BS 398

FIBRE REINFORCED TWO-COMPONENTS or THREE-COMPONENTS MICRO CONCRETE FOR THE REPAIR OF CONCRETE SLABS OR PRODUCTION OF CONCRETE ELEMENTS

CE approved – Certificato n. 1305 - CPD - 0808

***Bicomponent* EN 1504-3 Class R3**
***Tricomponent* EN 1504-3 Class R4**

R3 EN 1504-3 NORMA EUROPEA bicomponent

R4 EN 1504-3 NORMA EUROPEA tricomponent

Description and packaging

BS 398 is a 2 or 3 components pre-mixed micro concrete, modified with special additives to reduce shrinkage in the plastic and hydraulic phase, and micro fibres. The liquid component is composed out of special acrylic polymers in emulsion.
The product is available in 2 versions : **BS 398 bicomponent** and **BS 398 tricomponent**
The product is also available in the version **BS 398 MuCis®**, with addition of MuCis®, Migrating Corrosion Inhibitors, for applications of steel reinforced concrete.
On request for very high resistance to sulphate aggressions, the product can be also formulated with special binders with resistance to sulphates: **BS 398/RS**. The physical-mechanical characteristics remain unchanged.

Advantages and characteristics

The thickness of the cover can be reduced compared to other micro-concretes. High deformation energy.
Optimal resistance to frost/thaw cycling, even in presence of salts.
Barrier against CO2 penetration
Barrier against penetration of deicing salts
Good permeability to water vapour
Very high adhesion to the substrate, exceptional physical-mechanical strengths and particularly low elasticity modulus, allow exceptional resistance to static and dynamic movements and vibrations.
The version **BS 398 MuCis®** offers excellent protection against the corrosion of the reinforcement.

Fields of use

For reconstruction, repair or construction of industrial structures, parking areas, loading docks, motorway boards, and other general concrete repair work, especially in heavy solicited areas. A typical application is the renewal of concrete slabs to a thickness of 1,5 (two-components) to 4,0 cm (three-components). The product has maximal adhesion to normal substrates in concrete, with optimal values of mechanical resistance and elasticity modulus. Also suited for the repair of motorway sidings in concrete or other heavy solicited concrete structures.

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Method of use (for pavements)

Please note: the adhesion to substrate is a very important characteristics for the durability and the structural cooperation of the repair and restoration mortars.
We recommend to consult the sheet : *"Appraisal and preparation of substrates to obtain better adhesion of repair and restructuration mortars - recommendations for the correct finishing*

Preparation of the substrate

The substrate must be clean and sound, free from all contaminants like oil, curing membranes, waxes, etc. Damaged concrete shall be removed and repaired. If the metal reinforcement is exposed, it has to be treated with cement based rebar anti-corrosion slurry. Best adhesion can be obtained by sand or grid blasting of the substrate.
Apply by brush a layer of 2 mm of a primer, prepared by mixing BS 398 and resin RMB (about 22% RMB) to a fluid consistency. In the case that the product is applied in thicker layers, 3-4 cm, it is advisable to incorporate a metal mesh.

Application procedure :

Mix BS 398 with a suitable, performing mixer (we suggest a vertical axis mixer), in the proportions as suggested by the supplier.
The mixing time depends on type of mixer, but the product should be smooth, lump free, and with a wet density of 2100 g/liter. When mixed too long, air can be entrained which is negative for the density and final properties of the micro-concrete.
For the first mix, the optimal mixing time and speed shall be determined and kept constant for the following mixes.
Pour the mix, and smooth out by using trowel or screeding bar. From the moment the product has stiffened, it can be mechanically floated by 'helicopter'. The movement of the trowels can be 'greased' with a mixture 'RESIN FOR MORTARS TWO-COMPONENTS/ water in ratio 1:1. Order always RMB resin more than strictly needed. After 48 hours maximum the necessary dilatation joints shall be cut.
Repair of motorway or production prefabricated elements.
Consult the Technical Department for additional information.

