

# PLASTCONE AIRENT

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## 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.

**Description:** PLASTCONE AIRENT is a chloride free air entraining admixture based on neutralized Vinson resin. It is supplied as water white Colored solution which instantly disperses in water.

PLASTCONE AIRENT 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.

### Properties:

- **Appearance:** Water white colored liquid
- **Chloride content:** Nil
- **Specific gravity:** 1.01 at 27°C
- **Alkali content:** Typically less than 14.0g Na<sub>2</sub>O equivalent /liter of admixture.
- **pH:** 7

### 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%.

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- **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 REDWOP AE ineffective.
- **Organic impurities:** Carbon can reduce the effectiveness of PLASTCONE AIRENT. This does not normally create a problem, but caution should be exercised when using PFA or 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.
- **Setting time:** Negligible effect at normal dosage rate
- **Compatibility:** PLASTCONE AIRENT 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 PLASTCONE AIRENT 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 PLASTCONE AIRENT produces controlled air space.
- **Compressive strength:** A 15% free water reduction is often possible with PLASTCONE AIRENT. 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

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repeated exposure to marine salts or application of de-icing salts to the concrete surface.

## Application instructions

### Typical dosage:

The optimum dosage of PLASTCONE AIRENT to meet specific requirements must always be determined by trials using the materials and conditions that will be experienced in use. This allows the optimization 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 liters/100kg of cement will typically give an air content of 5% + 1.5% in a medium workability concrete of 300 - 350 kg/m<sup>3</sup> 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 micro silica may increase the dosage required to obtain a particular air content. Further details on typical dosage levels are given later in this datasheet.

### 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 accessed through trial mixes. Contact Redwop for advice in these cases.

### Compatibility:

PLASTCONE AIRENT is compatible with other Redwop 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 procedure recommended on this datasheet. PLASTCONE AIRENT is suitable for use with all types of ordinary Portland cement. Contact Redwop for use with special cements and blends containing cement replacement materials.

### Dispensing:

The correct quantity of PLASTCONE AIRENT 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 Redwop 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 curing spray applied curing membranes should be used.

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## **Cleaning:**

Spillages of PLASTCONE AIRENT can be removed with water.

**Fire:** PLASTCONE AIRENT is non-flammable.

## **Overdosing:**

An overdose of double the recommended measure of PLASTCONE AIRENT 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:** PLASTCONE AIRENT is supplied in 5, 20, 50 and 200 ltr drums.

## **Storage:**

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

## **Precautions:**

### **Health & Safety instructions:**

PLASTCONE AIRENT 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.



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