



Very  
High  
Durability  
Repair &  
Prevention  
System



Certified Quality System since **FEBRUARY 1993**

**From Project to Jobsite**

**BS CORAZZA MuCis® sra**

**SHRINKO-tec®**

**MuCis®**

**FIB-energy®**

**R4**

**EN 1504-3**

**NORMA EUROPEA**



**ANTI-CORROSION – IMPACT RESISTANT – TWO-COMPONENTS**

**POURABLE MORTAR – FIBRE REINFORCED WITH HIGH MODULUS POLYMER FIBRES AND PROFILED STEEL FIBRES WITH VERY HIGH TENSILE STRENGTH AND EXCEPTIONAL MECHANICAL RESISTANCES.**

**CE approved – Certificato n. 1305 - CPD - 0808  
EN 1504-3 Classe R4**

**type MC3:** "mortar, premixed rheoplastic, pourable, expansion contrasted in the air, with liquid humidity retainer, at very high ductility, containing synthetic polyacrylonitrile fibers and rigid metal (steel) fibres with properties: length 30 mm, 0.6 mm diameter, "basin" shaped, tensile strength > 1200 Mpa" corresponding to ITALIAN HIGHWAYS SPECIFICATIONS for "pourable mortar type MC3" (with the addition of aggregates can become pre-qualified class B3)

**Type B3:** "cement grout, rheoplastic, pourable, compensated expansion, with liquid humidity retainer, at very high ductility, which contains synthetic polyacrylonitrile fiber and rigid metal (steel) fibres featuring length 30 mm, 0,6 mm, "basin" shaped, tensile strength > 1200 MPa, obtained by adding selected aggregates to the mortar selected in the previous paragraph MC3" corresponds to ITALIAN HIGHWAYS SPECIFICATIONS "structural grouts B3"

**Description** BS CORAZZA MuCis® sra is a cement based product, composed out of a specially formulated powder component with aggregate size maximum 2,5 mm and of a liquid component **SRA/G** (dispersion of special polymers in water).

The product is formulated with the **SHRINKO-tec®** technology and has auto-expansive capacity in air of more than 400µ/m in 24 hours, followed by a very reduced or zero shrinkage. The product contains **MuCis®** multiple corrosion inhibiting synergies, in contact and by migration towards the steel reinforcement, and contains polymer fibres with very high elasticity modulus **FIB-energy®** and shaped steel fibres **FIBRE-tec® ST/N (tensile strength >1.200 MPa)**.

After mixing of the two components, a perfectly pourable mortar is obtained. The applied and hardened material has high strength, toughness, adhesion, durability, high impermeability to water and to carbon dioxide, good water vapor permeability, high physical-mechanical resistance and is shock resistant.

**Advantages and characteristics**

- Flexural strength reaches and exceeds 16 N/mm<sup>2</sup>
- The widespread presence of special steel and polymeric fibers and their perfect adhesion in the mix generate a very high resistance to impact and fatigue simultaneously with exceptional ability to stop any damage caused by stress-limit.
- Dimensional stability.
- Very strong adhesion to the substrate and to steel reinforcement.
- Excellent durability against chemical attack, freeze-thaw cycles, resistance to fats and oils.
- High impermeability to water penetration even under high pressures.
- High ductility and toughness index, ten times higher than non-fiber-reinforced mortars.
- For large thicknesses (> 50 mm) local aggregates can be added, after pre-qualification, with size 2/3 mm ÷ 8/10 mm, about 30 to 40% on the total weight of the dry mixture.

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<b>Field of use</b>	<ul style="list-style-type: none"> <li>• Wherever there will probably be exceptional stresses on the structure, or to anticipate them: impact, shocks, etc. The eventual formation of cracks, in the heavy stressed area, is reduced and the load-bearing properties of the structures not effected due to the exceptional resistance of the product towards crack propagation.</li> <li>• Anchoring of machines that generate high dynamic stresses. Realization of parts of structures in which the advantages of the multi-directional distribution of the steel fibre are demanded</li> <li>• Repairs on substrates that are particularly heavy stressed.</li> <li>• Reconstructions of surfaces subjected to high stress, industrial floors, parking.</li> <li>• Hydraulic structures particularly stressed.</li> <li>• Construction or reconstruction of highway joints.</li> </ul>
<b>Method of use</b>	<ul style="list-style-type: none"> <li>• Remove the rust of the corroded steel reinforcement.</li> <li>• Clean the surface by high pressure waterjetting or roughen mechanically or manually</li> <li>• Remove all eroded or damaged parts and any dust, grease, oils and other substances which can affect the adhesion.</li> <li>• Always use the entire contents of each bag (do not use bags partially)</li> <li>• Dampen contact surfaces until the total saturation: start a few hours before the casting to obtain complete saturation of the porosity.</li> <li>• Excess water, on the surface or in holes must be removed with compressed air or sponge, immediately before casting.</li> <li>• Mix the powder with component A and component B fluid 3'-4' (or, depending on the efficiency of the mixing time required to obtain a homogeneous mixture, without lumps and the steel fiber evenly distributed) . In the case more consistent material is required, the mixing liquid amount can be decreased slightly . In the case better flow is required, a small amount of water can be added extra (up to 0.25 liters per bag).</li> <li>• In the case of thick castings, it is recommended to add quartz or washed gravel to the product, from 25% to 40%, with a size from 2-3 to 6 mm (or from 2-3 to 20 mm depending on the needs and size of particular project).</li> <li>• In the case of casting in a confined area or formwork, pour continuously from one side only and till complete filling, pushing out all the air and compacting by poking with a metal rod, or with the aid of slight vibration.</li> <li>• After application, not yet fully set, keeping the surface of the grout damp or in any way prevent the evaporation of water contained, and this is especially important with hot, dry and windy conditions. If necessary you can also use anti-evaporating membranes (Curing Compound UR19).</li> <li>• For assistance, consult our Office for Project Assistance and Promotion.</li> </ul>
<b>Remark</b>	<p>Information according to 2003/53/CE</p> <p><b>Storage:</b> 12 months in original, unopened packaging, kept in a dry and protected environment between +5°C and +35°C</p>
<b>Packaging</b>	<p>Comp. A: 25 Kg bag</p> <p>Comp B: 5 Kg can</p> <p>Comp C: FIBRE – tec ST N little bags of 0,75 kg in boxes of 21 kg (per 42 kg pallet)</p>





