

BETEC[®] 801, 804, 808, 816

Cementitious, rapid grouting material with micro-particles

Product Description

The BETEC[®] series “800” are cementitious, rapid grouting materials with high early strength qualities, they are non-shrinking and show a controllable increase of volume. The BETEC[®] rapid grouting materials series “800” are used for statically as well as for dynamically highly-stressed compound units. They are free from chlorides, high-alumina cements and resistant to frost and gridding materials. Due to the addition of micro-particles they achieve a very dense and homogenous mortar matrix. Already after 2 hours compression strength values can be reached which exceed those of a comparable B 25 (see technical data). At lower temperatures of the surroundings or the pre-fabricated compound units, the respective freshly-mixed-mortar temperature necessary for the hardening phase can be positively influenced by the temperature of the mixing water. A respective freshly-mixed-mortar temperature of 20 °C is desirable. A mixing-water temperature of up to 50 °C makes using this material at temperatures around the freezing point possible. Extremely low fade-values minimize the risk of crack-formation on the surface. Depending on the respective thickness of grout, the following grain sizes are available (the leading thickness of grout is the smallest distance of two areas):

BETEC[®] 801	grain size 0-1 mm
	thickness of grout 5-30 mm
BETEC[®] 804	grain size 0-4 mm
	thickness of grout 20-120 mm
BETEC[®] 808	grain size 0-8 mm
	thickness of grout 30-160 mm
BETEC[®] 816	grain size 0-16 mm
	thickness of grout >60 mm

Fields of Application

The BETEC[®] rapid grouting materials are used in the field of constructive civil engineering for the undergrouting and grouting of compound units where ever extraordinary high early strength qualities are required. The main fields of application are as follows:

- grouting of bridge bearings in case of bridge translations
- rapid grouting in case of short off-periods
- grouting of machines (load-bearing) for a short term
- rapid grouting of underpinning constructions

- rapid grouting for the assembly of prefabricated compound units
- rapid anchor grouting
- rapid grouting at low temperatures

Technical Data

ALL VALUES AT 20 °C		GROUTING MORTAR		GROUTING CONCRETE	
		BETEC® 801	BETEC® 804	BETEC® 808	BETEC® 816
Grain size	[mm]	0-1	0-4	0-8	0-16
Grouting / installation thickness ¹	[mm]	5-30	20-120	30-160	>60
Density of freshly-mixed mortar	[kg/dm ³]	approx. 2,3	approx. 2,3	approx. 2,3	approx. 2,4
Consistency	--	soft flowable	soft flowable	soft flowable	soft flowable
Processing time (20 °C) ² (depending on temperature)	[min]	approx. 10 if possible apply immediately		approx. 10 if possible apply immediately	
Processing temperature min./max. (temp. precast element)	[°C]	+5 / +30	+5 / +30	+5 / +30	+5 / +30
Min./max. water quantity ³ at +20 °C	[1/25 kg]	3,3	3,2	2,6	2,1
Calculation quantity	[kg/m ³]	2,050	2,050	2,060	2,100
Bending-tensile strength ⁴	[N/mm ²]	after 2 h 3,0	after 2 h 3,5	--	--
		after 4 h 4,0	after 4 h 4,0	--	--
Each value refers to prisms of 4x4x16 cm		after 24 h 5,0	after 24 h 5,0	--	--
		after 7 d 6,5	after 7 d 6,0	--	--
		after 28 d 9,0	after 28 d 7,0	--	--
		after 90 d 13,0	after 90 d 9,0	--	--

Compressive strength ⁴	[N/mm ²]	after 2 h	18	20	20	20
		after 4 h	25	25	25	25
Each value refers to prisms of 4x4x16 cm		after 24 h	35	30	30	35
		after 7 d	55	45	50	55
		after 28 d	80	75	80	80
		after 90 d	95	95	95	90

1. According to geometry and grouting-thickness the reinforcement has to be arranged.
2. Low temperatures reduce the flowability and delay the processing time, high temperatures accelerate the strength development and reduce the processing time.
3. drinking water quality
4. Storage of samples according to DIN EN 196 T. 1, the strength values are average supervisions results of our manufacturing plant.

Specifications for Using

The BETEC[®] grouting materials are mixed in an adequate forced mixer. Alternatively drilling machines with single- or double-beater can be used; however it has to be followed that herewith the beater must be completely dipped into the powder material (for example a good mixing result is achieved when a 25 kg pail is used for a powder quantity of 25 kg). A lump-free, homogeneous mixture is achieved by adding 4/5 of the required quantity of water into the mixer. After adding the respectively necessary quantity of powder and having mixed for two minutes, the remaining quantity of water has to be added. (Attention: according to desired consistence add 10% less water quantity than maximum value.) The mixing-time depends on the mixer; however, 4 minutes can be considered the minimum.

The thus mixed and homogeneously stirred material of the BETEC[®] grouting material is poured into the respective cavity. The undergrouting regularly is effected by means of a previously constructed sheeting which has to be tight and not sucking. If the respective cavity is not quadratic, the BETEC[®] rapid grouting mortar has to be poured in continuously through the longer side. Due to the good flowability, any further rodding will not be necessary. A non-porous grouting is achieved by a sufficient number of extract ventilation holes or slots, provided during the construction. After being used, the tools must thoroughly be cleaned with water.

