



Technical Data Sheet

CEMAIRIN 3

Air Entraining Plasticiser

Areas of intended use:

Any concrete where air entertainment is needed without loss in strength.

Any concrete where air entrainment is needed and better surface finish required.

Any concrete where air entrainment is needed together with water reduction.

Any concrete where inadequately graded aggregates are used.

COMPOSITION:

A brown liquid based on a blend of processed lignosulphonates and surfactant.

USAGE:

Normal dosage 0.10 – 0.16 litres of Cemairin 3 to 50 Kg of Cement.

PACK

25 and 200 litres or bulk delivery.

A SUBSIDIARY OF DON CONSTRUCTION PRODUCTS LTD., U.K.



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INTRODUCTION

Concrete is susceptible to spalling and crazing due to the action of frost. This is caused when water, absorbed in the concrete, expands on freezing thereby developing internal pressures in the concrete leading to disruption of its structure. The introduction into concrete of a limited amount of entrained air, evenly dispersed throughout the mass in the form of minute bubbles, imparts a high degree of resistance to frost action.

The effectiveness of entrained air in producing durable concrete has been recognized for some years, in particular for roads and runways. Air entrainment usually results in slight strength losses but Cemairin 3, being a combined air entraining agent and plasticiser, provides the requisite amount of air without loss in strength or increase in cement content, being due to a concomitant water reduction.

ADVANTAGES

Cemairin 3 enables air entrainment to be achieved to Ministry of Transport specification (4.5%±1.5%) in concrete mixes without loss of strength.

Cemairin 3 improves the cohesive properties of concrete mixes in general by virtue of the size, nature and distribution of the air bubbles entrained but particularly where porous or poorly graded aggregates are used.

Cemairin 3 provides all the advantages of air entrainment and plasticisation including the reduction of susceptibility to segregation, bleeding, surface blemishes and sand runs.

PROPERTIES:

Appearance	Brown liquid
Composition	blend of processed Lignosulphonates and surface-active agent.
Sp. Gravity	1.178+/-0.015}
Chloride Content	Nil

Compatibility with cements: Cemairin 3 can be used with all types of Portland Cement, for other mixes please consult our Technical Department, who will also advise on compatibility with other admixtures.

WHERE TO USE:

CEMAIRIN 3 is ideal for use in:

Pavement quality concrete.

Concrete requiring air entrainment and plasticising benefits

Durable concrete with good finish.

Concrete normally prone to segregation and bleeding.

DOSAGE:

In normal to high workability concrete 0.10-0.16 litres of Cemairin 3 per 50kg cement will allow 10-15% water reduction whilst entraining 4.5%±1.5% of air. For lower workability concrete or concretes containing poorly graded aggregates 0.16-0.22 litres of Cemairin 3 will be required for a similar effect.

AIR VOID CHARACTERISTICS:

The air void characteristics of hardened concrete were analysed in accordance with ASTM C45782.

Dosage CEMAIRIN 3	140ML/50kg
Spacing factor (/mm)	0.179
Spacing factor standard (/ mm)	<0.20
Specific Surface (/mm ² /mm ³)	25.00
Specific Surface Standard (/mm ² /mm ³)	>23.6

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

STORAGE LIFE:

One year in manufacturer's sealed containers stored in dry frost-free conditions. If Cemairin 3 becomes frozen it should be allowed to thaw and then mixed thoroughly before use.

HANDLING PRECAUTIONS:

Cemairin 3 is slightly toxic. Do not ingest. Should ingestion occur an emetic of common salt and water should be given and medical advice sought. It is mildly acidic. Prolonged contact with the skin should be avoided, and any splashes to the eyes should be washed with clean water immediately and medical advice sought.

HOW TO SPECIFY:

Concrete shall be air-entrained by the addition of Cemairin 3 air entraining agent, manufactured by Don Construction Chemicals India Ltd. The dosage rate to produce an entrained content of 4.5%±1.5% to be determined by site trial mixes.

TYPICAL TEST RESULTS:

The test results below give an indication of ability of Cemairin 3 to increase the air content of a mix while achieving a significant water reduction of a mix design as specified in BS5075: Part2: 1982.

MIX DETAILS:

Ordinary Portland Cement 300 Kg
20-10mm Gravel (Irregular/rounded) 844 Kg
10-5 mm Gravel (Angular) 375 Kg
Zone 3 Sand 656 Kg

Mix	Dosage Cemairin 3	Total water/cement	Slump (/mm)	Air Content (/%)	Water reduction on control (/%)	Average Compressive Strengths	
						7 days (/N/mm ²)	28 days (/N/mm ²)
Control Test	140ml/50 kg cement	0.66 0.58	50 50	1.2 4.4	- 12.1	28.1 28.2	38.1 36.9

Mix	Dosage Cemairin 3	Initial Set (/min)	Final Set (/min)
Control Test	140 ml/50Kg Cement	275 285	360 375

The information given in this data sheet is based on both current development work and many years of field experience. Whilst every effort is made to ensure that the information is reliable, we cannot accept responsibility for any work carried out with our materials as we have no control over methods of application, site conditions, etc.

In view of the continuing research and development being undertaken in our laboratories, we advise customers in their own interest to ensure that this data sheet has not been superseded by a more up-to-date publication. All products are sold subject to our standard conditions of sale which are available on request.

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