/cm^3
Water absorption DIN 53495	0.1%
Operational temperature range	-40 to +160 °C
Chemical resistance	Excellent to water and water vapor, chemicals and organic solvents

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Product Information

For eventual questions or doubts concerning your product, we encourage you to get in touch with SurA Chemicals GmbH.

The information and technical consultation given by SurA Chemicals GmbH, verbally or written, is based on the company´s best knowledge and shall only be considered as non-binding advice, also in respect of the protected rights of third parties. The company´s technical consultation does not release the customer from own examination concerning the suitability and usability of the company´s product. The manufacturer's liability extends solely to the value of the products supplied by SurA Chemicals GmbH and applied by the customer.

SurA Chemicals GmbH guarantees its products to be of perfect quality as stated in its general terms and conditions of sale and delivery.

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