Conplast AEA

constructive solutions

Air entraining admixture

Uses

To produce air entrained concrete for increased durability and resistance to damage by frost and deicing salts. Typical applications include concrete roads and bridge decks, airport runways and taxiways and other extensive areas of concrete exposed to potential frost damage.

To improve cohesion and workability of concrete mixes where poorly graded aggregates must be used and bleeding, segregation or sand runs occur.

As part of a combined admixture system for the production of ready mixed retarded mortar.

Advantages

Air entrainment increases the resistance of concrete to attack by frost and de-icing salts, reducing problems of surface scaling and concrete failure.

Entrained air bubbles assist in the formation of a stable cohesive mix, reducing segregation and bleeding.

Air entrainment improves workability and helps produce a dense, uniform, close textured surface free from gravel nests and sand runs, so further enhancing durability.

Excellent air bubble stability allows use with a wide range of aggregate qualities and mix conditions.

Standards compliance

Conplast AEA complies with BS 5075 Part 2, BS 4887 Part 1, ASTM C260 and with the Department of Transport Specification for Highway Works.

Description

Conplast AEA is a chloride free air entraining admixture based on neutralised vinson resin. It is supplied as a translucent water white coloured solution which instantly disperses in water.

Conplast AEA acts at the interface between the mixing water and cement/aggregate particles to produce microscopic air bubbles, which are evenly distributed throughout the concrete. The entrained air enhances durability by providing protection against the rapid temperature changes found in freezing and thawing conditions and with the use of de-icing salts.

Technical support

Fosroc offers technical support service to specifiers, end users and contractors, as well as onsite technical assistance in locations all over the country.

Properties

Appearance	:	Translucent coloured liquid
Chloride content	:	Nil to BS 5075
Specific gravity	:	1.01 at 27^{0}C
Alkali content	:	Typically less than 14.0g Na_2O equivalent /litre of admixture.
pH	:	Minimum 6

Factors affecting air entrainment :

Sand content : The quantity of air entrained will increase with increasing sand content - typically an increase in sand content from 35 to 45% will raise the air content from 4.5 to 6.0%.

Cement fineness and content : The amount of air entrained reduces with an increase in cement fineness or content.

Aggregate quality : Silt content variations can adversely affect the degree of air entrainment. This is particularly relevant to the use of crushed aggregate during inclement weather. Excessive silt content may render Conplast AEA ineffective.

Organic impurities : Carbon can reduce the effectiveness of Conplast AEA. This does not normally create a problem, but caution should be exercised when using PFAor some pigments. Where this type of material is to be used alternative admixtures are available.

Concrete temperature : A temperature increase will reduce air content. In practice, daily fluctuations are much smaller and do not cause significant variation.

Mixing and pumping : Air content will increase with increased time of mixing up to about two minutes in stationary mixers and about 15 minutes in transit mixers. Thereafter, the air content generally remains constant for a considerable period. Small losses of air may occur during pumping. With long pipelines, air content in excess of 5% may seriously reduce the efficiency of the pump.

Compaction of concrete : Prolonged vibration should be avoided.

For specific technical assistance and advice on any of the above aspects, please contact Fosroc.

Setting time : Negligible effect at normal dosage rate.

Compatibility : Conplast AEA can be used with all types of Portland cements and is generally compatible with other admixtures. It is recommended that all admixtures be added to concrete separately.

Reduced permeability : The microscopic air bubbles introduced by use of Conplast AEA break up the capillary structure within concrete and hence reduce water permeability.

Durability : Reducing the water permeability of concrete offers increased resistance to weather exposure and attack in aggressive environments.

Frost resistance : The addition of Conplast AEA produces controlled air space.

Compressive strength : A 15% free water reduction is often possible with Conplast AEA. This resultant increased compressive strength normally offsets the anticipated strength loss associated with air entrainment, thus producing air entrained concrete with no increase in cement content.

Resistance to salts : Air entrainment increases the resistance of concrete to surface scaling, which is an adverse effect associated with repeated exposure to marine salts or application of de-icing salts to the concrete surface.

Application instructions

Typical dosage

The optimum dosage of Conplast AEA 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 concrete mix.

As a starting point for trials a dosage of 0.08 litres/100kg of cement will typically give an air content of 5% $\pm$ 1.5% in a medium workability concrete of 300 - 350 kg/m^3 cementitious content. Where cement replacement materials are used they should be included in the cementitious content for purposes of calculating admixture dosage. The presence of PFA or microsilica may increase the dosage required to obtain a particular air content.

Use at other dosages

Dosages outside the typical ranges suggested 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 Fosroc for advice in these cases.

Compatibility

Conplast AEA is compatible with other Fosroc admixtures used in the same concrete mix. All admixtures should be added to the concrete separately and must not be mixed together prior to addition. The resultant properties of concrete containing more than one admixture should be assessed by the trial mix.

Conplast AEA is suitable for use with all types of ordinary portland cement. Contact Fosroc for use with special cements and blends containing cement replacement materials.

Dispensing

The correct quantity of Conplast AEA should be measured by means of a recommended dispenser. The admixture should then be added to the concrete with the mixing water to obtain the best results. Contact Fosroc for advice regarding suitable equipment and its installation.

Curing

As with all structural concrete, good curing practice should be maintained. Water spray, wet hessian or a Concure* spray applied curing membranes should be used.

Cleaning

Spillages of Conplast AEAcan be removed with water.+

Overdosing

An overdose of double the recommended measure of Conplast AEA will increase workability and air content and can result in slight set retardation of the concrete. The ultimate strength of the concrete should not be impaired if advantage is taken of the water reduction and the concrete is adequately cured.

Estimating

Packing

Conplast AEA is supplied in 5, 20 and 200 litre drums.

Storage

Conplast AEA has a minimum shelf life of 12 months in unopened containers under normal warehouse conditions.

Precautions

Health & Safety instructions

Conplast AEA is non-toxic. Any splashes should be rinsed thoroughly with water. Splashes to the eyes should be washed immediately with water and medical advice should be sought.

Fire

Conplast AEA is non-flammable.

Additional information

The Fosroc range of associated products includes high strength cementitious, epoxy grout, polyester resin based mortar for rapid presetting of steel shims to level or for direct bedding of small base plates; Resin anchoring systems for same day anchoring of bolts in drilled holes in concrete or rock. Also available a range of products for use in construction; viz., admixtures, curing compounds, release agents, flooring systems and repair mortars.

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Important note :
Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification or information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products whether or not in accordance with any advice, specification, recommendation or information given by it.

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