# DARACEM® 110

Concrete Superplasticizer

## Product Description

DARACEM®110 is a high performance liquid superplasticiser that has been developed to enhance and improve the slump retaining properties of concrete, whilst providing improved ultimate compressive strengths.

It is an extremely versatile and flexible product and is effective over a wide range of cement contents and cement types. DARACEM 110 is especially beneficial in high durability concrete mix designs. It can be used effectively in cementitious systems that utilise Ground Granulated Blast Furnace Slag, Pulverised Fuel Ash, Silica Fume or Portland Cements

DARACEM 110 is particularly useful for imparting extreme workability to concrete mixes so that large or difficult pours can be made, especially under climatically hot conditions.

DARACEM 110 is formulated from carefully selected raw materials and is manufactured under controlled conditions to give a consistent product. It is an extremely powerful defflocculating agent and performs by dispersion of the cement into primary particles, dramatically improving flow of the cement paste.

DARACEM 110 meets the requirements of ASTM C-494 Type F & G and BS 934-2

## Avantages

- DARACEM 110 is especially suitable for producing high workability concrete that has excellent workability retention. In this application, minimum extensions of setting time and little loss in early age compressive strength are observed.
- High workability flowing concrete can be obtained by incorporating DARACEM 110 into a concrete mix designed for a 50mm slump. Normal pump mixes are recommended for this application.
- DARACEM 110 can be used to affect high range water reductions, typically up to 30%, leading to considerable increases in compressive strength. Impermeability and durability are correspondingly improved.

## Typical Properties

| DARACEM 19CFU | |
|---|---|
| Appearance | dark brown liquid |
| Specific Gravity | 1.23 at 20°C |
| Air Entrainment | 0.5% |
| Chloride Content | Nil |

## Method Of Use

DARACEM 110 is supplied ready for use. When producing high workability concrete it should be added in its supplied form to the batching water, prior to the addition of the cementitious component. After the addition of cement, a further mixing cycle of at least 2 minutes is recommended to enable DARACEM 110 to efficiently disperse the mix components.

## Compatibility with Cements

DARACEM 110 can be used with all types of Cements, including Limestone Cements. It is also effective in concretes containing pulverised fuel ash or ground granulated blast furnace slag. For use with special cements we recommend you consult GCP.

## Compatibility with other Admixtures

DARACEM 110 should not be premixed under any circumstances with other admixtures. While some admixtures can be usefully combined within the same mix the performance of this product may well be affected by the presence of other chemicals. We recommend that GCP be contacted for advice in all such circumstances.

## Addition Rates

**Range: 500ml-2000ml per 100kg cement (0.5%-2.0% [v/w] by weight of cement)**

As with most products of this type, the magnitude of the effect obtained with DARACEM 110 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 performance under site conditions using site materials to determine optimum dosage and effect on both 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, and addition level of 1.2% - 1.4% DARACEM 110 volume/weight of cement is recommended.

Addition rates outside the recommended dosage range may be used for special concrete applications. This may be the situation when Silica Fume or Blast Furnace Slag Cement is used. In such circumstances it is important to conduct preliminary trials on the actual mix constituents to assess the effect on the properties of the concrete, at the dosage level specified.

For advice and assistance with your trials we recommend you consult GCP.

## Effects of Overdosing

The effects of over-dosing DARACEM 110 are a function of the degree of over-dose.

When producing high workability concrete, over-dosing will increase the level of workability and may induce the onset of segregation.

Depending on the extent of the over-dose, an increase in the setting time may also occur, especially in low temperatures and/or when employing sulphate resisting cement or cement replacement materials.

In any situation where over-dosing 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 the mixer by means of automatic dispensing equipment. Such equipment is available from GCP and details will be supplied on request.

## Health and Safety

DARACEM 110 is formulated from chemicals which present no fire or health hazards. If, however, it is split the floor will be made slippery and should be washed down immediately with cold water. For further information see the DARACEM 110 SDS (Safety Data Sheet) or consult GCP.

## Packaging

DARACEM 110 is supplied in 210 Litre non-returnable drums. Alternatively, 1,000 Litre IBCs or bulk deliveries can be arranged.

## Storage

DARACEM 110 should be stored in original containers or suitable closed tanks, preferably out of direct sunlight and protected from extremes of temperature. Storage Life in Manufacturer's Drums: 12 months from date of manufacture Storage Life in Bulk Storage: 12 months from date of delivery

## Technical Service

The Technical Service Department of GCP Applied Technologies is available to assist you in the correct and best use of our products. These resources and advice are at your disposal entirely without obligation. Please contact:

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