

Daracem[®] SP4

Mid-Range Concrete Plasticiser/Superplasticiser

Description

Daracem SP4 is an extremely versatile product designed to cover a range of applicational requirements in concrete, under both normal and high ambient temperatures. It can be used at various dosage levels to water reduce, plasticise and also superplasticise concrete mixes.

Low dosages are used for water reduction, workability improvement with excellent retention and limited retardation.

At high dosage levels Daracem SP4 will give large water reductions or alternatively it can be used to superplasticise a concrete mix. Daracem SP4 also exhibits excellent workability retention and limited retardation at high levels of addition, particularly in hot climates.

Daracem SP4 is based on a modified lignosulphanate and a powerful deflocculant. Depending on the addition rate Daracem SP4 conforms to Type A, D and G materials with BS 5075 Part I and BS 5075 Part III.

Advantages

- Daracem SP4, because of its effective plasticising action, gives increase workability to most concretes.
- Imparts excellent workability retention on concrete, when used at both low and high levels of addition, which is of particular value at high ambient temperatures.

- As a water reducing agent, Daracem SP4 gives effective water reduction when employed at either low or high dosages, resulting in increases in strength, impermeability and durability.
- Daracem SP4 produces superplasticised concrete by direct addition at high dosage levels. The increase in workability is such that the concrete becomes self compacting and no vibration is required to achieved dense, void-free concrete.
- Cement economies can be effected on a concrete mix using Daracem SP4.
- Incorporation of Daracem SP4 into concrete aids cohesion, especially when harsh mixes are used. This is a function of the slight air entrainment properties of the product, which is characteristic of lignosulphonic acid derivatives. Slight air entrainment also improves the surface finish of the concrete.

Typical Properties

Appearance:

Dark brown liquid

Specific Gravity:

1.16 at 20°C

Air Entrainment:

Air content of concrete will normally be increased between 1% and 2%

Chloride Content:

Nil

Freezing Point:

0°C

Storage life in manufacturer's drums: 12 months from date of manufacture.

Bulk Storage:

12 months from date of delivery.

Compatibility

With cements: Daracem SP4 can be used with all types of Portland, Pozzolan, and Blast Furnace cements. It can also be used in mix designs containing fly ash and microsilica.

With other admixtures: Daracem SP4 should not be premixed with other admixtures. The performance of the material may be affected by the presence of other chemicals, if premixed prior to addition to the concrete mix.

Method of Use

Daracem SP4 is supplied ready for use. It should be added to concrete mixes during the mixing process, preferably at the same time as the mix water. It should not be added directly to the cement. No extension of normal mixing time is necessary, except when superplasticised concrete is being produced. Then Daracem SP4 should be added at least 2 minutes before the pour which is recommended to enable efficient dispersion.

In order to maintain maximum workability of the superplasticised concrete, it should be discharged into the placing area soon after addition.

Any delays, especially in warm weather condition will result in a gradual loss in workability.

Before the addition of Daracem SP4, it is recommended that the workability of the concrete is checked to ensure it is within the required initial slump range.

When placing high workability concrete containing Daracem SP4, a temporary increase in formwork pressure will occur and this should be taken into account at the design stage.

Addition Rates

Range: 0.28% - 1.5% by weight of cement.

As with most products of this typed, the magnitude of the effect obtained with Daracem SP4 is governed by the quantity of product used and the specific nature of the concrete and its constituent materials.

It is necessary, therefore, to assess plastic and hardened concrete

properties, such as cohesiveness, workability retention, set characteristics, early rate of strength gain, ultimate compressive strength and shrinkage when these are of consequence.

As a guide to these trials, an addition level of 280ml-1500ml Daracem SP4 per 100 kg cement is recommended. For advice and assistance with your trials we recommend that you consult our technical department.

Effects of Overdosing

The effects of overdosing of Daracem SP4 are governed by the degree of overdose. When producing high workability concrete, overdosing will increase the level of workability and may induce the onset of segregation.

Depending on the extent of the overdose an increased in the setting time may also occur, especially in low temperatures and/or when using sulphate resisting cement.

In any situation where overdosing is suspected, a careful inspection of the concrete in its plastic state should be conducted. Particular attention should be paid to consistency and cohesiveness, prior to a decision on the suitability of the concrete for the particular application in question.

Dispensing

It is preferable that liquid admixtures for concrete should be introduced into a mixer by means of automatic dispensing equipment, details of which are available upon request.

Health and Safety

For further information see the Daracem SP4 Material Safety Data Sheet, or consult Emirates Chemicals LLC.

Packaging

Daracem SP4 is supplied in 210 litre free, non-returnable containers.

Alternatively, bulk deliveries can be arranged.

Storage

Daracem SP4 should preferably be stored in sealed containers and protected from the elements.

Technical Service

The Technical Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

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