



Ultra-Shotcrete (Powder)

Powder Set accelerating and Shotcreting Admixture

Admixtures

Surface Treatments

Protective Coatings

Concrete Repairs

Industrial Flooring

Grouts & Anchors,

Adhesives,

Water Proofing

Sealants

Description:

Ultra-Shotcrete is a chloride free ready to use accelerator to be generally used as a quick setting and waterproofing compound for dry gunite mixes. Ultra-Shotcrete enables spraying of concrete or mortar even on a wet surface, allows overhead spraying and reduces rebound. Ultra-Shotcrete P is eco-friendly.

Characteristics:

Typical Data	
Packaging	20 kg bag
Colour and Form	White powder
Shelf Life and Storage	1 year in original, unopened and undamaged packaging. Store dry at between 5 - 30°C (41 - 86°F) and protect from moisture.
Application Temperatures	Concrete temperatures should not be lower than 15°C (59°F) (especially in cases of thick shotcrete layers). Lower temperatures will require higher dosages.
Properties	
Dry matter content in solution	45 - 55%
Density (of solution)	1.35 - 1.45 kg/L
pH	~ 3.0
Alkali content (Eqv. Na ₂ O), weight - %	< 0.80
Water soluble chloride (Cl), weight - %	< 0.15
Dosage - % by weight of cement	2 - 8 (when in 45% solution)

Field of Application:

- Tunnels & mining
- Parking decks
- Bridges structures
- Pier and dock supports
- Marine environments
- Dams
- Retaining walls
- Manholes
- Guniting projects

Advantages:

- Low rebound for Shotcrete applications
- Helps protect rebar from corrosion
- Low shrinkage properties
- Quick setting properties
- Improved water tightness & reduced permeability



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Substrate Preparation:

The substrate must be clean and free from all loose particles and preferably damp. It is recommended to use fresh cement to avoid any negative influence on the setting characteristics of the mix. Ultra-Shotcrete can be sensitive to the type of cement. With some cements the setting characteristics can be too slow. It is recommended to use Portland cements (PC / HPC), which normally give faster setting than blended or sulphate resistant cement types. Ultra-Shotcrete P 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 time and the 24 hours strength.

The evaluation of the setting time 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, Appendix 1, Clause 6.3. The following results should be taken as a performance guide only:

Initial Set	Final Set	24 hour strength	Rating
2min	6-8 min	18-20 Mpa	Good
5min	8-12 min	12-15 Mpa	OK
>10min	>15 min	<10 Mpa	Poor

Powder To Liquid Conversion:

Powder to water ratio is 1 kg (2.2 lb) Ultra-Shotcrete powder to 1.23 L (1.29 US qt.) water. Add the predetermined mix water to a mixing vessel. The water temperature must be at least 15°C (59°F). Start the mixer and add slowly the Ultra-Shotcrete until dissolved. Mix for another 60 minutes. Note: The temperature of the liquid will rise to approximately 40°C (104°F) during mixing.

Dosage:

The exact dosage must be determined by preliminary testing. For shotcrete layers up to 15cm (6 in) thickness in one pass, the dosage of Ultra-Shotcrete liquid, should be between 2 - 8% by weight of the cement. Lower temperatures will require higher dosages.

Ultra-Shotcrete is dosed by means of a peristaltic pump. Optimal atomisation of Ultra-Shotcrete liquid and its mixing with the shotcrete mix must be ensured.

The set-accelerating effect depends on cement content, cement age, cement type, temperature of shotcrete and substrate as well as the layer thickness and shotcreting method.

Health & Safety:

- Ultra-Shotcrete is non-toxic.
- Avoid contact with skin / eyes and avoid swallowing.
- Ensure adequate ventilation and avoid inhalation of vapour.
- Wear suitable protective clothing, gloves and eye protection.
- In case of skin contact, rinse with plenty of clean water, then cleanse with soap and water. Do not use solvent to clean the contacted area.
- In case of eye contact, wash with plenty of clean water and seek medical advice.
- If swallowed, seek medical attention immediately. Do not induce vomiting.



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