

BETOLIT ML



SYNTHETIC RESIN BASED MATERIALS

BETOSAN

A set of low-viscosity epoxy resin and quartz fillers intended for manufacturing polymer-concrete grout compositions

1. Product characteristics

BETOLIT ML is a set intended for grouting of bridge bearings and expansion joints. It is a specially formulated mixture of low-viscosity epoxy resin and quartz filler with optimized grain-size composition. This self-levelling composition was developed especially for grouting of bridge bearings and expansion joints and refilling of missing material between them and the stressed adjoining layers in the so-called transition zone. It can be as well used as a polymer-concrete in other applications, wherever polymer-concrete should have high density, small volumetric changes and excellent mechanical properties with optimal workability. It can be used for grouting of railing bases, anchoring in various applications, filling joints in the chemical and food industry, agriculture or small levelling layers. The set consists of two standard products - the **BETOLIT EP 0-1 DC** epoxy resins and **BETOFIL FH DSH** quartz filler.

- supplied in a specified ratio of each component; no measuring in-situ required
- shows perfect mechanical properties after hardening
- epoxy resin has low viscosity
- after hardening is permanently resistant to effects of aggressive acidic and alkaline medias, oils, oil products, etc.
- the set is approved by České dráhy a.s. – for protection of buildings against the effects of stray currents, as it meets the required values of resistivity (documented in a protocol by the Electro-technical Testing Institute, Prague).

2. Use

BETOLIT EP 0-1 DC is an epoxy composition on the basis of specially formulated epoxy resin, which is used for a number of applications in building industry. Except for the above mentioned grouting of bridge bearings, expansion joints, steel structures etc., it can be used for manufacturing of highly mechanically and chemically resistant floor finishes, such as adhesive bridges under spreads and film coatings made of epoxy polymer-mortars and concrete, and more.

BETOFIL FH DSH filler is, for the optimized grain-size curve, consisting of heat-dried and accurately sized quartz sands and fine quartz fillers. **BETOFIL FH DSH** filler is non-toxic, non-flammable and chemically resistant against regular epoxy resins. Rounded shape of the larger grains of the **BETOFIL FH DSH** filler ensures easy mixing, fine particles prevent sedimentation and segregation even at lower level of filling of resin compositions.

3. Physical and mechanical parameters

BETOLIT ML - Physical and mechanical parameters

hardened composition	
Colour	nonstandard brown
Flexural strength (MPa)	> 35
Compressive strength (MPa)	> 50
Pull-off strength (MPa)	> 3,0
Compressive modulus of elasticity (GPa)	7,0 – 8,0
Coefficient of thermal expansion (K ⁻¹)	6,08 x 10 ⁻⁵

Parameters of individual components

BETOLIT EP 0-1 DC - Requirements / results according to EN 13813

Properties	Declared value or class
Reaction to fire	F
Abrasion resistance according to BCA	AR 0.5
Adhesion	B2.0
Impact resistance	IR min. 10 Nm
Compressive strength	C50
Tensile bending strength	F30



BETOLIT EP 0-1 DC - Physical and mechanical parameters

non-hardened composition

Colour of composition	clear
Density (kg/m ³)	1 135 ± 25
Viscosity at 25 °C (mPa.s)	980 ± 100

hardened composition

Tensile bending strength (MPa)	40
Elongation (%)	4
Impact strength (kJm ⁻²)	34

BETOFIL FH DSH - Physical and mechanical parameters

Grain size	0.01 – 4.00 mm	
Composition	Quartz (SiO ₂)	> 96 %
Colour	non-standard natural white	

4. Test certificates

Meets the requirements of EN 13813.

The product is certified according to Act no. 22/1997 Coll. and the Regulation (EU) no. 305/2011 (CPR).

Continuous independent control of production quality ensures the AZL 1687 LABBET®.

Supervision of the quality management system, relation to the environment system and occupational health and safety system performs the certification body no. 3029.

Protocol No.303755-01/01 Electro-technical Testing Institute, Prague.

5. Instruction for preparation and application

Working with the **BETOLIT ML** set should be in accordance with both data sheets of the each component - **BETOLIT EP 0-1 DC** epoxy resin and **BETOFIL FH DSH** quartz filler, and also the specific technological processes of BETOSAN s.r.o. company.(see below).

BETOLIT EP 0-1 DC epoxy resin is prepared by proper mixing of components A and B in specified ratio. The mixing ratio is the following:

BETOLIT EP 0-1 DC	component A (weight parts)	component B (weight parts)
	2	1

Components A and B shall be well mixed in a vessel of sufficient size by an electric driven slow speed propeller agitator.

BETOFIL FH DSH quartz filler is then mixed into already homogenized resin in the specified ratio. The mixing ratio is the following:

BETOLIT ML	BETOLIT EP 0-1 DC (weight parts)	BETOFIL FH DSH (weight parts)
	9	41

During the application must be material and substrate temperature between +5 °C an +40 °C.

