

# DARACCEL®

Water-reducing and accelerating admixture ASTM C494 Type E

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## Product Description

Daracel® is a liquid admixture formulated to provide faster set acceleration and increased early strength development of concrete. It contains calcium chloride as well as other chemicals to enhance the effect of the calcium chloride.

## Uses

Daracel® is specifically designed for use in cold weather concreting or whenever accelerated properties of concrete are desired. Daracel is a water-reducing accelerator formulated to comply with the requirements of ASTM™ C494 as a Type E admixture with a Type I or Type II cement. Daracel combines the effect of a water-reducing admixture with the qualities of a Type III cement. The resulting reduction in water requirement, shorter setting time and higher early strengths permit earlier finishing and earlier form removal with significant job economies. Although specifically designed for cold weather concreting, Daracel is not an anti-freeze but will reduce the time during which concrete must be protected from freezing. Daracel is recommended for use in all types of concrete except prestressed and other applications where chloride is not acceptable.

## Advantages

The rate of cement hydration decreases with decreasing temperature. This results in a longer setting time for concrete and a slower rate of strength development. Finishing time is delayed. Form removal must be postponed. The costs of placing and finishing concrete are increased.

The effect of low temperature on setting time and early strength may be completely offset by the addition of Daracel.

## Product Advantages

- Combines quality of a water reducer with qualities of a Type III cement
- Designed for cold weather concreting
- Provides earlier finishing and form removal with significant job economies
- Serves as a water-reducing accelerator

## Addition Rates

Daracel is used at an addition rate of 8 to 40 fl oz/100 lbs (520 to 2600 mL/100 kg) of cement. The amount used will depend upon the setting time of the non admixed concrete and the temperature at placement. In most instances, the addition of 12 to 16 fl oz/ 100 lbs of Daracel (780 to 1040 mL/100 kg) of cement will reduce the setting time of a typical Type I cement concrete at 50°F (10°C) by 2 to 3 hours and increase the 3 day compressive strength by 25% to 50%. Trial mixes are recommended to determine optimum dosage rate.

## Compatibility with Other Admixtures and Batch Sequencing

Daracel is compatible with most GCP admixtures as long as they are added separately to the concrete mix, usually through the water holding tank discharge line. In general, it is recommended that Daracel be added to the concrete mix near the end of the batch sequence for optimum performance. Different sequencing may be used if local testing shows better performance. Please see GCP Technical Bulletin TB-0110, *Admixture Dispenser Discharge Line Location and Sequencing for Concrete Batching Operations* for further recommendations.

Pretesting of the concrete mix should be performed before use, as conditions and materials change in order to assure compatibility, and to optimize dosage rates, addition times in the batch sequencing and concrete performance. For concrete that requires air entrainment, the use of an ASTM C260 air-entraining agent (such as Daravair® or Darex® product lines) is recommended to provide suitable air void parameters for freeze-thaw resistance. Please consult your GCP Applied Technologies representative for guidance.

## Packaging

Daracel is available in bulk, delivered by tank car or metered tank truck, totes and drums.

## Dispensing Equipment

A complete line of accurate dispensing equipment is available. Daracel may be added to the mix on the sand or in the water.

## Specifications

Concrete shall be designed in accordance with *Recommended Practice for Selecting Proportions for Normal Weight Concrete*, ACI 211.1, or *Recommended Practice for Selecting Proportions for Structural Lightweight Concrete*, ACI 211.2, or for reinforced concrete in accordance with ACI 318.

When the temperature of the concrete is placed or the ambient temperature is 50°F (10°C) or less, all concrete shall be admixed with Daracel as manufactured by GCP Applied Technologies, added at the rate of 8 to 40 fl oz/100 lbs (520 to 2600 mL/100 kg) of cement. The admixture shall be considered as part of the total mixing water.

When Daracel is used in air entrained concrete, trial mixes must be made to determine the quantity of air-entraining admixture required.

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