

# Cebex 031

## Integral waterproofing admixture for mortar

### Uses

- ❑ In the production of waterproof sand: cement mortars, renders or screeds containing hydrophobic, pore blocking particles.
- ❑ To improve the cohesion and workability of mortar mixes, to facilitate application.

### Advantages

- ❑ Contains hydrophobic chemicals that minimize water penetration of mortars, renders and screeds.
- ❑ Provides integral protection to the mortar, render or screed, ensuring reduced permeability all through the applied material and not only on the surface.
- ❑ Reduced water permeability minimizes efflorescence caused by transport of dissolved salts through the mix.
- ❑ Entrained air bubbles assist in the formation of a stable cohesive mix, reducing segregation and bleeding and improving spreading and placing.
- ❑ Air entrainment improves mortar workability, allowing lower water contents to be used.

### Standards compliance

Cebex 031 is suitable for use in the production of cement based waterproof renders as described in clause 4.1.7 of BS 8102: "Code of practice for Protection of structures against water from the ground".

### Description

Cebex 031 chloride free integral waterproofing admixture is based on a blend of hydrophobic and air entraining surfactants. It is supplied as a pink solution, which instantly disperses in water.

The surfactants in Cebex 031 react in the cement: sand mixture to produce insoluble hydrophobic precipitates. These have a two-fold effect in reducing the permeability of the mix as they both repel moisture, due to their hydrophobic nature, and act as pore blocking agents to reduce the inter-connectivity of porosity in the mix.

### 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 and mortar.

## Formed from the merger of Expandite and Fosroc

### Typical dosage

The optimum dosage of Cebex 031 to meet specific requirements must always be determined by trials using the materials and conditions that will be experienced in use. This allows the optimisation of admixture dosage and mix design and provides a complete assessment of the mix.

The normal recommended dosage of Cebex 031 is 1 part Cebex 031 to 20 parts of dosing water. Where the mix is to be used in a wholly immersed situation or may be subject to water pressure, such as in tank linings or for rendering basements, a dosage of 1 part Cebex 031 to 15 parts of dosing water should be used.

### Use at other dosages

Dosages other than those given on this sheet may be used if necessary and suitable to meet particular mix requirements, provided that adequate supervision is available. Compliance with requirements must be assessed through trial mixes. Contact the Fosroc Customer Service Department for advice in these cases.

### Properties

|                          |                        |
|--------------------------|------------------------|
| <b>Appearance:</b>       | Brown liquid           |
| <b>Specific gravity:</b> | Typically 1.04 at 20°C |
| <b>Chloride content:</b> | Nil to BS 5075         |

### Terminology

The terms 'waterproof' and 'waterproofing' are often used within the construction industry when referring to concrete or mortar designed to minimize penetration by water and other aggressive materials. This usage can be misleading, as it is impossible to produce truly waterproof concrete or mortar; in the strict sense of the word this would require the complete exclusion of water from the concrete.

British and European standards deprecate the terms 'waterproof' and 'waterproofing' when referring to the performance of admixtures. On this data sheet, the term 'waterproof' should be understood to indicate concrete or mortar designed to minimize water penetration. The term is used to aid in understanding of the intention behind the use of an admixture in this way and is not intended to indicate that any concrete or mortar so produced will be completely impermeable to water.

## Instructions for use

Existing standards and codes of practice for the application of waterproofing renders should be followed where available. For example, BS 8102: "Code of practice for Protection of structures against water from the ground" contains details on the design and suitability of various tanking methods under different conditions and includes instructions on preparation and application methods. The following information is based on this code of practice, which should be consulted for fuller detail.

## Preparation

All surfaces to be coated with mortar mixes containing Cebex 031 must be sound, clean and free from oil, grease, dust or loose material. The surface should be suitably roughened to provide a mechanical key. Designated movement joints, and any structural cracks that might still be active, should be waterproofed by incorporating flexible details.

The substrate surface should be dampened to avoid excessive suction of water from the applied render during application. Highly absorbent substrates may not be suitable if it is not possible to adequately minimize this.

When applying renders to brick or block work, care should be taken to ensure that mortar joints are completely filled.

When treating leaking structures, all leaks and water seepage must be sealed before application of mortar containing Cebex 031. This can be achieved by use of rapid-setting cementitious compounds, such as those using the Conplast QS\* range of admixtures.

## Mixing

Waterproofing screeds and renders should only be made using well graded, sharp, washed sands, free from clay and other fine materials. Preferably, sand complying with BS 882, Grade M, and a mix ratio of 1 part cement to 3 parts sand should be used. Water should be added to give a trowellable consistency. Cebex 031, at the recommended dosage rate, should normally be added in the gauging water. It can be directly added to the mixer if required. Continue mixing until all components are evenly distributed.

## Application

A minimum of two coats of render should be applied. Initial coats should be lightly scratched before further coats are applied to improve mechanical bond. Care should be taken to ensure that overlapping joints are used at wall to floor and wall-to-wall joints. Final coats should be finished with a wood float.

Typical final applied thicknesses of 20 mm on walls and 40 mm on floors will normally be appropriate.

## Curing

As with all cementitious systems, good curing practice should be maintained to ensure that cracking of the render or screed finish does not result. Water spray, wet hessian or a Concure\* spray applied curing membrane should be used.

## Compatibility

Cebex 031 is compatible with other Fosroc admixtures used in the same mortar mix. All admixtures should be added to the mix separately and must not be mixed together prior to addition. The resultant properties of mixes containing more than one admixture should be assessed by the trial mix procedure recommended on this data sheet.