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### COMPARISON PERFORMANCE AND REQUIREMENTS

**STANDARD  
NORMA EN 1504-3**

**BS CORAZZA MuCis® sra** SHRINKO-loc®  
MuCis®  
FIB-energy®

Performance characteristics	Reference substrate (EN 1766)	Testing method	Requirements	RESULT  (typical values)
			Structural	
			Classe R4	
Compressive strength	None	EN 12190	≥ 45 MPa (28 days)	90 MPa (28 days.)
Ionic chloride content	None	EN 1015-17	≤ 0,05%	≤ 0,03%
Adhesive bonding (adhesion to concrete)	MC(0,40)	EN 1542	≥ 2,0 MPa	2,8 MPa
Restrained shrinkage/expansion	MC(0,40)	EN 12617-4	Adhesion strength after test ≥ 2,0 Mpa	≥ 2,0 MPa
Carbonation resistance	None	EN 13295	$d_k \leq$ reference concrete [MC(0,45)]	Exceeds the requirement
Modulus of elasticity	None	EN 13412	≥ 20.000 MPa (28 days.)	36000 MPa (28 days)
Thermal compatibility * Part 1, frost-thaw resistance	MC(0,40)	EN 13687-1	Adhesion strength after 50 cycles ≥ 2,0 MPa	≥ 2,0 MPa
Thermal compatibility * Part 2, thunder shower	MC(0,40)	EN 13687-2	Adhesion strength after 30 cycles ≥ 2,0 MPa	≥ 2,0 MPa
Thermal compatibility * Part 4, dry cycle	MC(0,40)	EN 13687-4	Adhesion strength after 30 cycles ≥ 2,0 MPa	≥ 2,0 MPa
Coefficient of thermal expansion	None	EN 1770	No requirements for this test *, otherwise declared values	<ul style="list-style-type: none"> <li>• test* exceeds</li> <li>• declared value = <math>15,1 \times 10^{-6}</math> (1/K°)</li> </ul>
Capillary absorption	None	EN 13057	≤ 0,5 Kg · m <sup>-2</sup> · h <sup>-0,5</sup>	≤ 0,3 Kg · m <sup>-2</sup> · h <sup>-0,5</sup>



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Other  
technical  
characteristics  
(typical  
values)

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SHRINKO-ter®  
MuCis®  
EIB-energy®

• Initial setting time		about 1h at 20 °C
• Bleeding		none
• Consumption		2,3 Kg/m <sup>2</sup> /mm
• Compressive strength UNI EN 12190	1 day. 28 days.	30 MPa 90 MPa
• Flexural strength UNI EN 196/1	1 day. 28 days.	7 MPa 16,5MPa
• MODULUS OF ELASTICITY	28 days.	36.000 MPa
• Pull-out of reinforcement bar	28 days.	> 26MPa
• Impermeability to water UNI EN 12390/8	28 days.	2 mm
• Expansion when ageing in open air	1 day	> 450 µ/m
• Bowing/warping test		Warping
• Restrained shrinkage test (ring O.R.T))		Stable, no cracks
• Corrosion test in presence of chloride salts ASTM G109	5 years	≤ 10 µA no corrosion
• Resistance frost- thaw SIA /62/ 1/ 91 < 600 g/m <sup>2</sup>		~ 130 gr/m <sup>2</sup>
• Permeability to chlorides FHWA/ RD/ 81 100÷1000 Coulomb		150 Coulomb
• Depth of carbonation in time (laboratory simulation)	8 years 18 years 25 years	0,6 mm 1,9 mm 2,9 mm
• Resistance to CO <sub>2</sub> penetration		13.000 µ
• Water vapour diffusion resistance		44 µ

**Aesthetic and protective systems** In order to achieve optimal performance after the structural repair and restoration, it is recommended to use an aesthetic and protective system from our Protection Systems VHDRS®.

Consult our Technical Department (U.A.P.P.) or our website [www.tecnochem.it](http://www.tecnochem.it).

The above data are based on our actual and most experienced practical and laboratory knowledge and the results are collected from application of the product in different situations. Tecnochem Italiana does not assume any responsibility regarding inadequate or negative performance as a result of improper use of the product or for defects deriving from factors or elements other than the quality of the product including improper storage. The technical characteristics and performance mentioned in this datasheet are updated periodically. The revision dates and number of revision of the datasheets are listed in the table below. Eventual variations are traceable on our website [www.tecnochem.it](http://www.tecnochem.it) where the most updated datasheets can be retrieved.

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