Conplast AE210

FOSROC constructive solutions

Air entraining agent

Uses

To produce air entrained concrete for increased durability, resistant to damage by frost and de-icing salts, and to improve the cohesion and workability of concrete mixes where poorly graded aggregates must be used.
Typical applications include concrete roadways and bridge decks, airport runways and taxiways and other extensive areas of concrete exposed to potential frost damage. Also in any situation where bleeding, segregation or sand runs occur.

Advantages

- Provides concrete with resistance to freezing and thawing.
- Improves cohesion, reduces segregation and bleeding.
- Gives dense, uniform, close textured surface to concrete.
- Excellent air bubble stability.
- Consistent performance, even with changes in aggregate quality and ambient temperature.
- Effective in low workability concrete.

Standards compliance

Conplast AE210 complies with BS 5075: Part 2 and with ASTM C260 as an air entraining agent.

Description

Conplast AE210 is a chloride-free admixture based on neutralised vinsol resin and is supplied as a dark brown solution. Conplast AE210 acts on the interface of the cement/aggregate particles and mixing water to produce microscopic air bubbles evenly distributed throughout the concrete.

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.

Properties

Chloride content: Nil BS 5075

Specific gravity: 1.017 at 20°C

Air entrainment: Fig. 1 demonstrate the effect of Conplast AE210 on typical concrete mixes.

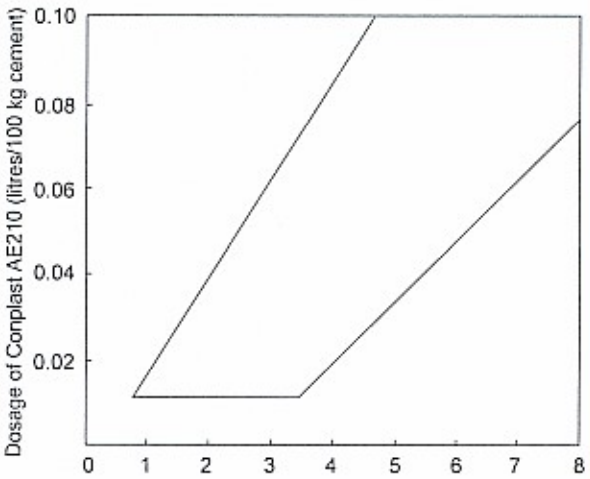

Fig. 1

The degree of air entrainment will be affected by a number of factors:

Sand content: The quantity of air entrained will increase with increasing sand content — typically from 4.5 to 6.0% for a sand content increase from 35% to 45%.

Typical characteristics of representative mixes.

Conplast AE30(fllO (litres/100 kg cement)	Slump (mm)	Air entrainment (%)	Water cement ratio	Compressive strength (N/mm²)		
				1 day	7 days	28 days
nil	50	nil	0.56	8	35	48
0.06	90	4.5	0.56	6	33	44
0.06	50	4.5	0.50	7	34	46

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cement fineness and content: The amount of air untrained reduces with an increase in cement fineness. Air content decreases with increasing cement content. 1% air loss may be typical for a cement content increase of 90 kg/m^3.

Organic impurities: Carbon can reduce the effectiveness of Conplast AE210 This does not normally create a problem, but care may have to be taken when using PFA, certain pigments or lignite bearing sands.

Concrete temperature: A temperature increase will reduce air content, eg: a rise from 10°C to 32°C may halve the amount of air entrained. In practice, daily fluctuations are much smaller and do not cause significant variations.

Mixing and pumping: Variations of mixer type and transit time will change the level of air entrainment. 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: Entrained air will not be lost by normal vibration, though prolonged vibration is best avoided.

Low workability concrete: ie: slumps of less than 25 mm or compacting factors between 0.80 to 0.85 may require an increased dosage of Conplast AE210 in order to achieve the normal required air content.

Setting time: Negligible effect at normal dosage rates.

Compatibility: Conplast AE210 is compatible with other FOSROC Conplast admixtures, but it is recommended that all admixtures be added to concrete separately.

Conplast AE210 can be used with all types of Portland cements. For advice on special cements, consult the technical department.

Application instructions

Dosage

The optimum dosage must be determined by site trials with the particular concrete mix. As a guide, a dosage of 0.02 - 0.1 litres/100 kg cement will generally give an air content of 4$^1/_4$% ± 1$^1/_2$% with cement contents of 300-350 kg/ m^3.

Overdosing

An overdose of double the recommended amount of Conplast AE210 result in a slight increase in setting time and a reduction in compressive strength.

Dispensing

The correct quantity of Conplast AE210 should be measured by means of a recommended dispenser. The company's technical department should be consulted regarding suitable equipment and its installation.

Conplast AE210 should be added directly to the mixer and best results are obtained if added at the same time as the mixing water.

Curing

A Concure* curing membrane should be used, or alternative curing methods such as polythene, water spray or wet hessian.

Cleaning

Spillages of Conplast AE210 can be removed with water.

Estimating

Conplast AE210 is supplied in 20 and 210 litre drums.
Also in tanker loads. For larger users storage tanks and dispensing equipment can be supplied.

Storage

Conplast AE210 has a minimum shelf life of 12 months provided the temperature is kept within the range of 2°C to 50°C.

Precautions

Health and safety

Conplast AE300 slightly toxic and must not be ingested. It is mildly alkaline and prolonged contact with the skin must be avoided. Splashes to the skin should be washed with water. Any splashes to eyes should immediately be flushed with clean water and medical advice should be sought.

Fire

Conplast AE210 is non-flammable.

Additional information

Conplast AE210 was formerly known as Conplast AEA.

Technical data and guidance can be provided on a wide range of admixtures and concreting aids including accelerators, retarders, waterproofers, mould release agents, surface retarders, workability aids and materials.

* See separate data sheet.

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