MONOCRETE PPE

CE

Rehabilitation mortar for repairs of reinforced concrete constructions

1. Product characteristics

One-component plasticized dry mortar mix containing re-dispersible polymers. Meets the requirements of class R3 according to EN 1504-3.

- designed for concrete repair (principle 3, 4 and 7 method 3.1, 3.2, 3.3, 4.4, 7.1 and 7.2 according to EN 1504-3)
- mixed with water only
- good spreadability, it is liquefied
- good mechanical properties, it has a perfect adhesion to concrete base and reinforcement
- permanently water-resistant and frost-resistant
- applied by coating
- compensated in volume

2. Use

MONOCRETE PPE is a one-component dry mortar mix intended especially for repairs of damaged concrete and reinforced concrete horizontal surfaces and floors. (Principle 3, method 3.1 and 4.4 according to EN 1504-3). **MONOCRETE PPE** mortar can be coated either with directly applicable type of secondary protection in dependence on exposure of the repaired structure or can be further surfaced by the worked up abrasion resistant **DENSOTOP** shake-ins.

3. Physical and mechanical parameters

Requirements/results according to EN 1504-3 class R3

	Testing method	Requirements	Results
Compressive strength (MPa)	EN 12190	> 25	R3
Chloride Ion Content	EN 1015-7	< 0.05 %	< 0.01 %
Adhesive Bond (MPa)	EN 1542	> 1.5	> 2.0
Carbonation Resistance	EN 13295	d_k ≤ control concrete	complies
Bound contraction-expansion (MPa)	EN 12617-4	Adhesion after test ≥ 1.5	≥ 1.5
Elastic Modulus (GPa)	EN 13412	≥ 15	≥ 15
Thermal expansion coefficient (K^{-1})	EN 1770	-	$12.3 \pm 0.4 \times 10^{-6}$

Physical and mechanical parameters

MONOCRETE PPE		**f**	**r**	**c**
Color		Non-standard grey		
Bulk density (kg/m^3)		1 560 ± 40		
Bulk density of fresh mortar (kg/m^3)		2 230 ± 50		
Grain size (mm)		0 ÷ 1	0 ÷ 4	0 ÷ 8
Tensile bending strength (MPa)	7 days 28 days	> 4,0 > 7,5	> 4,5 > 8,0	> 4,8 > 9,0
Compressive strength (MPa)	7 days 28 days	> 20 > 38	> 23 > 44	> 25 > 48
Dynamic E-module (GPa)		< 30	< 32	< 35
Frost resistance		> T150		
De-icing chemicals resistance according to ČSN 73 1326 Method A		D1 > 75		

4. Test certificates

Meets the requirements of EN 1504-3, TP ŘSD Sec. 31 and TP SSBK III.
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 quality management system, relation to the environment system and occupational health and safety system performs the certification body no. 3029.

5. Instruction for preparation and application

During the processing of dry mortar mixes **MONOCRETE PPE** it is generally necessary to comply with the principles contained in the relevant technological process **BETOSAN** for repair of reinforced concrete structures (TP No.1/06).

Base. Any incoherent, loose, weatherworn or otherwise visibly damaged concrete shall be completely removed from the surface of the repaired base. Corroded reinforcement shall be carefully re-leased and cleaned of any corrosive products before application of repair material, humidification of the base surface shall be properly and continually performed for at least 120 minutes. The properly humidified concrete shall be dully dump, and not covered with dump shining water film. If necessary, it is possible to anchor the material to the base with the adhesive bridge **111 DENSOCRETE.**

Preparation of repair mortar. The mortar is prepared by simple mixing with water. During stirring it is necessary to use a low-speed mixer with forced circulation. The recommended mixing ratio is specified in the following table:

Indication/type of mortar	max. size of fillers	Recommended mixing ratio		Thickness of applied layer in single working area	
		Dry component (kg)	water (liters)	min. (mm)	max. (mm)
MONOCRETE PPE f fine	1 mm	25	3.40 ÷ 3.55	5	12
MONOCRETE PPE r medium	4 mm	25	3.35 ÷ 3.50	10	25
MONOCRETE PPE c coarse	8 mm	25	3.25 ÷ 3.35	20	40

The recommended batch of water can be adjusted to reach optimum workability. Adding 10% less water under the minimum limit leads only to slight reduction of spreadability, which is not a problem in most cases and it provides increased strength and greatly reduces the potential for cracking. If added water exceeds the recommended quantity by 10%, risk of cracking is significantly enhanced. It can also lead to drop of mechanical properties.

Workability of the product is 50 - 60 minutes under 20 °C.

Neither temperature of base nor temperature of ambient air shall be below + 5 °C and above + 30 °C.

Application of **MONOCRETE PPE** mortar can be done either mechanically or by manual coating. Mortar is applied in layers that should not be thicker that the maximum thickness indicated in the table. Surface finalization is done with a vibration bar in combination with mechanical or manual smoothening. No additional water must be used on the surface during the finishing process.

Surface treatment. Repaired surfaces shall be properly treated **immediately** after completion to avoid especially direct exposure to sun, wind effect and other factors accelerating undesirable evaporation of the batch water. Use of the treatment agents **DENSOCURE W** and **DENSOCURE R** proved well.

Continuously moistened geotextiles should be used as a cover as soon as allowed by the setting process.

6. Specific consumption

Specific consumption of dry mortar is 1.8 ÷ 1.9 kg/m^2 at 1 mm of layer thickness.

7. Packing and storage

The product is packed into 25 kg PE-lined paper bags. **MONOCRETE PPE** must be efficiently protected during transportation and storage against moisture. Shelf life in undamaged packing is 6 months.

After the expiration of min. shelf life, which is stated on the packaging, ingredients are not fully effective at reducing chromium VI below 2 ppm.

8. Health protection at work

Handling the **MONOCRETE PPE** dry rehabilitation mortar does not require any extraordinary hygienic precautions. The product contains alkalis and therefore any contamination of mainly eyes or mucous membrane must be prevented. Health and labour safety rules applicable to work with cement or lime mortars are to be adhered to.

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 (sec. 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).

9. 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.

10. 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 are orders 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

11. CE marking

CE 1301
BETOSAN s.r.o. Na Dolinách 28, 147 00 Prague 4
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2-3/072013
EN 1504-3:2005
MONOCRETE PPE Structural repair product for concrete

Compressive strength	class R3
Chloride Ion Content	< 0.01%
Adhesive Bond	> 2.0 MPa
Bound contraction expansion	≥ 1.5 MPa
Carbonation Resistance	complies
Elastic Modulus	≥ 15 GPa
Thermal expansion coefficient	$12.3 \pm 0.4 \times 10^{-6}\ K^{-1}$
Dangerous substances	meets 5.4
Reaction to fire	Europe class A1

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BETOSAN s.r.o., Na Dolinách 28, 147 00 Praha, Czech Republic
Bussiness and technical office Nová cesta 291/40, 140 00 Prague 4, Czech Republic
Tel./fax.:+420 241 431 212, tel.:+420 241 431 215
E-mail: praha@betosan.cz, www.betosan.cz