



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

*From Project to Jobsite*



Certified Quality System since **FEBRUARY 1993**

## BS 37 RS / FGY MuCis®

**FIBRE REINFORCED, ONE or TWO-COMPONENT  
RHEOPLASTIC, SHRINKAGE COMPENSATED MORTAR FOR STRUCTURAL  
REPAIRS SULPHATE RESISTANT**

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

**R4**

**EN 1504-3**

**NORMA EUROPEA**

**Description** BS 37 RS/FGY MuCis® is a thixotropic mortar with high resistance against sulphates for structural repairs, with compensated shrinkage and with normal setting time (60-90 minutes).

It is a ready to use cement mixture that, after mixing with water, is applicable by spray machines and fully workable by trowel and with normal tools for the application of render. Applied coats of the product when hardened will have very good adhesion, durability, impermeability and exceptional mechanical strength.

The substrate must be saturated with water just before application and the surface kept damp for at least 24 hours after application.

The powder is based on C<sub>3</sub>A free Portland Cement (tri calcium aluminates) less than 3%. The product contains MuCis® migrating and contact corrosion inhibitors, which do not change the physical-mechanical properties as listed in this datasheet.

The formulation BS 37 RS/FGY MuCis® is also modified with high fracture energy fibres FIB-energy® (poly-acrylonitrile fibres content >0,08% with diameter of 16 microns and length 8 mm) and with flexible anticorrosion metal fibres Fibraflex (amorphous metal fibres, chrome based, flexible, not corroding, with ratio l/d equal to 125, length 30 mm, tensile strength >1900 MPa). This allows avoiding the use of steel net in most applications.

The two-component version has auto-expansion properties in air, maintaining the other physical mechanical properties unchanged.

### Advantages and characteristics

- The special cements and additives make BS 37 RS/FGY MuCis® particular resistant to chemical sulphate attack.
- The thixotropic features of BS 37 RS/FGY MuCis® result in excellent adhesion, making it easy to spread on vertical surfaces, beneath beams and shelves and on ceilings.
- All manual and mechanical equipment that is normally used for applying renders can be used.
- No "bleeding".
- Very strong adhesion to the substrate.
- Resistant to chemical attack and excellent resistance to water penetration, even under pressure.
- High mechanical strength.

### Fields of use

- General structural repair mortar and render.
- Structural repairs of surfaces.
- On vertical surfaces and ceilings, and wherever the following is required:
  - Easy to apply and finish
  - Strong and instant adhesion to the substrate
  - Reduced product loss and rebound during application
  - Dimensional stability.
  - Very high physical and mechanical strength
  - Excellent durability

Edition: 06/2006

Revision date : 09/2013

Rev. N.:7

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**Use** Note: the adhesion on the support is a fundamental characteristic for the durability and structural properties of a repair mortar.

It is therefore recommended to consult the paper: *“Valuation and preparation of supports for the best adhesion and structuration with a repair mortar – recommendations for a good finish”*.

- A decent substrate preparation by grinding. Remove spalled and carbonated concrete, expose the rusted steel bars, and remove rust and friable parts high pressure water jetting or sandblasting. In order to provide additional protection to the reinforcement steel, apply MuCis® PROTEZIONE FERRO, a two-component passivation and protective anti-corrosion slurry by brush, immediately after the preparation of the steel. Contains MuCis® molecules.
- Apply steel reinforcement nets fixed into the wall with metal stubs, or attached to the steel rebars.
- Wet the contact surfaces until thoroughly soaked, starting some hours before application to eliminate the substrate absorption.
- Excess water, either on the surface or in cavities, must be removed by compressed air or sponges immediately prior to application.
- Average water amount for a thixotropic mortar: 16 lt for 100 Kg. BS 37 RS/FGY MuCis®.
- Mix for 3'-5' (or at least, depending on the efficiency of the concrete mixer, for a minimum of time to require a homogenous mixture that is free of lumps) in a concrete mixer that already contains about the quantity of water required for the mix, holding a bit water back.
- Add some more water to get the right consistency. The actual amount of water needed will vary according to environmental temperature and humidity.
- Apply by hand or by conventional spray equipment, the thickness adapted to the particular conditions. Pay attention that the areas behind the rebars are completely filled in order not to create cavities (the 'shadow zone' of the metal bars can limit the penetration of the mortar. Spray always in an angle and not perpendicular onto the steel net). To avoid this, the net can be applied to the stumps, after spraying the first layer of product.
- Once applied and as soon as the layer has set, keep the surface of the mortar damp or, at least, prevent evaporation of the water content for at least 24 hours. This is especially important in hot, dry and windy areas. Best results are achieved by keeping the surface damp for 3 to 4 days.
- Very thick vertical applications and ceilings must be done in several applications to avoid that its own weight causes it to break away while it is still in a plastic state.

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

**Storage:** possible during 12 months in original, unopened packaging, kept dry and protected, at temperatures between +5°C and +35°C. Do not use the contents of opened sacks if the powder has gone into lumps.

**Packaging** BS 37/FGY MuCis® one - component: bags of 25 kg  
BS 37/FGY MuCis® two - component: 1 bag of 25 kg powder (A comp)+1 bottle 0.3 kg liquid component (B comp sra)



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Technical Data (typical values)	• Initial setting time: about 1 hour at 25 °C	
	• Compressive strength (UNI EN 196/1)	N/mm <sup>2</sup> (28 d.)
• Flexural strength (UNI EN 196/1)	N/mm <sup>2</sup> (28 d.)	12,7
• Elasticity modulus (UNI 6556)	N/mm <sup>2</sup> (28 d.)	>23.000
• Adhesion to the concrete support (Highway method)	N/mm <sup>2</sup> (28 d.)	5.45
• Pull-out	N/mm <sup>2</sup> (28 d.)	25
• Carbonation vs. years (UNI 9944)	10 years mm	<2
	18 years mm	<5
	25 years mm	<10
• Resistance to CO <sub>2</sub> penetration	μ	1.200
• Water vapour permeability	μ	48
• ① Freeze and thaw resistance (EN 104-840-3)		> 50 cycles
• ② Chlorides permeability	Coulomb	505
• Type of conglomerate		Thixotropic mortar
• Number of components		One/two
• Thickness suggested	mm	10÷60
• Application		Manual/spray
• Wet/damp curing		SI
• Sheltered curing		SE
• Typical application		Structural repairs
• Setting time		normal
• Hardening		normal
• Shrinkage compensation (UNI 8147)	(1 day)	>0.045%
• Dosage/yield		1,99 Kg/m <sup>2</sup> /mm
• Fracture energy	N/m	12.500
• ③ Resistance to sulphates	20 cycles	No deterioration

\* some products can also be produced with addition of corrosion inhibitor MuCis<sup>®</sup>

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 –FHWA/RD/81) (100-1000 Coulomb = very low)

© according ASTM C 88



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

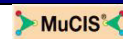
Very High Durability Repair and

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

1N/mm<sup>2</sup> = 1MPa = 10,19 Kg/cm<sup>2</sup>

**Mechanical resistance:** 1 day – 7 days – 28 days (typical results for a mixture made with 16 % water referring to the weight) cubes 4 x 4 x 16 cm

	Compressive strength N/mm <sup>2</sup>	Flexural strength N/mm <sup>2</sup>
1 day.	38	8
7 days.	65	10,5
28 days.	82	12,7

**Safety indications** Read carefully the safety indications on the packaging, or consult the relevant 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.

Edition: 06/2006  
 Revision : 09/2013

Rev. N.:7

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