Natural Cement

PRODUCT SHEET
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SHOTCRETE AS90

Description

SHOTCRETE AS90 is a fast setting and curing rapid strength gain dry spray concrete that is resistant to chloride penetration consisting of a blend of natural cement based binder, specially selected and dried loose graded aggregates all passing a 2mm sieve.

Uses

- Stopping ingress of water
- Horizontal and vertical repairs
- Repairs to sewers
- Work around the sea including piers
- Quay walls & off shore platforms
- Repairs to dams & viaducts
- Tunnel repairs
- Retaining wall repairs
- Where pollution & chemical attack is likely.

Properties

- Very Fast setting
- Excellent adhesion
- Low modules of elasticity excellent for loose or friable substrates
- Low shrinkage
- Excellent resistance to pure water, sulphated water, seawater and de-icing salts
- Excellent resistance to aggressive chemicals
- Very good cohesion & mixing
- No curing necessary. It can be coated, covered or painted as soon as setting is complete
- Can be used in wet conditions.

SHOTCRETE AS90

Method of use

Preparing the surface

Do not use on frozen or over heated substrates (outside the range of 0°c-30°c). Prepare the surface in advance to provide an adequate key. It should be clean, free from dust and thoroughly dampened. Where necessary steel or aluminium mesh can be used. Ensure that a 10mm minimum thickness of material is obtained.

Priming

There is no need to prime any reinforcement, but if priming is preferred, any conventional system may be used.

Mixing

For optimum results mix using conventional dry spray mixing machines. The optimum water to cement ratio of 38% should be aimed for. Exceeding this ratio will lead to lower strength, longer setting time and the risk of surface cracking appearing.
SHOTCRETE AS90 should be added to the dry spray shotcrete machine and transported by dry air to the nozzle where the water is added. To obtain low dust levels, better and more consistent mixing qualities, it is advisable that the water is added to the SHOTCRETE AS90 approximately 1.5 metres from the end of the nozzle. In cold weather the set can be accelerated using warm water, likewise in hot weather cold water can be used to slow down the set.

Application

General

A 10mm minimum thickness of the material is always necessary. Once setting has started DO NOT attempt to remix or to smooth the surface. This will cause the mechanical properties in particular strength and adhesion to be lost.
Do not premix SHOTCRETE AS90 with water before placing in the dry spray machine. Protect the surface of the SHOTCRETE AS90 from directsunlight or wind until setting has completed.
Once the SHOTCRETE AS90 has set allow at least 1 hour before applying any finishes.
Carry out the removal of all loose material from the concrete and reinforcement. It is only necessary to remove rust from the reinforcement. Prepare the surface as described previously, ensuring the surface is well dampened but also ensuring there is no standing water. Fix any necessary reinforcement, movement joints and formwork.
Add the dry SHOTCRETE AS90 powder continuously to the dry spray applicator machine with the water being added and controlled at the nozzle ensuring that the SHOTCRETE AS90 is worked around any reinforcement.

Setting times

SHOTCRETE AS90 is designed to commence setting at 60 seconds and finish setting at 90 seconds at 20°c. In Winter SHOTCRETE AS90 can be used down to 0°c. The set will be slower but can be accelerated with warm water. In very hot temperatures the set will be faster and can be slowed by using cold water.

Cleaning

SHOTCRETE AS90 should be removed from tools and equipment with water immediately after use.

Storage

SHOTCRETE AS90 is packaged in a 25kg polythene inner bag with a re-sealable tie within a stitch sealed woven polypropylene outer bag, which should be stored in dry conditions and will last for at least twelve months.

Yield

Generally 1 x 25kg bag of SHOTCRETE AS90 mixed with a water/cement ratio of 38% will produce approximately 10 litres of finished mortar.

How to specify

SHOTCRETE AS90 shall be mixed and applied to prepared surfaces all strictly in accordance with the manufacturer's instructions.

Precautions

We strongly recommend the use of GLOVES, GOGGLES and MASK. Please see MSDS sheet for full details.

Setting time & strength gain

Start Set - 60 Secs at 20°c
End Set - 90 Secs at 20°c

	Compressive Strength (Mpa)
15 mins	3
1 Hour	6
3 Hours	7
24 Hours	23
7 Days	36
28 Days	45

Strength continues to develop thereafter.

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