

Fosroc® Supercast Watertight Concrete Powder (formerly Conplast WP402)



constructive solutions

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Hydrophobic, pore-blocking, concrete admixture suitable for use in Type B (Integral) watertight concrete construction as defined in BS 8102: 2009

Uses

- Production of watertight concrete
- Concrete for liquid retaining / excluding structures
- Concrete for aggressive exposure classes

Advantages

- Reduces porosity
- Reduces permeability
- Reduces diffusion coefficient
- Increases water resistance and corrosion resistance
- Chloride free. Ideal for concrete containing embedded steel
- Pre-bagged powder for easy dispensing
- Easily dispersed throughout concrete mix
- BBA accredited, certificate no. 08/4614
- Can form part of a complete waterproofing solution in conjunction with the Fosroc range of membranes and drained cavity systems.

Description

Supercast Watertight Concrete Powder is designed for use as an integral water resisting admixture for ready mixed concrete. It is based on a unique blend of fatty acid salts and hydrophobic materials, supplied as a white chloride-free powder. Supercast Watertight Concrete Powder is supplied, pre-weighed in water soluble bags, for easy dispensing.

Standards compliance

Supercast Watertight Concrete Powder complies with EN934-2 Table 9 as a water resisting admixture.

Supercast Watertight Concrete Powder is permitted for contact with public water supply under DWI's 'List of Approved Products For Use In Public Water Supply In The United Kingdom (May 2015); 2.4 List of Authorised Cement Admixture Components'.

Properties

Typical properties

Appearance:	White powder
Chloride content:	Nil to BS 5075
Na ₂ O equivalent	<1%

Capillary Absorption to EN 480-5 (% by mass of control)

Supercast Watertight Concrete Powder	0%(control)	1%
7 day:	100	22
90 day:	100	33



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Fosroc Limited Drayton Manor Business Park, Coleshill Road, Tamworth, UK. B78 3XN 14 DoP UK9-69 0086-CPR-473151	
Supercast Watertight Concrete Powder	
Water Resisting Admixture EN 934-2:T9	
Capillary Absorption	Fulfilled
Compressive Strength	Fulfilled
Air Content:	Fulfilled
Corrosion Behaviour	Contains components only from EN934-1: Annex A.1.
Dangerous Substances	NPD
Durability	NPD

Compatibility with cements

Supercast Watertight Concrete Powder is suitable for use with all types of Portland cements and combination materials such as fly ash, PFA, GGBS limestone fines and microsilica.

Typical dosage

Typical dosage is 1 bag per cubic metre of concrete

Where cement replacement materials are used in the concrete mix, the admixture dosage should be calculated on the total cementitious material content.



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Effects of overdosing

An overdose of Supercast Watertight Concrete Powder may result in an increased plasticising effect. If the water content of the mix is not reduced to allow for this increase, the concrete will become more workable. Water repellency will tend to be increased by overdosage and early strength may tend to be reduced.

Usage Guidelines

The following are guidelines for use of waterproof concrete containing Supercast Watertight Concrete Powder. These guidelines should be used in conjunction with those stated on the product BBA certificate, 08/4614.

