

# DARACEM<sup>®</sup> Cast 459

Superplasticiser

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## Product Description

DARACEM<sup>®</sup> Cast 459 is a high range water reducer, commonly referred to as a superplasticiser. It is an aqueous solution of a modified naphthalene sulfonate. It is a low viscosity liquid which has been formulated by the manufacturer for use as received. DARACEM<sup>®</sup> Cast 459 contains no added chloride. DARACEM<sup>®</sup> Cast 459 is formulated to comply with the following chemical admixture specifications for concrete: ASTM Designation C 494 as a Type A and Type F admixture; C 1017 as a Type I admixture; GB 8076-1997.

One litre of DARACEM<sup>®</sup> Cast 459 weighs approximately  $1.24 \pm 0.02\text{kg}$ .

## Product Advantages

- The low sodium content of DARACEM<sup>®</sup> Cast 459 is particularly useful in applications where a limit on the equivalent sodium oxide of the mix design is specified.
- DARACEM<sup>®</sup> Cast 459 can produce high slump flowable concrete at no loss in strength.
- DARACEM<sup>®</sup> Cast 459 can produce low water-cement ratio concrete and therefore, high strengths.
- DARACEM<sup>®</sup> Cast 459, in prestress/precast work, can be used to substantially reduce or eliminate the high energy requirements of external heat for accelerated curing.
- DARACEM<sup>®</sup> Cast 459 concrete produced with Type I cement may be substituted for normal concrete produced with Type III cement to achieve early release strengths.
- DARACEM<sup>®</sup> Cast 459 concrete, even at high slump, exhibits no significant segregation in comparison to concrete without a superplasticiser at the same slump.
- DARACEM<sup>®</sup> Cast 459 aids in rapid discharge of concrete from truck mixers thereby reducing on the job time and improving mixer utilisation.

## Applications

DARACEM<sup>®</sup> Cast 459 produces concrete with extremely workable characteristics referred to as high slump, flowing concrete. DARACEM<sup>®</sup> Cast 459 also allows concrete to be produced with very low watercement ratios at low or normal slumps.

DARACEM<sup>®</sup> Cast 459 is ideal for use in prestress, precast, bridge deck or any concrete where it is desired to keep the water-cement ratio to a minimum and still achieve the degree of workability necessary to provide easy placement and consolidation. DARACEM<sup>®</sup> Cast 459 will also fluidise concrete making it ideal for tremie concreting or other applications where high slumps are desired.

## Dispersion

DARACEM® Cast 459 is a superior dispersing admixture having a marked capacity to disperse the cement agglomerates normally found in a cement-water suspension. The capability of DARACEM® Cast 459, in this respect, exceeds that of normal water reducing admixtures.

## Addition Rates

Addition rates of DARACEM® Cast 459 can vary with type of application, but will normally range from 400 to 1,600mL / 100kg of cementitious material. In most instances the addition of 400 to 1,100mL / 100kg of cementitious material will be sufficient. At a given water-cement ratio, the slump required for placement can be controlled by varying the addition rate. Should job site conditions require using more than recommended addition rates, please consult your local GCP representative.

## Compatibility with Other Admixtures

In concrete containing DARACEM® Cast 459, the use of an air-entraining agent (such as DARAVAIR® or DAREX® AEA®) is recommended to provide suitable air void parameters for resistance against freeze-thaw attack. Most water reducers or water reducing retarders are compatible with DARACEM® Cast 459 as long as they are separately added to the concrete. Pretesting of the concrete should be performed to optimise dosages and addition times of these admixtures. Caution should be exercised when using DARACEM® Cast 459 together with a retarder, as excessive retardation can occur if the admixture dosages are too high.

The admixtures should not be in contact with each other before they enter the concrete.

## Dispensing Equipment

Please contact your local GCP representative for further information regarding the dispensing equipment for this product.

## Packaging

DARACEM® Cast 459 is available in bulk and in 205L drums.

DARACEM® Cast 459 contains no flammable ingredients. It will begin to freeze at approximately 0°C, but will return to full strength after thawing and agitation.

In storage and for proper dispensing, DARACEM® Cast 459 should be maintained at temperatures above 0°C.

## Health and Safety

See DARACEM® Cast 459 Material Safety Data Sheet or consult GCP Applied Technologies.

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