Workability of the composition is **maximum of 25 minutes** at 20°C and 80% Rh. (from mixing of the components A and B of the epoxy resin). The workability time shortens at higher temperatures and with higher volume of material being mixed at one time. At hot climate applications a thixotropic agent may be added in an amount up to 5% per weight of epoxy resin. Compatible thixotropic agent is Cab-O-Sil M5 or Aerosil 200 or similar. The addition of thixotropic agent do not alter the mechanical properties of **BETOLIT ML**. High temperature might shorten the workability time, therefore smaller batch quantities should be mixed.

In cases of large castings, the product must be applied in more than one layers, ensuring that each previous layer is hardened but still tacky (not fully cured) before the application of any subsequent. The maximum thickness of each layer must be 40-50 mm.

For transition zones of bridge expansion joints the top layer will have a thickness of 10-20 mm, while the quartz filler used (BETOFIL FH DSH) must be increased by 10% to 50% compared to standard mixing ratio for enhanced antiskid properties.

The hardened composition may be subjected to a traffic load (e.g. expansion joints can be used by vehicles operation) in 7 hours at 10°C, in 5 hours at 20 °C and in 3 hours at 30 °C.

6. Packing and storage

BETOLIT EP 0-1 DC component A is supplied in cans of 6 kg, component B is supplied in cans of 3 kg. The shelf life of the product in original undamaged packing is 24 months. During storing and transportation take into account that it's a flammable material of a IV. Class.





BETOFIL FH DSH is supplied in PE lined PAP bags of 41 kg. The shelf life of the product in original undamaged packing is unlimited.

7. Health protection at work

Work with a two-component system **BETOLIT EP 0-1 DC** requires adequate sanitary measures usual for work with materials on the epoxy basis. First of all it is necessary to follow relevant provisions of Czech Standard ČSN 65 0201. The workplace shall be properly ventilated, workers shall have adequate personal protective equipment, and no eating, drinking or smoking is allowed while working.

In case of eye contamination it is necessary to rinse out eyes with clean water and immediately seek out medical aid. In case of accidental swallowing it is necessary to immediately cause vomiting and immediately seek out medical aid. In case of afflicted skin it is necessary to wash thoroughly the irritated skin with warm water and soap and treat it by a suitable reparative cream.

BETOLIT EP 0-1 DC is a flammable material of the IV. Class.

Issued MSDS meets the requirements of EC-Regulation 1907/2006, Article 31.

Because the product meets the criteria for classification as hazardous, it is necessary to provide the recipient or carriers with MSDS.

In countries where regulation REACH (par. 33.1): EU regulation on chemicals and their safe use (REACH: EC 1907/2006) is valid, professional users and distributors must be provided with following information automatically and without request:

This product is subject to Regulation (EC) no. 1907/2006 (REACH). It does not contain any substances that could be released from product under normal or reasonably foreseeable conditions of use. Therefore, there are no registration requirements for substances in articles within the meaning of Article 7.1 of the Regulation.

Based on our current knowledge, this product does not contain SVHC (substances of very high concern) from candidate list published by the European Chemicals Agency in concentrations above 0.1% (w / w).


8. Waste disposal

During disposal of contaminated packages or clearing debris from product, it is necessary to follow the Act No. 185/2001 Coll. on waste, as amended.

9. Important notice

All information mentioned above, especially advice for processing and application of our products, is based on our knowledge from the development of chemical products and on years of experience with applications in practice at standard conditions, and proper storage and use. Due to the differing conditions during processing, high count of products, varying nature and modifications of base and other external influences, the procedure based on the information provided or on other written or oral recommendations, may not always ensure satisfactory working results. BETOSAN s.r.o. assumes no liability for provided advice or recommendation. The applicator must prove that he submitted complete information on time and in writing which is necessary for a proper detailed assessment by BETOSAN s.r.o. The applicator must test the suitability of the products for the intended application. Proprietary rights of third parties, above all, must be taken into account. All received orders are subject to our current "General sales and delivery conditions". Please always make sure that you follow the most recent issue of the Technical Data Sheet. It is available, along with other information, at our Technical Department or at www.betosan.cz.

10. CE marking

 1301	
BETOSAN s.r.o. Na Dolinách 28, 147 00 Prague 4	
07	
7-30/072013	
EN 13813:2004 SR-C50-F30-B2-AR0,5-IR10	
BETOLIT ML Resin screed	
Reaction to fire	F
Abrasion resistance according to BCA	AR 0.5
Adhesion	B2.0
Impact resistance	IR min. 10 Nm
Compressive strength	C50
Tensile bending strength	F30

Technical Data Sheet No. 7-30
 Issued 1.1.2019



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