

DARACEM[®] 112

Concrete Superplasticiser

Product Description

DARACEM[®]112 is a high performance liquid superplasticiser that has been developed to allow concrete to attain high performance in both the plastic and hardened states.

DARACEM 112 can be utilized to achieve high early and subsequent strengths in concrete whilst maintaining adequate workability levels for placement.

It is an extremely versatile and flexible product and is effective over a wide range of cement contents and cement types. DARACEM 112 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 112 is particularly useful for imparting extreme workability to concrete mixes so that large or difficult pours can be made.

DARACEM 112 is formulated from carefully selected raw materials and is manufactured under controlled conditions to give a consistent product. It is an extremely powerful deflocculating agent and performs by dispersion of the cement into primary particles, dramatically improving flow of the cement paste.

DARACEM 112 meets the requirements of ASTM C-494 Type F.

Advantages

- DARACEM 112 is especially suitable for producing high workability concrete. In this application, minimum extensions of setting time or loss in early age compressive strength are observed.
- High workability flowing concrete can be obtained by incorporating DARACEM 112 into a concrete mix designed for a 50 mm slump. Normal pump mixes are recommended for this application.
- DARACEM 112 can be used to effect high range water reductions, typically up to 30%, leading to considerable increase 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 112 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 112 to efficiently disperse the mix components.

Compatibility with Cements

DARACEM 112 can be used with all types of cements including Limestone cements. It is also effective in concrete containing pulverised fuel ash or ground granulated blast furnace slag. For use with special cements we recommend that you consult GCP Applied Technologies.

Compatibility with other Admixtures

DARACEM 112 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 and we recommend that GCP be contacted for advice in all such circumstances.

Addition Rates

Range: 500 ml–2000 ml per 100 kg cement (0.5% to 2.0% volume by weight of cement)

As with most products of this type, the magnitude of the effect obtained with DARACEM®112 is governed by the quantity of product used and the specific nature of the concrete and its constituent materials.

It is therefore necessary 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 an addition level of 1.0%–1.2% 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 would recommend that you consult GCP.

Effects of Overdosing

The effects of overdosing DARACEM 112 are a function of 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 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 overdosing is suspected, a careful inspection of the concrete should be made to its plastic state in terms of 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. Such equipment is available from GCP and details will be supplied upon request.

Storage

DARACEM 112 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 the date of manufacture

Storage Life in Bulk Storage:

12 months from the date of delivery

Technical Service

The Technical Service Department of GCP 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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