



Very  
High  
Durability  
Repair &  
Prevention  
System



Certified Quality System since **FEBRUARY 1993**

*From Project to Jobsite*

## BS 66 MuCis®

**POURABLE RHEOPLASTIC ANTI-SHRINKAGE MICRO-CONCRETE  
FOR STRUCTURAL STRENGTHENING AND ANCHORING**  
component A = powder - component B = aggregates

**CE approved – Certificate n. 1305 - CPD - 0808**

**EN 1504-3 Class R4  
EN 1504-6**

**R4**

**EN 1504-3**

**NORMA EUROPEA**

**Description** BS 66 MuCis® forms, after mixing with water, a rheoplastic micro-concrete, which is perfectly flowing, with very high adhesion values, durability, impermeable to water, with compensated shrinkage, and with excellent mechanical resistances.

**Advantages and characteristics** The free flowing properties of BS 66 MuCis® make it an high performing grout: it fills all the cavities, even the most difficult ones, or normally not reachable because too far from the injection point.

- No bleeding or segregation.
- Very high adhesion to the substrate and reinforcement steel.
- Controlled expansion to compensate the hygrometric shrinkage.
- Exceptional mechanical resistance.
- Resistant to frost/thaw cycling, and to the penetration of oil and greases.
- Inhibited corrosion reactions of the reinforcement steel due to presence of MuCis®

**Fields of use** For all the casting or formwork concrete applications where high structural values and resistance against ambient or chemical aggression are required: precision anchoring and backfilling of equipment (turbines, presses, machines for carpentry, wire-pulling or lamination, windmills etc.), repair of motorway slabs, reinforcements of concrete pipes, reinforcement or repair of dosserets, reinforcement of piles through canning, special beams for structural reinforcement, foundation works with very high resistances etc...).

Where, because of reduced sections, geometry, tortuosity, the % of steel reinforcement, it is required to have flow values  $\geq 800$  mm, the product is formulated in the version **BS 66 SCC MuCis®**; does not substantially modify the mechanical strength values.

**These fiber-reinforced materials, with polymer fiber FIB-energy® with high elasticity modulus or steel fibers, can be designed "ad ho" according to the particular project requirements.**

For specific jobsites, the product **can be prepared in the ready mix plant**, after pre-qualification, to optimize the benefits in the transport and the pumping on the jobsite.

**Method of use** Remarks: The adhesion on the support is a basic characteristic for durability and structural collaboration of the repair and restoration mortars.

Please consult the Data Sheet *"Appraisal and preparation of substrates to obtain better adhesion of repair and restoration mortars – recommendations for the correct finishing"*

Carefully remove all loose parts from the contact surfaces and anything which might adversely affect the normal hardening or adhesion of the BS 66 MuCis® to the base concrete (oil, grease, dust, polystyrene, etc.).

Wet the contact surfaces until thoroughly soaked: do this some hours before casting to ensure maximum saturation of suction porosity.

Remove any excess surface or standing water with compressed air or sponge immediately before casting.

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BS 66 MuCis®

pag. 1/3

**TECNOCHEM ITALIANA S.p.A.**

24030 BARZANA (BERGAMO) ITALY – VIA SORTE 2/4,

TEL. \*\*39 035 55.48.11 – TELEFAX \*\*39 035 55.48.16

E-mail: info@tecnochem.it - www.tecnochem.it



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The average amount of water for a plastic mix is from 3,8 to 4,4 liters\*.

The average amount of water for a fluid mix is from 4,4 to 5,6 liters\*.

(\*Note: small adjustments to the indicated values are possible, depending on the amount of humidity in the aggregates).

Mix 3 to 4 minutes in a concrete mixer.

Add always the powder to the water, but hold back a certain amount of water to adjust the thixotropy. Adjust the thixotropy to the intended use, and mix for another 2 minutes.

Pour from one corner by hand or by pump. Assist the movement of the grout so it can reach the most difficult points, and improve compaction by adequate vibration. In the case the repair is in contact with existing concrete, always saturate completely with water before starting the grouting operations in order to avoid absorption of the mixing water into the substrate and this reducing flowing capacity.

Immediately after the curing, apply by roller the Curing Compound UR 19, which will prevent the formation of cracks in the plastic phase.

