New Guard Coatings Group

A global reputation to protect.

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Natural Cement

PRODUCT SHEET

SHOTCRETE 513

Description

SHOTCRETE 513 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

- Horizontal and vertical repairs
- Repairs to sewers
- Work around the sea including piers
- Quay walls & off shore platforms
- Repairs to bridges
- Repairs to dams & viaducts
- Tunnel repairs
- Retaining wall repairs
- Where high early strength is required
- Where pollution & chemical attack is likely.

Properties

- 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 513

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 513 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 513 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 513 with water before placing in the dry spray machine. Protect the surface of the SHOTCRETE 513 from direct sunlight or wind until setting has completed. Once the SHOTCRETE 513 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 513 powder continuously to the dry spray applicator machine with the water being added and controlled at the nozzle ensuring that the SHOTCRETE 513 is worked around any reinforcement.

Setting times

SHOTCRETE 513 is designed to commence setting at 4 minutes and finish setting at 10 minutes at 20°c. In Winter SHOTCRETE 513 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 513 should be removed from tools and equipment with water immediately after use.

Storage

SHOTCRETE 513 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 513 mixed with a water/cement ratio of 38% will produce approximately 10 litres of finished mortar.

How to specify

SHOTCRETE 513 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.

Approved for use in public water supplies. Secretary of state for D.E.T.R. Approved.

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Setting time & strength gain

Start Set End Set	4 Min 10 Min	at 20°c at 20°c
	Flexible Strength (Mpa)	Compressive Strength (Mpa)
5 mins	1.7	6
1 Hour	2.2	9
3 Hours	2.5	12
24 Hours	3	20
7 Days	4.8	26
28 Days	7	45
Strength continues to develop thereafter.		

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