1. The reinforcement design for the concrete structure must be designed to achieve a maximum through section crack width of 0.3mm although where there is evidence of increased risk due to a high or variable water table a through section crack width of 0.2mm may be stipulated. Refer to the guidance in BS EN 1992-3:2006 for further information.
2. The standard minimum sectional thickness is 200mm although a greater minimum thickness may be recommended for specific projects.
3. All standing water must be removed prior to concrete placement.
4. Smooth grout tight formwork should be used for wall construction and floor slabs placed onto either a grout check membrane or smooth concrete blinding.
5. The maximum area for a single concrete pour for a floor area is 400m² for which the aspect ratio should not exceed 2:1.
6. The maximum aspect ratio for a single wall pour is 3:1 and this should not include more than two corners or changes of direction.
7. All formwork should be left in place for a minimum of 24 hours. Formwork should not be removed until the concrete has sufficiently hardened in order that it can carry safely its own weight and any loads to which it is subjected. Following shutter strike exposed concrete surfaces (floor & wall) should be cured for up to 28 days with polyethylene sheet, wet hessian or Concure WB.
8. An integral kicker of between 150mm and 250mm in height should be formed with the base slab where watertight retaining walls are to be constructed. Kicker strips are completely unsuitable for watertight concrete construction. Kickerless construction carries an additional risk of water penetration that should be avoided or additional protective measures applied to mitigate the increased risk.
9. A 20mm wide x 5mm deep smooth rebate should be formed in the joint face of all construction joints (wall & floor) with at least 80mm concrete cover to an exposed face. Supercast SW20 waterstop should be continuously bonded with Supercast SWX which should be allowed to cure for at least 8 hours prior to concrete pour. The Supercast SW20 must be butt jointed and not overlapped with any gaps filled with Supercast SWX.
10. Movement joints should be waterproofed with Supercast PVC Waterstop, project specific advice and details can be provided upon request.
11. The maximum pour length for capping beam construction is 10m and should include no more than two corners or changes in direction. Formed joints should be made watertight using Supercast SW20 bonded with Supercast SWX located a minimum of 80mm inside the externally facing sides of the joint following the advice given in item 9.
12. Where practicable accessible and maintainable external drainage measures should be installed to alleviate any water pressure that could form against the structure in accordance with the recommendations given in BS8102:2009 incorporating a geo-composite drainage sheet such as Proofex Sheetdrain 80 and a perforated land drain located below finished base slab level. (For project specific advice please contact Fosroc Technical Department)
13. For construction of details such as pipe penetrations (floor and wall) and sealing tie bolt holes please refer to the relevant standard detail drawings available from Fosroc Technical Department upon request. Project specific detail drawings can be produced upon receipt of the construction drawings.

Instructions for use

Mix design

Concrete containing Supercast Watertight Concrete Powder is normally supplied as ready-mixed concrete by any QSRMC or BSI registered producer. The concrete must have a minimum cement content of 350 kg/m³, be batched with a maximum water/cement ratio of 0.45 and have a consistency of S2 or greater. However to optimize performance of Supercast Watertight Concrete Powder, it is recommended that a water/cement ratio of 0.40 or lower is utilised. Trials are recommended to ensure the desired performance characteristics are achieved.

Once the fresh concrete is mixed, further materials must not be added. The consistency of the concrete can be adjusted using a suitable water-reducing or superplasticising admixture complying with BS EN 934-2: 2009, Tables 3.1 and 3.2, to ensure the maximum water/cement ratio of 0.45 is not exceeded.

Mixing and Placing

Supercast Watertight Concrete Powder is added to the mixer at the correct dose prior to batching the concrete constituents. Where a superplasticiser is required, it is mixed in after the addition of Supercast Watertight Concrete Powder. The resulting concrete should be mixed for a minimum of five minutes to ensure even distribution of Supercast Watertight Concrete Powder throughout the concrete.

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Concrete containing Supercast Watertight Concrete Powder should be placed in the same way as normal concrete, in accordance with BS 8000-2.1: 1990, BS 8000-2.2: 1990, BS EN 13670: 2009

Curing

In line with good concrete practice: cure all concrete with Concure WB Clear. (75% curing efficiency) BS 7542.

Estimating

Packaging

Supercast Watertight Concrete Powder is available in tubs containing 6 x 1.95 kg units.

Supply

Contact local Fosroc Customer Service Department.

Limitations

Concrete containing Supercast Watertight Concrete Powder must be properly compacted, avoiding honeycombing and voids, particularly in areas in the vicinity of joints.

Water resisting concrete incorporating Supercast Watertight Concrete Powder must be designed to avoid crack width formation in excess of that stipulated in the guidelines above and in BS EN 1992-3:2006.

Joint designs other than those stipulated in the guidelines above should not be used with water resisting concrete incorporating Supercast Watertight Concrete Powder without reference to the Fosroc Technical Department.

Concrete containing Supercast Watertight Concrete Powder can meet the requirements for all grades defined in Table 1 of BS8102, however for grade 3 (where control of water vapour is required) it will be necessary to provide a mix with a sufficiently low vapour permeability in combination with an adequate section thickness (see guidelines above). Consideration should also be given to its use in conjunction with Type A (Barrier) or Type C (Drained Cavity) where assessed external risks are too high or consequences of failure to achieve the required internal environment are unacceptable.

Storage

Supercast Watertight Concrete Powder has a minimum shelf life of 12 months and should be stored in dry warehouse conditions between 5°C to 40°C. If this temperature range is exceeded in any way then advice should be sought from Fosroc Technical Department. The bags must be stored in sealed tubs to prevent water ingress.

Precautions

Health and safety

For further information consult the Product Safety Data Sheet available for this product.

Fire

Supercast Watertight Concrete Powder is non-flammable.

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Important note

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