



You Build, We Protect!

HEGGEL® EL 3313

High Temperature Non-Vulcanized Soft Rubber Lining

Description:

HEGGEL EL 3313 is a black bromobutyl-based soft rubber lining for workshop applications and autoclave vulcanization. It can also be applied on-site and vulcanized using steam pressure. **HEGGEL EL 3313** is designed for superior resistance to mineral acids and bases at high-temperatures, while also offering excellent diffusion resistance against gases such as sulfur dioxide and nitric oxide. **The HEGGEL EL 3313** offers all the advantages of non-vulcanized rubber sheets, including seamless application on complex tank geometries and a tacky surface that ensures high adhesion strength.

Characteristics:

- Good resistance to a wide range of chemical, alkaline and acidic media especially at high temperatures
- Excellent resistance to oxidising media (i.e. sodium hypochlorite)
- Thickness range between 3 and 6 mm (Depending on the requirements)
- Good flexibility in a wide range of temperatures
- Easy application on complex tank geometries
- High adhesion strength

Chemical Resistance:

- Information on the chemical resistance is available on request.

Technical Data:

Title	Standard	Value
Steam Vulcanization	-	4h @ 140°C by steam pressure
Density	ASTM D297	1.26 g/cm ³
Abrasion Resistance	DIN 53516	≤ 160 mm ³
Adhesion to Substrate	ASTM D429/E	≥ 5 N/mm
Elongation at Break	ASTM D412	≥ 640%
Tear Strength	ASTM D624	≥ 48 N/mm
Modules at 200%	ASTM D412	≥ 2.5 MPa
Hardness	ASTM D2240	53 ± 5 Shore A
Tensile Strength	ASTM D412	≥ 9 MPa
Max. Operating Temperature	-	100°C

Note: These guidelines offer technical instructions, but real-case applications require common sense, professional judgment, and flexibility to achieve the best outcomes

Note: The values are derived from specimens produced under reproducible laboratory conditions. However, they may vary slightly in equipment linings due to the vulcanization conditions at the factory.

Packaging:

The products are supplied in the following standard package sizes:

Product	Size	Package
HEGGEL Bond 2211 Primer	20 kg	Can
HEGGEL Bond 2232	20 kg	Can
Cleaning Solution	20 kg	Can

Storage:

The products must be stored in a dark and dry place at a temperature of max. 25°C in accordance with DIN 7716. The materials should not be exposed to freezing conditions, heat, flame, or spark. Check expiration dates and dispose of outdated and contaminated products. 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 Primer	20°C	12 Months
HEGGEL Bond 2232	20°C	12 Months
Cleaning Solution	20°C	24 Months
HEGGEL EL 3313 Sheet	25°C	2 Months
HEGGEL EL 3313 Sheet	20°C	4 Months
HEGGEL EL 3313 Sheet	15°C	8 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.

1. Surface Preparation

The substrate which is to be protected must meet the requirements contained in DIN 28051-97, DIN 28053-97, 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 ISO 8501/1-95, ISO 8503/1/2-85 and SSPC SSPC-SP-5.

It is advisable to apply the primer to the blasted surface as soon as possible, and definitely before any traces of rust can reform.

2. Environmental Conditions

The substrate must be dry and warmed if necessary, during application. Uncured material should be protected from moisture (condensation, fog, precipitation or other water source). Temperature of the substrate must be 3° C above the dew point temperature and should not be allowed to drop below that point throughout the lining process. (5°C dew point distance is highly recommended for ambient temperature lower than 10°C.)

3. Consumption

Component	Consumption per Coat	Number of Coats
HEGGEL Bond 2211 Primer	150 g/m ²	1 coat
HEGGEL Bond 2232	250 g/m ²	2 coats
Cleaning Solution	150 g/m ²	1 coat

Note: The above value may change in the different work conditions.

4. Application

The adhesion cycle includes **HEGGEL Bond 2211 Primer, HEGGEL Bond 2232**, a cleaning solution and **HEGGEL EL 3313 Sheet**.

Apply one coat of **HEGGEL Bond 2211 Primer** to the blasted substrate, followed by two coats of **HEGGEL Bond 2232**. Do not apply **HEGGEL Bond 2232** on the rubber sheet. **HEGGEL Bond 2232** must be completely touch-dry with all solvent evaporated to ensure high adhesion strength. Apply the second coat at least two hours before placing the rubber sheet. The rubber sheet can be applied between 2 to 24 hours after the second coat.

Before application, the rubber sheet should be solvent-washed (typically 15 minutes prior) or treated with a 15% diluted coat. Apply the rubber sheet as per DIN 28055/1-02. The lining must undergo spark testing

according to DIN 28055/2-02 and NACE RP 0188-90 at 3 kV/mm.

5. Vulcanization

Vulcanization should be done in autoclave or by steam pressure. Details of vulcanization process will be provided by HEGGEL case by case.

6. Safety Measures

During the implementation of all work, ventilation must be ensured. Ventilation is mandatory for all work performed in pits and confined spaces. All the vapors generated during processing must be continuously exhausted at ground level or below. Only as much material as is necessary for the continuation of the work is to be stored at the work site. It must be observed and ensured that even the lowest quantities of each single component or the mixtures prepared shall not enter the sewage system. All local laws, regulations and international standards for accident prevention of the employer's liability insurance association need to be strictly adhered to.

The material safety data sheets of the individual components, the safety instructions on the packing (label) as well as the legal requirements for handling hazardous materials must be observed.

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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 latest 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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