Cebex 031 is suitable for use with all types of ordinary Portland cement. Contact the Fosroc Customer Service Department for advice on use with special cements.

## Effects of overdosing

An overdose of double the intended amount of Cebex 031 may result in a significant increase in air entrainment, which will reduce strength. The degree of this effect will depend on the particular mix design and overdose level.

## Limitations

Cebex 031 is designed for use in cement: sand mixes and is not particularly suitable for use in concrete because of the high levels of air entrainment that will be obtained. If this air entrainment is shown by trials to be acceptable and to produce no undesirable effects on other concrete properties then Cebex 031 may be used. However, it will usually be found that the best results for reducing the permeability of concrete will be obtained with high levels of water reduction or the use of other purpose designed waterproofing admixtures from the Conplast range.

Cebex 031 is not a set accelerating admixture and is not suitable for plugging leaks prior to the application of a normal tanking render. When treating leaking structures with Cebex 031, all leaks and water seepage must be sealed first. In such situations the use of the Conplast QS range of setting accelerators or a pre-packed leak sealing compound, such as Renderoc plug\*, is recommended.

## Typical performance examples

Many variables in concreting materials and conditions can affect the selection and use of an admixture. Trials should be carried out using relevant materials and conditions in order to determine the optimum mix design and admixture dosage to meet specific requirements.

Typical performance examples from evaluation studies of Cebex 031, are included on this data sheet. The values quoted are representative of results obtained and are provided as illustrations of the performance in different

situations. Because of the natural variability of materials, the results should only be taken as typical of the performance to be expected. Results quoted in individual examples should not be taken as necessarily directly comparable with other examples given here or results obtained elsewhere for Cebex 031 or other products.

Unless otherwise specified, all testing was carried out to the relevant parts of applicable British Standards.

**Table 1: Typical effect of Cebex 031 on mortar workability**

Mix design: 3:1 sand:cement mortar using BS 882 Grade M sand and OPC. Mixes containing admixture used Cebex 031 dosed at 1 part to 20 parts of gauging water.

| Admixture | Water:Cement ratio | Water reduction % | Mortar flow,mm |
|-----------|--------------------|-------------------|----------------|
| None      | 0.52               | -                 | 180            |
| Cebex 031 | 0.52               | -                 | 200            |
| Cebex 031 | 0.46               | 11                | 185            |

**Table 2: Typical effect of Cebex 031 on water absorption to BS 1881 in mortar mixes**

Mix design: 3:1 sand:cement mortar using BS 882 Grade M sand and OPC. Mixes containing admixture used Cebex 031 dosed at 1 part to 15 parts of gauging water.

| Admixture | Water:Cement ratio | Water reduction % | Mortar flow,mm | BS1881 part after 1 hr. | 122absorption after 8 hr. | BS 1881 10 min | Part 5 ISAT 30 min | Value 60 min |
|-----------|--------------------|-------------------|----------------|-------------------------|---------------------------|----------------|--------------------|--------------|
| None      | 0.52               | -                 | 195            | 5.5 %                   | 8.5 %                     | 0.57           | 0.42               | 0.30         |
| Cebex 031 | 0.48               | 8                 | 190            | 2.6 %                   | 5.7 %                     | 0.24           | 0.19               | 0.13         |
| Cebex 031 | 0.48               | 8                 | 190            | 2.8 %                   | 5.9 %                     | 0.23           | 0.17               | 0.13         |



## Estimating - packaging

Cebex 031 is available in drum and bulk supply. For larger users, storage tanks can be supplied. Details of specific packaging volumes are available on request.

## UN packaging regulations

To comply with current regulations, all products of a hazardous nature that are involved in a sea crossing as part of the delivery requirements must be packed in United Nations Approved receptacles.

When a known sea crossing is involved, Fosroc will supply in the correct UN packaging. Where Fosroc are only requested to deliver on land, but the purchaser intends to ship on, it is incumbent on the purchaser to specify that UN packaging is required at the time of placing the order. Otherwise, once delivery is received, the responsibility is that of the purchaser.

The use of UN packaging may affect the selling price of products. Refer to the local Fosroc office or representative.

## Storage

Cebex 031 has a minimum shelf life of 12 months provided the temperature is kept within the range of 2°C to 50°C. Should the temperature of the product fall outside this range then the Fosroc Customer Service Department should be contacted for advice.

**Freezing point:** Approximately 0°C

## Precautions

### Health and safety

Cebex 031 does not fall into the hazard classifications of current regulations (see notes 1 and 2 below). However, it should not be swallowed or allowed to come into contact with skin and eyes.

Suitable protective gloves and goggles should be worn.

Splashes on the skin should be removed with water. In case of contact with eyes rinse immediately with plenty of water and seek medical advice. If swallowed seek medical attention immediately - do not induce vomiting.

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

### Fire

Cebex 031 is water based and non-flammable.

### Cleaning and disposal

Spillages of Cebex 031 should be absorbed onto sand, earth or vermiculite and transferred to suitable containers. Remnants should be hosed down with large quantities of water.

The disposal of excess or waste material should be carried out in accordance with local legislation under the guidance of the local waste regulatory authority.

### Additional Information

Cebex 031 was previously known as Conplast Prolapin 031.

Note 1: CPL Regulations 1984 Supply-Schedule 1

Note 2: HSE publication Guidance Note EH40

\*See separate data sheet

\*Denotes the trade marks of Fosroc International Limited



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