

# Daracel®

Water-Reducing Admixture ASTM C 494, Type E

## 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 C 494 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.

## Addition Rates

Daracel is used at an addition rate of 520 to 2600 mL/100 kg (8 to 40 fl oz/100 lb) 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 780 to 1040 mL of Daracel/100 kg (12 to 16 fl oz/100 lb) of cement will reduce the setting time of a typical Type I cement concrete at 10°C (50°F) by 2 to 3 hours and increase the 3 day compressive strength by 25 to 50%.

### Compatibility with Other Admixtures

Daracel is compatible in concrete with all commercial air-entraining admixtures. Each admixture should be added separately to the concrete. Mixing of Daracel with air-entraining admixtures or other chemical admixtures prior to use must be avoided. Storage tanks for Daracel must be thoroughly cleaned of previously contained admixtures, or other substances, before the addition of Daracel. Daracel is not an air-entraining admixture, however, its effect on the desired level of air entrainment in concrete should be verified. When Daracel is to be used in air entrained concrete, it is recommended that trial mixtures be made to determine the quantity of air-entraining admixtures required.

### 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.

### Packaging

Daracel is available in bulk, delivered by tank car or metered tank truck, and in 210 L (55 gal) drums. One Liter weighs approximately 1.32 kg (11 lb/gal).

### Architects' 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 as placed or the ambient temperature is 10°C (50°F) or less, all concrete shall be admixed with Daracel as manufactured by Grace Construction Products, added at the rate of 520 to 2600 mL/100 kg (8 to 40 fl oz/100 lb) 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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DS-6D

Printed in U.S.A.

11/97

FA/GPS/10M

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