Remarks

Apply the product only to well prepared and sound substrates, with adhesive strength of minimum ≥1,5 N/mm².
Do not apply at temperatures lower than +5°C.
Always respect liquid demand, mixing proportions, and wet density (2100 g/liter).
Consult the Technical Department for additional assistance for applications on difficult substrates or in case of doubts.
Information according to 2003/53/CE
Storage: The product can be kept for at least 12 months if stored in dry and protected conditions, in the original packaging, between +5°C and + 35°C.
Do not use the content of opened bags in case of powder agglomeration. Avoid the freezing of the liquid component.

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Packaging

BS 398 two-components: 1 bag of 25 Kg powder +
1 can of 3,5 Kg resin RMB

Maximum aggregate gravel : 2,5 mm
Advised thickness : from 10 to 20 mm

BS 398 three-components:
(composed by BS 398 bicomponent + addition of aggregate gravel)
2 bags of 25 Kg powder +
1 bag of 45 Kg aggregate +
1 can of 10,20 Kg resin RMB

Maximum aggregate gravel : 5 mm
Advised thickness : from 20 to 40 mm

Technical characteristic (typical values)
(average values for plastic-fluid mixing)

• Compressive strength	N/mm^2	60 (28 days.)
• Flexural strength	N/mm^2	13 (28 days.)
• ELASTICITY MODULUS	N/mm^2	24.000 (28 days.)
• Adhesion to concrete	N/mm^2	3 (28 days.)
• Pull-out rebars	N/mm^2	> 20 (28 days.)
• Carbonation in time	8 years mm	0,1
	18 years mm	0,1
	25 years mm	0,3
• Resist. to CO_2 penetration	μ	15.000
• Water vapour permeability coeff.	μ	60
• ① Res. FROST/THAW	gr/mq	300
• ② Permeab. to CHLORIDES	Coulomb	440
• Type conglomerate		micro concrete
• N. components		two or three
• Advised layer thickness	mm	20÷40
• Application		in formwork / horizontal pouring
• Curing : wet		NO
• Curing : protected		SE
• Typical application		VHDRS-VHDRC-MuCis-AED
• Setting time		normal
• Hardening		normal
• Shrinkage compensation		YES
• Consumption	$Kg/m^2/mm$	2,28

$1N/mm^2 = 1MPa = 10,19\ Kg/cm^2$

★ the formulation for this type of products can be also made with the addition of corrosion inhibitors and MuCis®.

① Freeze and thaw resistance in the presence of salt. SIA 162 11/91 (< 600 gr/sm= very high freeze and thaw resistance)

② Chlorides permeability. FH WA RD/81 (100 ÷ 1000 COULOMB = very low chlorides permeability)

SE Depending on the applicative conditions (rain, sun, hot temperatures, humidity)

VHDRS Very High Durability Repair & Prevention Systems

VHDRC Very High Durability Reinforced Concretes

MuCis Multiple Corrosion Inhibithing Synergies

AED Very High Deformation Energy

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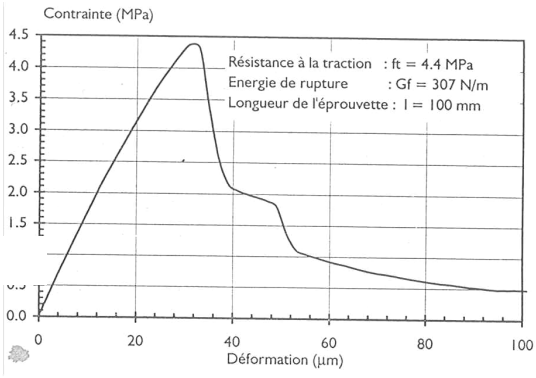
GRAPHIC OF DEFORMATION ENERGY



Traction test/controlled low deformation (performed by Laboratoire IBWK de l'EPFZ, prof. F.H. Wittmann)

Safety indications Read carefully the safety indications on the packaging, or consult the relevant Material Safety Data Sheet of this product.

The above information is based on our best experiences and lab results and on results of the application of the product in various fields. Tecnochem Italiana is not responsible for negative performances due to not proper use of the product or for defects due to elements not connected with the quality of the product included wrong storage.
Technical characteristic in this technical data sheet are up-to-dated periodically .Revision date of this technical data sheet is indicated below. Changes of this data sheet can be found in our web-site www.tecnochem.it where you can find the same technical data sheet updated in real time.

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