

## Cormix® AFL RT1

### ALKALI-FREE LIQUID HARDENING ACCELERATOR

#### DESCRIPTION

**Cormix AFL RT1** is an alkali-free liquid admixture formulated to provide faster hardening acceleration in shotcrete, while reducing the safety hazards associated with traditional alkaline shotcrete accelerators. It may be used for shotcrete applied by dry or wet spraying. Complies of ASTM C1141, Type II & Grade 9, Class A.

#### USES & ADVANTAGES

**Cormix AFL RT1** can be used with shotcrete in tunneling, mining, and slope stabilization. It is ideally suited for wet mix sprayed concrete for rock support due to:

- The quick setting properties which allow for rapid work progress and the ability to construct thick sprayed concrete linings via layered application during construction sequence.
- The product formulation which provides continual early age strength development whilst also achieving excellent long-term strength and durability.
- **Cormix AFL RT1** being a liquid product provides easy handling, as well as facilitating accurate addition to the concrete.
- Very low dust production and therefore a good working environment. Product is also non aggressive, it provides improved working safety and environmental impact.

#### Advantages include:

- Quick setting. (Initial & final)
- Early-age strength development, excellent long term strength and durability.
- High resistance to carbonation.
- Reducing water permeability.
- Very low dust production.
- Improves safety and non-toxic.
- Better adhesion.
- Reduced rebound.
- Alkali free.

#### PROPERTIES

Appearance:	Clear Liquid
pH Value	≥ 2.5
Density:	Approx. 1.30-1.35 kg/ltr.
Na <sub>2</sub> O:	<0.1%
Chloride Content (Cl-):	<0.01%

\* Properties are typical under laboratory conditions and do not constitute a specification. Field trials are recommended.

Initial Setting Time:	< 3 minutes ASTM C1398
Final Setting Time:	≤ 4 min 30 sec

#### APPLICATION

According to the required setting time and early strengths,

**Cormix AFL RT1** can be added at a dosage of 3-10% by weight of binder. Overdosing may result in decreased strength.

The dosage depends on temperatures, reactivity of cement used, required thickness of layers, setting time and early strength development required. We recommend the use of fresh cement.

Dosage equipment and pumps must be made of acid-resistant materials.

Mono pumps (screw pumps) and squeeze pumps (rotary pumps) can work well, but piston pumps, pressure tanks and gear pumps should not be used. It is preferable to use concrete with cement contents of no less than 400 kg/m<sup>3</sup> for high early strength.

**Cormix AFL RT1** can be sensitive to different types of cement. It is suggested to use 100% clinker Portland cement for earlier setting time.

During wet-mix spraying, the w/c ratio should be below 0.5 (preferably below 0.45) to achieve better results. The water content in aggregate must be taken into account in the calculation of water-cement ratio.

**Cormix AFL RT1** is added at the nozzle through a separate accelerator hose.

To facilitate dosage it is recommended to agitate **Cormix AFL RT1** beforehand, as the material is self-thickening, or rather has a tendency to sedimentation after long term storage.

Before **Cormix AFL RT1** is used, the entire dosing equipment must be thoroughly cleaned with a lot of water. During concreting and work breaks the system must remain closed to avoid blockage.

**Cormix AFL RT1** must not be stored in steel containers. The storage containers must be closed tightly to avoid the evaporation of the water and resulting film formation on the surface.

Prior to and after using **Cormix AFL RT1**, clean the hoses, pumps, and other instruments thoroughly with plenty of water.

**Do not mix Cormix AFL RT1 with any type of accelerator produced by another manufacturer, as this could cause immediate clogging of pumps and hoses.**

All necessary suitability tests must be performed before use.

#### GENERAL INFORMATION - SHOTCRETE MIX DESIGN

##### Typical Shotcrete Mix Design

Ordinary Portland Cement Type I	420 kg/m <sup>3</sup>
River Sand	700 kg/m <sup>3</sup>
Crushed Rock Fines	500 kg/m <sup>3</sup>
Aggregates <10 mm	450 kg/m <sup>3</sup>
Water	189 litre/m <sup>3</sup>

The above is a typical shotcrete mix design excluding superplasticisers, silica fume, steel fibres, accelerators and other additives.