Preparation of the Foundation

The mineral concrete foundation has to be removed from any dirt, grease, and all particles or layers which could weaken the bonding strength until the core concrete is exposed. The prepared foundation has to be sufficiently non-slippery for the bonding layer, the capillaries must be open. The pre-watering of the concrete surface has to be executed until it is saturated, however at least 4 hours. Apply when the foundation surface of the concrete appears only a little wet; any stagnant water caused by the pre-watering of the concrete foundation has to be removed. The surface of the concrete foundation has to be frost-free. The tensile strength of the concrete foundation surface must be on the average 1,5 N/mm².

After-Treatment

The required after-treatment of the free grouting flanks is effected within the first 6 hours, as follows: protect the mortar surface against humidity by covering with plastic foils and protect against sun, draught and freeze. Later the mortar surface has to be hold humid. Alternatively a curing material can be used. The after-treatment should last at least 5 days. It should take place as soon as possible, however, at the latest when the mortar surface starts to become rigid. In each case the lateral grouting overhang should be hold as small as possible (approx. 20-50 mm). As an alternative to the traditional after-treatment methods, it is possible to use a protection material against evaporation.

Important Indication

The BETEC® grouting materials correspond to the specifications and requirements of the German DAfStb-Guideline: "Manufacturing and Application of cementitious grouting concrete/mortar" (06/06).

Indication

Cementitious construction materials may lead, under certain conditions in connection with non-metallic-irons (e.g. aluminium, copper, zinc), to incompatibilities.

Size of Delivery

Units of 25 kg

Storage

To be stored in dry, frost-free locations, in original sealed units. Shelf-life 6 months. **GISCODE ZP1.**



BETEC GCP Applied Technologies
BETEC® Mortar Systems, ESSEN gcp applied technologies

EC-Declaration of conformity

The manufacturer GRACE Bauprodukte GmbH
BETEC® Mortar Systems
Pymontor Straße 56
D-32676 Lügde

Declares according to § 9 Construction Product Law (Conversion of the EC-Construction Product Standard 89/106/EWG), that the product:
„ BETEC® 801“

manufactured at site: Plant Essen
Alte Bottroper Straße 64
D-45356 Essen

is confirm with the regulations of EN 1504-6 and fulfils the conditions for the CE-brand according to enclosure ZA.1a of EN 1504-6. For the evaluation of the conformity the procedure stated in calculation ZA.3a were performed.

For certification of the factory production control the notified body

QUALITÄTSGEMEINSCHAFT DEUTSCHE BAUCHEMIE^{EV}
Mainzer Landstraße 55
D-60329 Frankfurt am Main
(identification no. 0921)

was contacted. The following certificate of the factory production control with the registered no.: **0921-BPR-2065**

has been issued on 6. May 2009.

Essen, 26. June 2009

I.V. Jörg Brandt Plant Manager I.A. Sonja Schmidt QC Responsible

ENCLOSURES Technical data sheet Certificate of the factory production control

CE	
0921	
GCP Applied Technologies BETEC® Mortar Systems Pymontor Straße 56 D-32676 Lügde	
Plant Essen	
Year : see production date	
0921 - BPR-2065	
EN 1504-6	
Anchoring Product	
Pull-out :	≤ 0,6 mm
Chloride ion content:	≤ 0,05 %
Glass transition temperature :	KLF / NPD
Reaction to fire:	Class A 1
Durability / Creep under tensile load: (only for products containing polymers)	KLF / NPD
Dangerous substances:	Conform to EN 1504-6, 5.3

KLF / NPD : „Keine Leistung festgestellt“ / „No Performance determined“

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EC-Declaration of conformity

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BETEC® Mortar Systems
Pymontor Straße 56
D-32676 Lügde

Declares according to § 9 Construction Product Law (Conversion of the EC-Construction Product Standard 89/106/EWG), that the product:
„ BETEC® 804“

manufactured at site: Plant Essen
Alte Bottroper Straße 64
D-45356 Essen

is confirm with the regulations of EN 1504-6 and fulfils the conditions for the CE-brand according to enclosure ZA.1a of EN 1504-6. For the evaluation of the conformity the procedure stated in calculation ZA.3a were performed.

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Dangerous substances:	Conform to EN 1504-6, 5.3

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BETEC® Mortar Systems, ESSEN gcp applied technologies

EC-Declaration of conformity

The manufacturer GRACE Bauprodukte GmbH
BETEC® Mortar Systems
Pymontor Straße 56
D-32676 Lügde

Declares according to § 9 Construction Product Law (Conversion of the EC-Construction Product Standard 89/106/EWG), that the product:
„ BETEC® 808“

manufactured at site: Plant Essen
Alte Bottroper Straße 64
D-45356 Essen

is confirm with the regulations of EN 1504-6 and fulfils the conditions for the CE-brand according to Annex ZA, Table ZA.1a of EN 1504-6. For the evaluation of the conformity the procedure stated in Annex ZA, table ZA.3a were performed.

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