



**VHDRS®**  
Very  
High  
Durability  
Repair & Prevention  
System



Certified Quality System since **FEBRUARY 1993**

*From Project to Jobsite*

## BS 40 M6 MuCis® two-component

**SPECIAL COMPOUND FOR RHEOPLASTIC AND ANTI-CORROSION SUPERCONCRETE, WITH CONTROLLED EXPANSION, VERY HIGH DURABILITY**



- **LE type:** "*expansive binder that allows for production of extremely fluid concrete or grouts, with no bleeding, low water / cement ratio, characterized by high mechanical strength*" corresponding to the Class LE of the SPECIFICATIONS FOR ITALIAN HIGHWAYS for which can be obtained the CE Class.
- **Type CE:** "*concrete rheoplastic, volumetric stability, having  $R_{ck} \geq 50$  MPa, consistency S4-S5, the absence of bleeding and high pumping ability, obtained using a special binder as expansive cement **type LE** in place of normal cement, and mixing it with water and aggregates*" corresponding to the Class CE of ITALIAN HIGHWAYS SPECIFICATIONS

**Description** BS 40 M6 MuCis® two-component is a pre-mixed powder based on cements, and special additives – **Component A (powder)** which, after mixing with water together with **Component B (liquid)**, forms special durable concretes with exceptionally high mechanical resistances and resistance against chemical aggression with excellent protection against the corrosion of the reinforcement steel. **The product is shrinkage compensated and can have rheoplastic or self-levelling consistency.**

**The product BS 40 M6 MuCis® two-component is formulated with chemical anti-shrinkage function, in combination with controlled expansion against tensile stresses of reinforcement resulting effect of pre-stressing of the concrete.**

**Use** For all the concrete applications in formwork or in confined areas, to achieve a high quality concrete with exceptional durability, even in severe aggressive ambient conditions.

**Method of use** Depends on the final use and the available aggregates. In general, we advise dosage levels of 350 to 400 kg/m<sup>3</sup> for obtaining concrete and micro-concrete with the above described characteristics. The product allows, with very low water/cement ratios, to produce concretes with very good workability and easy placing properties.

The lower the amount of water used, the better the waterproofing of the micro-concrete.

In the case the poured concrete will be in contact with other mineral substrates, it is advisable to saturate with water first during a few hours, and to remove the excess water immediately prior to the application of the product.

Immediately after the curing, apply by roller the Curing Compound UR19, which will prevent the formation of cracks in the plastic phase.

Once completely hardened (after 1-3 hours), apply on the surface, especially in dry conditions, wet clothes saturated with water or poly-ethylene. When temperatures are very low, protect the fresh application by polystyrene isolation plates.

**Remarks** Information according to 2003/53/CE:

Storage: 12 months in original, unopened packaging, kept dry and protected, at temperatures between +5°C and +35°C. Do not use the contents of already opened bags if they seem to have turned lumpy. Avoid freezing of the B-component.

**Packaging** bag of 20 kg (comp A) + bottle of 0,3 kg (comp B)

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**Characteristic technical data (typical values for 400 Kg/m<sup>3</sup> dosage\*)**

		<b>BS 40 M6 Mucis® two-component</b>
• Compressive strength	N/mm <sup>2</sup>	> 25 (1 day) > 50 (28 days)
• Flexural strength	N/mm <sup>2</sup>	> 4 (1 day) > 10 (28 days)
• Modulus of elasticity	N/mm <sup>2</sup>	25.000÷30.000 (28 days) *
• Adhesion to concrete	N/mm <sup>2</sup>	≥ 2,5 (28 days)
• Pull-out rebars	N/mm <sup>2</sup>	> 19 (28 days)
• Carbonation in time	8 years mm	0,15
	18 years mm	0,25
	25 years mm	0,60
• Resist. to penetration of CO <sub>2</sub>	μ	11.500
• Water vapour permeability coefficient	μ	58
• ① Res. Frost/thaw	gr/m <sup>2</sup>	≤55
• ② Permeab. to chlorides	Coulomb	≤350
• Type mortar		Concrete-micro-concrete
• N. components		two
• Advised layer thickness	mm	40÷1500 *
• Application		In formwork, pouring
• Curing wet		SI
• Curing protected		SI **
• Typical application		VHDRS-VHDC - MuCis
• Setting time		Normal
• Hardening		Accelerated
• ③ Compensation shrinkage		SI++++
• Consumption	Kg/m <sup>3</sup>	350-400

\* NOTE: it depends on the type, shape and dimension of the aggregates.

\*\* NOTE: recommended CURING COMPOUND UR 19

① Resistance against frost/thaw in presence of salts according to SIA 162/1/91 g/m<sup>2</sup> (<600 g/m<sup>2</sup> = high resistance = required for motorway boarders)

② Chloride permeability – Coulomb FH WA RD/81) (100÷1000 Coulomb = very low)

③ Compensation shrinkage according UNI 8148: ≥0,04% (at 7 days) 0,045%÷0,055% (at 28 days)

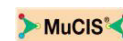
**SE** in function of the conditions during application (rain, sun, temperature, humidity, etc)



**Very High Durability Repair and Prevention Systems.**  
Very durable repair and protection Systems



**Very High Durability Reinforced Concretes**  
Very durable and anti-corrosion reinforced concretes



**Multiple Corrosion**

Inhibiting Synergies for the inhibition of the steel corrosion in reinforced concrete

**AED High Deformation Energy**

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### TYPICAL MIX DESIGN CONCRETE OR MICRO-CONCRETE.

BS 40 M6 MuCis® two-component comp A (powder)	= Kg/m <sup>3</sup> 400
BS 40 M6 MuCis® two-component comp B (liquid)	= Kg/m <sup>3</sup> 6
Water	= Kg/m <sup>3</sup> 154
Dry aggregate 0,1÷15 mm	= Kg/m <sup>3</sup> 1.850÷1.946 *
<hr/>	
TOTAL	= Kg/m <sup>3</sup> 2.410÷2.506
Slump Abrams cone	= 14 cm
W/C ratio	= 0,385

\* NOTE: depending on specific weight

**HFE-tec®**

### High Fracture Energy Technologies

An addition to above concrete:

→ **FIB-energy® MC** - (High Modulus Elasticity = 29 ÷ 42 GPa) polymer fibers

→ and/or **FIB-energy® ST/HS** - (Tensile strength = 2.800 N/mm<sup>2</sup>) steel fibers

greatly increases the FRACTURE ENERGY of the hardened concrete.

It is recommended for applications where there are significant dynamic stresses.  
Our Technical Service is available for any Project Assistance.

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

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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