Cemairin B

Air entraining plasticiser

Description

Cemairin B is a liquid air entraining admixture with plasticizing properties specially designed to create microscopic air bubbles that are uniformly distributed in the concrete mix. It also permits reductions in the free water content to be made. Cemairin B is formulated from selected water reducer polymers and synthetic surfactants.

The air-entraining properties of Cemairin B enable it to entrain into concrete controlled quantities of air bubbles of optimum spacing and diameter to give durability under freeze/thaw and improving concrete cohesion without loss in the concrete compressive strength due to its water reduction properties.

Applications

- In concrete mixes for roadways, airport runways and other concrete exposed to potential frost damage.
- To increase the durability of concrete and its resistance to damage by frost and de-icing salts.
- To increase cohesion of concrete mixes to overcome bleed, segregation and sand runs where poorly graded aggregate with high fine content needs to be used.

Advantages

- Cemairin B enables air entrainment of 4.5 ± 1.5% in concrete mixes as per specification of Ministry of Transport without loss of strength.
- Greatly improves cohesion, reduces segregation and bleeding.
- Increased freeze/thaw cycle resistance.
- Improves workability and plasticity.
- Exceptionally effective with aggregate with high fine content.
- Suitable for mixes containing PFA, GGBFS and microsilica.
- Of particular benefit in crushed aggregate mixes where the improved cohesion of the mix results in minimising sand runs and eliminating bleeding.
- Chloride free.

Compatibility

Cemairin B can be used with all types of Portland cement and cement replacement materials.

Technical Properties:	
Colour:	Brown liquid
Specific gravity:	1.17 ± 0.02
Chloride content: EN 934, Part 2	Nil

Cemairin B is compatible with other DCP admixtures used in the same concrete mix.

If more than one type of admixture is to be used in concrete mix, they must be dispensed to the concrete separately

Standards

Cemairin B complies with ASTM C260, BS 5075, Part 2, EN 934, Part 2 and IS 9103.

Method of Use

Cemairin B should be added to the concrete with the mixing water to achieve optimum performance.

An automatic dispenser should be used to dispense the correct quantity of Cemairin B to the concrete.

Dosage

The guidance dosage of Cemairin B to achieve air content of 4.5 ± 1.5 % in the concrete mix and 10 - 15% water reduction is 0.20 - 0.40 litre per 100 kg of cementitious material in the mix, including GGBFS, PFA or microsilica. We can go below or above the mentioned dose based on site concrete trials.

Representative trials should be conducted to determine the optimum dosage of Cemairin B to meet the performance requirements by using the materials and conditions in actual use.

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Points to be considered that affecting air entrainment

Any variation in the following factors will cause change in the air content:

i. Cement fineness.
ii. Concrete temperature.
iii. Sand grading.
iv. Mixture types.
v. Compaction method.
vi. Carbon or organic impurities.

Effects of Over Dosage

Over dosage of Cemairin B will cause the following:

- Significant increase in air content and workability.
- Increase in setting time.

Typical Test Results:

The test results below give an indication of ability of Cemairin B to increase the air content of a mix while achieving a significant water reduction of a mix design as specified in BS 5075, Part 2:1982

Air Void Characteristics:

The air void characteristics of hardened concrete were analysed in accordance with ASTM C457-82.

Dosage:	280 ml/100 kg
Spacing factor (/mm): Spacing factor standard (/mm):	0.179 mm < 0.200
Specific surface (/mm^2/mm^3): Specific surface standard (/mm^2/mm^3):	25.00 > 23.60

The spacing factor and specific surface of the entrained air are those necessary to provide resistance to freeze thaw activity

Mix Details:

Ordinary portland cement:	300 kg
20 - 10 mm gravel: (Irregular/rounded)	844 kg
10 - 5 mm gravel (angular)	375 kg
Zone 3 sand:	656 kg

Mix	Dosage Cemairin B	Total water/cement	Slump (mm)	Air Content (%)	Water Reduction on Control (%)	Average Compressive Strength (MPa)	
						7 days	28 days
Control:	0	0.66	50	1.2	-	28.1	38.1
Test:	280 ml/100 kg	0.58	50	4.4	12.1	28.2	36.9

Mix	Dosage Cemairin B	Initial Set (min)	Final Set (min)
Control:	0	275	360
Test:	280 ml/100 kg	285	375

Cleaning

Cemairin B can be washed with fresh cold water.

Packaging

Cemairin B is available in 25 and 250 kg containers supply.

Storage

Cemairin B has a shelf life of 12 months from date of manufacture if stored at temperatures between 2°C and 50°C.

If these conditions are exceeded, DCP Technical Department should be contacted for advice.

Cautions

Health and Safety

Cemairin B is not classified as hazardous material. Cemairin B should not come into contact with skin and eyes.

In case of contact with eyes wash immediately with plenty of water and seek medical advice promptly.

For further information refer to the Material Safety Data Sheet.

Fire

Cemairin B is nonflammable.

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- Tile adhesives and grouts.
- Building products.
- Structural strengthening.

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