

Concrete Admixtures

Conplast X421

Integral 'waterproofing' admixture for concrete

Uses

To 'waterproof concrete' and cement/sand mixes such as structural and precast concrete, renderings, brickwork mortar, screeds and granolithic toppings. Ideal for swimming pools, sea walls, tunnels, basements, etc.

Advantages

- **Chloride free:** Safe in prestressed, reinforced or marine concrete and compatible with sulphate resistant cement or marine aggregates
- **Reduced permeability:** Reduction of add water increases density and reduces porosity resulting in substantially improved water penetration resistance
- **Increased strength:** The water reducing properties of Conplast X421 enable higher compressive strengths to be obtained in concrete at the same workability
- **Integral:** Not a membrane or surface film

Description

Conplast X421 is a formulated blend of inorganic plasticisers. It is supplied as a red coloured liquid instantly dispersible in water.

When added to concrete mixes it acts as a powerful dispersing agent enabling the water content to perform more efficiently, by causing the cement particles, which tend to agglomerate, to disperse and expose a larger surface area.

The hydration reaction can proceed more efficiently with less water. The use of Conplast X421 will promote water reductions of 10% or more giving a denser concrete of significantly reduced permeability.

Technical support

Fosroc provides a technical advisory service for on-site assistance and advice on admixture selection, evaluation trials and dispensing equipment. Technical data and guidance can be provided for admixtures and other products for use with fresh and hardened concrete.

Properties

Specific gravity: 1.09 at 20°C

Chloride content: Nil to BS 5075

Air entrainment

Conplast X421 acts as a mild air detrainer.

Compatibility

Conplast X421 can be used with all types of Portland cements.

Conplast X421 is generally compatible with all other Fosroc admixtures if added separately to the mix.

Setting time

Less than 1 hour retardation at normal dosage.

Durability

When Conplast X421 is used for water reduction the increase in density and reduction of permeability improves durability and reduces porosity.

Compressive strength/density

Reduction in the water/cement ratio will result in an increase in the compressive strength without the use of other admixtures or the loss of workability. See table overleaf.

Specification clauses

The concrete shall be waterproofed with Conplast X421 as supplied by the manufacturers and used strictly in accordance with their instructions.

For a more complete specification, the following paragraph can be added:

For 'waterproof concrete' the mix shall consist of:

Cement to BS 12 (OPC) or BS 4027

sulphate resisting (state type): 300 kg/m³

20 - 5 mm graded gravel aggregate

to BS 882: 1200 kg/m³

Grade M washed sand to BS 882: 665 kg/m³

Conplast X421: 6 litres/m³

Water added to give a slump of 50 mm.

The concrete shall be fully compacted by mechanical vibration and shall then be cured using Concure curing membrane, wet Hessian or damp sand.

Dosage

Conplast X421 for waterproofing mass and structural concrete is added at the rate of 6 litres per m³.

Conplast X421 will not make poor quality concrete waterproofing. Good concrete practice must be followed at all times. Care must be taken to ensure good grading of the aggregates, and a minimum cement content of 300 kg/m³ is recommended. Adequate waterbars between lifts and floor bays must be provided in accordance with BS 5337.

Dispensing

The correct quantity of Conplast X421 should be measured by means of a recommended dispenser. Consult your local Fosroc office or representative for advice regarding suitable equipment and its installation. The measured quantity of Conplast X421 should be added directly to the mixer preferably at the same time as the mixing water.

Effects of overdosing

An overdose of double the recommended amount of

Conplast X421 can result in retardation of the initial set of the concrete. The ultimate strength of the concrete will not be impaired and will, generally, be increased. A considerable increase in workability will be achieved.

Curing

Normal curing methods such as water spray, wet hessian or a curing membrane of the Concure* type should be used.

Packaging

Conplast X421 in 210 litre drums. Also tanker loads. For larger users storage tanks and dispensing equipment can be supplied.

Storage

Minimum of 12 months provided the temperature range has not exceeded 2°C to 50°C. If these conditions have been exceeded in any respect, the Fosroc Technical Sales Department should be contacted for advice.

Typical performance examples

Typical test results

Mix proportions:

Cement: 300 kg/m³

Sand: 600 kg/m³

Aggregate: 1200 kg/m³

Workability:
50 mm slump

Conplast X421:
Dosage 6 litres/m³

Admixtures	Cement type	Aggregate type	W/C	Density kg/m ³	Compressive strength N/mm ²		% water absorbed after 24 hours
					7 days	28 days	
None	OPC	Gravel	0.62	2335	27.5	39.0	5.0
Conplast X421	OPC	Gravel	0.57	2345	33.0	55.0	2.2
Conplast X421	SRPC	Gravel	0.55	2345	27.0	39.0	2.8
Conplast X421	OPC	Limestone	0.56	2405	37.0	55.5	2.1
Conplast X421	OPC	Quartzite	0.57	2360	35.0	51.0	2.2

Precautions

Health and safety

Conplast X421 should not come into contact with skin and eyes or be swallowed. Wear suitable gloves and eye/face protection. In case of contact with skin, wash with plenty of soap and water. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately. **Do Not** induce vomiting.

For additional information refer to Product Safety Data Sheet.

Cleaning

Spillages of Conplast X421 can be removed with water.

Additional information

Technical data and guidance can be provided on a wide range of concreting aids including plasticisers, accelerators, retarders, air entraining agents, mould release agents, workability aids and repair materials.



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