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EBOLIT FA

TECHNICAL DATA SHEET **TL 149/2001**

Date of issue: 05.05.2003

Revision date: 28.01.2010

Product characteristics

EBOLIT FA is binder for chemically resistant cement based on furfurylalcohol resin, suitable for cementation of ceramics, concrete, masonry, wood, bakelite and for the preparation of chemically resistant linings and plastic-concretes.

Use

Resin **EBOLIT FA** is manufactured in a blend with powdered POWDER FILLER FA on a self-hardening cement (hereinafter referred to as FA) in a weight ratio 27 to 30 units of FA on 10 units of **EBOLIT FA**.

Ready-made cements are dense, pasty masses, suitable as levelling cements for sealing of chemical linings and floorings made up from acid-resistant or electro-graphite bricks and clinkers. The cementing can be performed by the usual technique identical to common phenolic AB type cements. It is further possible to use it for levelling of out-of-flatness and cracks in concrete and masonry prior to painting, for cementing of sololite, layered phenolic masses and faolit. It is also possible to use them for cementing of facings from these materials. It is also possible to use them for coatings, plastic-concretes and as casting mass.

Product features

Brownish-black fluid of characteristic smell. **EBOLIT FA** is possible to harden by a normal temperature +15 až + 20 °C to chemically resistant cements. More details about chemical resistance are stated in the leaflet „Chemically resistant cements for linings and facing. The heat resistance of the hardened cements method according to Vicate 220 to 250 °C

EBOLIT FA must comply to these quality signs:

| Quality sign | Value | Methodology of setting |
|------------------------|-----------|------------------------|
| Consistency 20 °C in s | 80 to 150 | ČSN EN ISO 2431 |

Cement adhesion to surfaces, firmness of connections

Cement FA shows good adhesiveness to ceramics, bakelite, masonry, wood, asbestos, mature concrete and hardened polyester, epoxy, furan and phenolic resins. Firmness of the cemented connections in slide is usually higher than the firmness of the original materials after perfect hardening of the sealant by concrete, ceramics and masonry. By cementing of wood and bakelite the firmness of the cemented connections in slide is approx. 3,5 to 6,0 MPa. Cement FA cannot be used for connecting of metals, on which it does not cling.

| <i>Physical characteristics of the hardened sealant by 20 °C</i> | |
|---|-------------|
| Firmness in pressure (MPa) | min. 60 |
| Firmness in tension (MPa) | min. 5 |
| Heat resistance (dry heat) | to 150 °C |
| Contraction by hardening (%) | approx. 0,1 |

The hardened sealant is resistant to water, strong alkalis, non-oxidative acids also organic, further to aliphatic and cyclic hydrocarbons and alcohol. It resents oxidative substances and acids, esters, ketones, aromatic and chlorinated hydrocarbons, phenols and pyridine.

Sealant FA consists of these components:

1. Resin EBOLIT FA

2. Hardening FA

For hardening of **EBOLIT FA** resin is used hardening agent FA in ratio 27 to 30 weight units of powdered filler and 10 weight units of **EBOLIT FA**.

EBOLIT FA must comply with these quality signs:

| Quality sign | Value | Methodology of setting |
|--------------------------|--------------|------------------------|
| Consistency at 20 °C (s) | 80 up to 150 | ČSN EN ISO 2431 |

Product manufacturing

Use of sealant FA as lining cement:

Into the filler backfill the resin backfill is mixed. The originated sealant paste is manufactured immediately. As many quantity of sealant is mixed as it is possible to process within the workability time but no more than 3 kg. There is a need to process the sealant until 1,5 hour at 20 °C. If the processing time is longer product stiffens.

In higher temperature, viscosity goes down. To achieve the usual density it is possible to add more filler into the fluid. This enables higher permeation of catalyst. This will fasten the stiffening process which may go through swiftly and in higher temperature. Therefore it is necessary to keep the prescribed temperature and do not mix big quantities of sealant at once because hardening process is a strongly exothermic reaction. In lower temperature it is contrariwise. Up to 5 °C the hardening process stops. No water shan't be added as it deteriorates significantly both chemical and physical characteristics. Sealant mixing is performed predominantly in polyethylene tubs that are easily washable from the rests of sealant impurities. The hardening of mixed sealant will go through within 10 to 12 hours into a rubberlike state and within 24 hours at 20 °C to a solid state. Sealant gains full firmness in the connections approximately after 10 days.

Use of cast sealant

Mixed liquid sealant can be used for pouring into seams and cracks in the concrete or among the tiles in the floor linings.

Consumption of EBOLIT FA resin for the preparation of 1 m² of flooring

| | |
|-------------|--------|
| By grouting | 1,2 kg |
| For paving | 6 kg |
| For bricks | 8 kg |

Notes to sealant FA application:

If needed, increase the sealant resistibility against the aromatic hydrocarbons (benzene, ethyl acetate, tetrachloroethylene, trichloroethylene, carbon disulphide) or ketones. Desired resistibility may be achieved with mixing up resin **EBOLIT FA** with approx. 20 % of powdered soluble paraformaldehyde. Yet, it is necessary to take fact into account that the workability time is shortened up to approx. one quarter of time, because of paraformaldehyde reacting with resin during the hardening process that functions as an accelerator. Further disadvantage is increased absorbability in water. The cemented linings from **EBOLIT FA** must not be exposed to corrosive environment until they are perfectly hardened.

Chemical resistibility of hardened sealant FA:

Hardened EBOLIT FA resists to both strong non-oxidative acids and organic, e.g.:

- 85 % phosphoric acid
- 60 % sulphuric acid
- 33 % hydrochloric acid
- Concentrated acetic acid
- Concentrated formic and oleic acid
- Aliphatic and cyclic hydrocarbons, alcohols (petrol, hexan, cyclohexanol, higher fatty alcohols
- Mineral oils, oil), water.

- Strong alkalis (20 to 50 % sodium, potassium, calcium hydroxide).

Not resistant to

- Oxidative substances and acids such as nitric acid, chromic acid, hydrogen peroxide, hypochlorites where only partial resistibility occurs. Phenolfurane sealant FF, made up from EBOLIT FF and POWDER FILLER FF is much better for the resistibility.

Not resistant to

- Aromatic, chlorinated hydrocarbons, esters and ketones, in which it swells. Apart from that is faster disrupted by carbon disulphide, phenols, pyridine bases and aniline. In these cases the use of cement FAL, made up from EBOLIT FAL and POWDER FILLER FAL is suitable.

Hardened **EBOLIT FA** is further disrupted and **does not withstand** concentrated sulphuric acid over 80 %, oleum and chlorosulphonic acid.

In every case and especially by more complicated chemical preparations, we recommend performing lab tests on samples of hardened sealant in given environment just prior to the application of sealant FA.

Packing and storage

EBOLIT FA is delivered in metal barrels at a volume of 200 litres or in other containers that have been discussed in advance. It is stored in closed containers at the places protected from direct climatic influences. The recommended storage temperature is within +5 to +30 °C. It must not be stored at the sun-shine not even close to any heat sources. Storage by temperatures below 0 °C does not have any negative influence on the application characteristics of the product.

Transport

EBOLIT FA is transported by covered vehicles. It is not subject to ADR/RID regulations.

Warranty

If the product is transported and stored according to the above mentioned conditions, the warranty is 6 months from the date of stock-out.

Note

Data about the product characteristics and its manufacturing were acquired by laboratory measurements and application tests. This technical sheet can only give a legal advice without any obligation. The manufacturing of the product must be adjusted to the specific conditions.