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

Demould after 3 days, and reassure before demoulding, that there is a thermal balance between the middle of the grout and the outside surface (in order to avoid cracking due to thermal shock).

**Remarks** The product can be used in a large temperature range. However, in case of very high temperatures (> 30°C), protect the substrate with plastic, or wet clothes during the initial phase of hardening. When applying at very low temperatures (< 5°C), it is advisable to use hot water to prepare the mix in order to avoid an extreme retardation of setting and development of initial strength. When using the product at temperatures ≤ 0°C use hot water to prepare the mix, keep the powder stored in a warm place, and cover the fresh application with insulating materials.

**Storage** Information according to 2003/53/CE:  
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.

**Packaging** 1 bag of premixed binders and special admixtures 21 kg +  
3 bags of 25 kg /each of aggregates from 0-10 mm (75 kg)  
(the product is composed by 1 bag of 21 Kg + 3 bags of 25 Kg)  
Bags with weights 'ad hoc" on request / depending on the jobsite.  
For antishrinkage version SRA SHRINKO to be added 0,21 Kg of SHRINKO-tec® nano 4 for each packaging of 96 Kg ( 21 Kg +75 Kg).

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BS 66 MuCis®  
pag. 2/3



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### Technical characteristics (typical values)

- Bleeding : absent
- Initial setting time: approx 3 hours at 20°C

|  |                     |                         |
|--|---------------------|-------------------------|
| • Compressive strength   | N/mm <sup>2</sup>   | 70 – 85 (28 d.)         |
| • Flexural strength  | N/mm <sup>2</sup>   | 9 – 11 (28 d.)          |
| • ELASTICITY MODULUS   | N/mm <sup>2</sup>   | 28.000 - 33.000 (28 d.) |
| • Adhesion to concrete   | N/mm <sup>2</sup>   | > 2 (28 d.)             |
| • Adhesion to concrete (EN 12615)  | N/mm <sup>2</sup>   | > 6 (28 d.)             |
| • Pull-out (rilem – ceb – fip RC6 – 78 steel bar with improved adhesion) | N/mm <sup>2</sup>   | > 25 (28 d.)            |
| • Carbonation in time  | 8 years mm          | 0,2                     |
|  | 18 years mm         | 0,4                     |
|  | 25 years mm         | 0,9                     |
| • Resistance to CO <sub>2</sub> penetration                              | μ                   | 12.000                  |
| • Resistance to water vapour diffusion                                   | μ                   | 60                      |
| • ① Resistance to FROST/THAW   | gr/m <sup>2</sup>   | 49                      |
| • ② Permeability to CHLORIDES  | Coulomb             | 290                     |
| • Type of conglomerate   |                     | Micro-concrete          |
| • Number of components   |                     | 2                       |
| • Advised thickness  | mm                  | 30 – 400                |
| • Application  |                     | formwork- grouts        |
| • Curing : wet   |                     | YES                     |
| • Curing : protected   |                     | SE                      |
| • Typical application  |                     | VHDCR/VHDRS-MuCis       |
| • Setting time   |                     | Normal                  |
| • Hardening  |                     | accelerated             |
| • Shrinkage compensation   |                     | YES+                    |
| • Consumption  | Kg / m <sup>3</sup> | 2000                    |

Note\*: contrasting expansion UNI 8148 ≥ 0,3‰ at 24 hours

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

|   |   |  |
|---|---|--|
| <p>* The formulation for this type of products can be also made with the addition of corrosion inhibitors MuCis®</p> <p>① Freeze and thaw resistance in the presence of salt. SIA 162/1/91 gr/m<sup>2</sup> (&lt; 600 gr/m<sup>2</sup> = very high freeze and thaw resistance)</p> <p>② Chlorides permeability. FHWA/RD/81 (100÷1000 COULOMB = very low chlorides permeability)</p> | <p><b>SE</b> Depending on the applicative conditions (rain, sun, hot temperatures, humidity)</p> <p> Very High Durability Repair &amp; Prevention Systems</p> <p> Very High Durability Reinforced Concretes</p> | <p> Multiple Corrosion Inhibiting Synergies</p> <p><b>AED</b> Very High Deformation Energy</p> |
|---|---|--|

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

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Rev. No. 14

BS 66 MuCis®  
pag. 3/3