Mapequick 5

DESCRIPTION
Mapequick 5 is a liquid admixture based on filtered sodium silicate for shotcrete.

WHERE TO USE
Mapequick 5 is formulated to be used in wet-mix shotcrete spray systems. It gives immediate accelerating properties to the shotcrete and at the same time guarantees immediate self maintenance with thicknesses between 20-25 cm in a single projection phase.

The use of Mapequick 5 is especially recommended in obstruction and flattening spaces in the presence of steel tunnel supports for excavation (for ex. steel arches).

Possible presence of wet surfaces and/or running water are not an obstacle for the regular application of concrete accelerated with Mapequick 5.

Some application examples
• Securing surfaces during tunnelling, mine passages, shafts, dams etc., during excavation.
• Levelling layers and finishing of sprayed shotcrete lining.
• Non confining structural linings within caisson, of canals, basins, etc.
• Consolidating rock, cliff-faces and slopes.

TECHNICAL CHARACTERISTICS
Mapequick 5 is a colourless and odourless solution of filtered sodium silicate to be added to the nozzle of shotcrete mix during the spraying phase.

The acceleration of setting time and the development of mechanical performance varies with the dosage of the admixture, the type and content of cement, the ageing of the cement, and the water/cement or water/binder ratio. The temperature of the shotcrete and that of the underlying rock that constitute the substrate also influence the setting rate and early performance.

As far as the water/cement or water/binder (cement + fly ash or silica fume or blast furnace slag, etc.) ratio is concerned, it must be noted that the water/cement ratio should be lower than 0.5 to promote durability and final mechanical performances. For this reason the addition of a superplasticising admixture is highly recommended.

Mapequick 5 improves the adhesion of shotcrete to the rock and at the same time reduces rebound.

Mapequick 5 is added to the spaying nozzle between 8% and 15% by weight of cement or eventually of all the binding components.
## TECHNICAL DATA (typical values)

### PRODUCT IDENTITY

<table>
<thead>
<tr>
<th><strong>Appearance:</strong></th>
<th>liquid</th>
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</thead>
<tbody>
<tr>
<td><strong>Colour:</strong></td>
<td>colourless, transparent</td>
</tr>
<tr>
<td><strong>Density at +20°C (ISO 758) (g/cm³):</strong></td>
<td>1.37 ± 0.03</td>
</tr>
<tr>
<td><strong>Dry solids content (EN 480/8) (%):</strong></td>
<td>47 ± 2</td>
</tr>
<tr>
<td><strong>Viscosity at +20°C (mPa·s):</strong></td>
<td>&lt; 200</td>
</tr>
<tr>
<td><strong>Solubility:</strong></td>
<td>in water, completely</td>
</tr>
<tr>
<td><strong>Weight ratio (SiO₂/Na₂O):</strong></td>
<td>3.1-3.4</td>
</tr>
<tr>
<td><strong>Chlorides (EN 480/10) (%):</strong></td>
<td>≤ 0.1</td>
</tr>
<tr>
<td><strong>pH (ISO 4316):</strong></td>
<td>11 ± 1</td>
</tr>
<tr>
<td><strong>Main action:</strong></td>
<td>acceleration of setting and hardening time</td>
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<tr>
<td><strong>Classification according to EN 934-5:</strong></td>
<td>sprayed concrete set accelerating admixture, T.2</td>
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### COMPATIBILITY WITH OTHER PRODUCTS

Mapequick 5 is compatible with all the Mapefluid and Dynamon line of superplasticisers that enable the water/cement or water/binder ratio to be reduced, increase fluidity and reduce loss of workability.

The recommended dosage should be between 8% and 15% in weight by weight of cement, depending on the setting time and development of early mechanical strength that is needed.

### RECOMMENDATIONS

Do not use Mapequick 5 in standard concrete.

Do not add Mapequick 5 directly into the cement mixer.

### APPLICATION PROCEDURE

**Typical shotcrete**

- 430-550 kg/m³ of cement (type and dosage to be determined by performance requirements).
- The addition of 5-10% by weight of cement of fly ash or silica fume, if needed.
- Aggregate with maximum diameter of about 8 mm.
- Superplasticising admixture in a dosage of 1-1.5% in volume by weight of cement to ensure a low water/binder ratio.
- During the spraying phase, it is recommended to use Mapequick 5 in temperatures between +20°C and +25°C.

Mapeplast SF compound with pozzolanic action may be used to improve rheological properties, thixotropic consistency, impermeability and resistance to chemical aggression.

### LABORATORY TESTING

Our laboratory is available for evaluating the compatibility and dosage of Mapequick 5 with the cements available on the job-sites.
To make the best use of Mapequick 5, it is recommended to contact our Underground Technology Team to verify and improve the properties of the concrete used, depending on the local application conditions.

CONSUMPTION
Dosage by weight: from 8 to 15 kg per 100 kg of cement.

PACKAGING
Mapequick 5 is available in 274 kg drums and 1370 kg tanks. Also available in bulk up on request.

STORAGE
Mapequick 5 can be stored for 2 years in closed containers away from direct sunlight and freezing weather.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION
Mapequick 5 irritates skin and respiratory system. When in contact with eyes, it can cause serious damage. In case of contact with eyes rinse with plenty of water and seek medical advice. Wear suitable protective clothing, goggles, gloves and face protection.

For further and complete information about a safety use of our product please refer to our latest version of the Material Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

WARNING
Although the technical details and recommendations contained in this report correspond to the best of our knowledge and experience, all the above information must, in every case be taken as merely indicative and subject to confirmation after long-term practical applications: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In every case, the user alone is fully responsible for any consequences deriving from the use of the product.

Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

All relevant references for the product are available upon request and from www.mapei.com