

# HEGGEL EL 3312

Graphite-Filled Hard Rubber Lining

**Description:**

**HEGGEL EL 3312** is a graphite-filled NR/SBR hard rubber lining offering a thermally stable structure for superior corrosion protection against a very broad range of inorganic acids, alkalis and organic solvents.

**Characteristics:**

- Excellent chemical resistance against aggressive environments
- Good resistance in oxidizing media
- Good flexibility in a wide range of temperatures
- Thickness range between 3 and 6 mm (Depending on the requirements)

**Physical properties:**

Density	ASTM D297 1.22 g/cm <sup>3</sup>
Hardness	ASTM D2240 78 D ± 5
Tensile Strength	ASTM D2707 ≥ 20 MPa
Elongation at Break	ASTM D2707 ≥ 3 %
Compressive Strength	UNI 4279/72 67 MPa
Adhesion to Substrate	ASTM D429 ≥ 12 MPa
IZOD Impact test	ASTM D256 17.4 N (with cut) 6.5 N/mm (without cut)
Max. Operating Temperature	100°C

\*The values may differ on equipment linings due to the vulcanization conditions at factory.

**Storage condition:**

The products must be stored in a dark and dry place at a temperature of max. 25°C. The materials should not be exposed to freezing conditions, heat, flame, or spark. At the specified storage temperatures, a shelf life of the products is given of at least for the following periods:

Product	Temperature	Shelf Life
HEGGEL Bond 2211	20°C	12 Months
HEGGEL Bond 2231	20°C	12 Months
Cleaning Solution	20°C	24 Months
HEGGEL EL 3312 sheet	20°C	6 Months

Depending on storage conditions it may be possible to use rubber linings beyond the recommended shelf life however additional testing must be completed. Please contact HEGGEL for recommended test procedures. A sample of the rubber lining can also be sent back to HEGGEL for verification.

**Packaging:**

The adhesives are supplied in the following standard package sizes:

Product	Package Size
HEGGEL Bond 2211	20 kg
HEGGEL Bond 2231	20 kg
Cleaning Solution	20 kg

## 1. Surface Preparation

The substrate which is to be protected must meet the requirements of DIN EN14879-1, DIN 28051-97, DIN 28053-97 and NACE RP0178-95. Bonding to both steel and concrete is possible. Bonding to other metallic substrates (such as titanium, copper, etc.) can be achieved provided that it is consulted with our technical department. The metallic substrate must be blasted to achieve a minimum blast cleaning grade of SA 2½ with "medium" profile according to DIN EN ISO 12944-4, ISO 8501-1, ISO 8503-1,2-85 and SSPC SSPC-SP-5 (recommended minimum surface roughness Rz = 50 µm). It is advisable to apply the primer to the blasted surface as soon as possible, and definitely before any traces of rust can reform.

If bonding to concrete is required, the substrate needs to be free of cement skin, cement slurry, loose and friable parts, defective spots and detaching material. The concrete needs to be blasted. The concrete surface has to have a residual moisture content of < 4%.

## 2. Environmental Conditions

The substrate must be dry and warmed if necessary during application. Uncured material should be protected from moisture. Dew point distance must be at least 3 K.

5K dew point distance is highly recommended for ambient temperature lower than 10°C.

## 3. Consumption

HEGGEL Bond 2211 primer	150 g/m <sup>2</sup> per coat (1 coat)
HEGGEL Bond 2231	200 g/m <sup>2</sup> per coat (2 coats)
Cleaning Solution	150 g/m <sup>2</sup> per coat (1 coat)

The above value may change in the different work conditions.

## 4. Application

The rubber lining system **HEGGEL EL 3312** consists of one-component **HEGGEL Bond 2211**, **HEGGEL BOND 2231**, the Cleaning Solution and the **HEGGEL EL 3312** rubber sheet. On stainless steel or on gray cast iron, a single coat of **HEGGEL Bond 2211** primer is applied to the substrate, which is followed by two coats of **HEGGEL BOND 2231** bonding agent. The rubber sheets are washed with the cleaning solution and bonded to the substrate as specified in DIN 28055-1. For the installation, the rubber sheet must be pressed on in

accordance with DIN EN 14879-4 and DIN 28055/1-02. The rubber lining must be spark tested at 3Kv/mm in accordance with DIN 28055/2-02, NACE RP 0188-90. The substrate temperature needs to be 3°K higher than the temperature of the dew point and should not fall below this level during the entire procedure of lining application.

## 5. Safety

Ventilation must be provided during the execution of all work. Ventilation is compulsory for all work carried out in pits and closed rooms. All vapors that are produced during processing must be continuously suctioned off at floor or bottom level. Only such amount of material effectively required to continue work is to be stored at the working place. Please note and ensure that even smallest quantities of the individual components and/or prepared mixtures are not allowed to reach the sewerage. All regulations, local laws and international standard for the prevention of accidents stipulated by the employer's liability assurance association, have to be followed.

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All information contained herein is based on the current state of our knowledge and practical experience at the time of release. Therefore, please make sure that this is the actual edition of the Technical Data Sheet. All data are only intended as a guideline for informational purposes and do not constitute a legally-binding warranty of the suitability for a certain purpose of use, due to its dependence on site conditions and possible processing, use and applications. All information contained in this technical datasheet is subject to change without notice.

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