

## **Conflo Bond-AE**

### **High performance air entraining and plasticising admixture**

#### **Uses**

To produce air entrained concrete for increased durability and resistance to damage by frost and de-icing salts.

Typical applications include concrete roads and bridge decks, airport runways and taxi ways and other 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.

Particularly suitable for use in situations where standard air entrainers are less reliable or less effective. Typical examples include where mixes containing PFA or aggregates with high dust contents are used.

#### **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, further enhancing durability.

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

Particularly effective with dusty aggregates and in mixes containing PFA or microsilica.

Particularly designed for less variability in performance at varying concrete temperatures than normal air entraining admixtures.

#### **Description**

Conflo Bond-AE air entraining admixture is chloride free and based on a synergistic blend of synthetic and naturally occurring surfactants. It is supplied as a brown solution which instantly disperses in water.

Conflo Bond-AE 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.

### **Standards compliance**

Conflo Bond-AE conforms with BS 5075 Part 2 and ASTM C260.

### **Properties**

**Appearance** : Brown liquid

**Specific gravity** : Typically 1.01 at 20°C

**Chloride content** : Nil to BS 5075

**Alkali content** : Typically less than 15.0 g. Na<sub>2</sub>O equivalent/litre of admixture. A fact sheet on this subject is available.

### **Checking and control**

Once a suitable dosage has been selected, care should be taken to ensure consistency of materials used and mixing and delivery procedures. Air content should be checked regularly by such means as the pressure method described in BS 1881 and ASTM C231.

### **Factors affecting air entrainment**

A number of factors can affect the air entrainment obtained for a particular dosage of air entraining admixture, some of which are listed below. The examples given of changes that these factors may make to a concrete mix should be taken as guidelines only and the actual effects in any particular situation confirmed in trials.

- a) Sands of apparently the same grading may have significantly different effects on the level of air entrainment, depending on factors such as silt content, particle size distribution and particle shape. Where changes in sand source or content must be made, or where sand varies within the same source, a careful check must be made on the effects on air entrainment.
- b) Increased cement fineness or cement content will tend to decrease air content. Changes in cement source and type may also lead to changes in the admixture dosage required to obtain a particular air content.
- c) The presence of carbon or organic impurities may reduce the effectiveness of an air entrainer and require an increased dosage. This will not usually be a problem but care may be required when using PFA, certain pigments or lignite bearing sands.

d) Increased concrete temperature will tend to reduce air entrainment. Typically a rise from 10°C to 32°C may halve the level of air. In normal mixing conditions daily fluctuations will not give significant variations.

e) Variations of mixer type and transit time may change the level of air entrainment. Small losses may occur during pumping. These will generally be consistent for a given set of conditions. High air contents may significantly reduce pump efficiency over long pump distances.

f) Normal compacting procedures will not affect air entrainment. Prolonged vibration should be avoided.

g) Increased dosages may be required at low workability levels to achieve the required air content.

## **Dispensing**

The correct quantity of Conflo Bond-AE 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.

## **Effects of overdosing**

An overdose of double the intended amount of ConplastAE316 will 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. Increased air content from an overdose will tend to have an increased plasticising effect. Some slight increase in setting time may also occur.

## **Curing**

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

### **Limitations**

In some situations the powerful nature of Conflo Bond-AE may result in very low dosages which can be difficult to dispense accurately. In such cases, the use of a less powerful product such as Conplast AE300 or a more dilute product such as Conplast AE313\*† is recommended.

## **Supply**

**Conflo Bond-AE** : 210 litre drums and in bulk

## **Dosage**

**Conflo Bond-AE** : 0.05 to 0.25 ltrs/100 kg cement Storage

Conflo Bond-AE has a minimum shelf life of 12 months provided the temperature is kept within the range of 5°C to 50°C. Should the temperature of the product fall outside this range then contact nearest dealer.

**Freezing point** : Approximately 0°C

### **Precautions**

#### **Health and safety**

Conflo Bond-AE is alkaline and an irritant and 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.

#### **Fire**

Conflo Bond-AE is water based and non-flammable.