

MITCHSHOT AF

Alkali Free Shotcrete Admixture



DESCRIPTION

MITCHSHOT AF is a high performance alkali-free set accelerator for sprayed concrete. It is a liquid admixture whose dosage can be varied to the desired setting and hardening times.

USES

MITCHSHOT AF is suitable for all applications where high early strength, good final strength and thick layers are required:

- Temporary and permanent rock support in tunnels
- Rock support in mining
- In poor ground conditions
- Slope stabilization
- Also suitable for acceleration of cementitious grouts, such as used in TBM tunnel linings, cement ground injection and foam concrete backfill operations

ADVANTAGES

MITCHSHOT AF is the ideally suited accelerator for wet mix sprayed concrete for rock support because:

- The quick setting property allows rapid work progress and the ability to construct thick sprayed concrete linings via layered application during one construction sequence.
- The unique product formulation provides continual early-age strength development whilst also achieving excellent long-term strength and durability.
- **MITCHSHOT AF** is a liquid product and thus provides easy handling, as well as facilitating accurate addition to the concrete.
- Very low dust production and therefore a good working environment.
- Since the product is non-aggressive, it provides improved working safety, reduced environmental impact and lower handling costs.

TECHNICAL INFORMATION

For guide line only

| | |
|--------------------------------------|-------------------------|
| Form | Suspension |
| Color | Beige |
| Density (at +20C, Gamma-Ball) | 1.43 – 0.06 g/ml |
| pH value (1:1 water solution) | 2.6 – 0.5 |
| Viscosity (+20C, Brookfield) | 650 – 350 mPas |
| Thermal stability | +5C to +35C |
| Chloride content | <0.1% |

METHOD OF APPLICATION

SURFACE PREPARATION

The substrate must be clean and free from loose particles and preferably damp.

MIXING AND APPLICATION

It is recommended to use only fresh cement as the age of the cement can have a negative influence on the setting characteristics of the mix.

MITCHSHOT AF can be sensitive to the type of cement. With some cements the setting characteristics can be too slow. We recommend the use of Portland cements (PC / HPC) which normally give faster setting than blended or sulphate resistant cement types. However, **MITCHSHOT AF** also works well with composite cement types (blended cements, fly-ash / slag). In all cases, it is strongly recommended to do preliminary tests to check the setting and the 24 hours strength of the cements planned for use in a project.

Evaluation of setting and 24 hour strength (without addition of slump killing system), should be carried out on a test mortar in accordance with EFNARC European Specification for Sprayed Concrete (1996), Appendix 1, Clause 6.3. The following results should be taken as a performance guide only:

| Initial set | Final set | 24 hours strength | Rating |
|-------------|-----------|-------------------|--------|
| 2 min. | 6-8 min. | 18-20 Mpa | Good |
| 5 min. | 8-12 min. | 12-15 Mpa | OK |
| >10 min. | >15 min. | <10 Mpa | Poor |

If the setting times are poor, the 24 hour strength usually remains good.

When **MITCHSHOT AF** is used for wet mix spraying, the w/c+b ratio should be below 0.5 and preferably <0.45. When targeting extremely high early strength, 0.40 or lower. The lower w/c+b ratios provides faster setting, higher early strength, better durability, lower accelerator dosage and thicker layers can be applied over- head.

COMPATIBILITY

MITCHSHOT AF shall not be mixed with any other of MITCHELL accelerator. Do not mix **MITCHSHOT AF** with any type of accelerator produced by another manufacturer, as this could cause immediate clogging of dosing pumps and hoses.

DOSAGE

MITCHSHOT AF is added in the nozzle. To ensure a constant and accurate dosage to ensure quality sprayed concrete, it is crucial to follow the pump selection guideline given below:

Work very well with Mono pumps (screw pumps) & Squeeze pumps (Bredel)

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Note: Field services, where provided, does not constitute supervisory responsibility.

Should not to be used with: piston pumps, all pumps with ball and seat valves, pressure tanks, and gear pumps

Do not use a filter on the suction hose as this causes obstructions. Preferably the material should be drawn off the bottom of the drum/container.

The dosage of **MITCHSHOT AF** depends on the temperature conditions, reactivity of cement used and on required thickness of layers, setting time and early strength development. The consumption of **MITCHSHOT AF** is normally in the range of 3 to 10% of binder weight. Overdosing (>10%) may result in decreased final strengths.

Prior to the use of **MITCHSHOT AF**, the dosing pump and other parts of the system must be thoroughly cleaned with plenty of water. Failure to do so provokes blockages in the dosing system. Make sure that all operators involved in testing and application are fully informed.

SHELF LIFE

MITCHSHOT AF must be stored at minimum +5°C and maximum +30°C. **MITCHSHOT AF** has to be kept in closed containers made of plastic, glass fiber plastic and stainless steel.

MITCHSHOT AF must be stored in normal steel containers as the pH can cause corrosion that might affect the performance of the product.

After prolonged storage we recommend that **MITCHSHOT AF** be always fully agitated prior to use by mechanical stirring or re-circulation pumping. Agitation by compressed air is strictly not advised.

Please contact our representative for details of shelf life. Open containers will allow prolonged contact with air leading to a skin film and lumps being produced that may cause blocking of accelerator system.

Performance testing should always be carried out before use.

PACKAGING

MITCHSHOT AF is supplied in 210 liters drums, 1000 liters containers and in bulk.

SAFETY PRECAUTIONS

MITCHSHOT AF contains no hazardous substances requiring labelling. However the same precautions as with handling and use of cementitious products should be observed.

Avoid eye and skin contact and wear rubber gloves and goggles. If contact occurs, rinse with plenty of water. In case of eye contact seek medical advice.