DARAPEL® S40

Water-repellent admixture

Product Description

DARAPEL®S40 is a ready-to-use water-repelling admixture. It is manufactured under rigorous quality control to ensure uniform performance. The product weighs approximately 7.8 lb/gal (0.93 kg/L).

Product Advantages

- Reduces ingress of water into the concrete
- Increases resistance to weathering
- Increases resistance to chemical attack
- Reduces potential for efflorescence
- Adds visual appeal to concrete

Uses

Architects, engineers, contractors, and other authorities agree that even good quality concretes, mortars, etc., are inherently porous and permeable to water. DARAPEL®S40 admixture imparts water-repelling properties to the capillary pores, forming an internal barrier against water transmission in mixes used for ready mixed or precast concrete.

How it Works

The addition of DARAPEL®S40 admixture to the concrete mixture will provide hydrophobic (water-repelling) properties to the hardened concrete. The unique silane chemistry of the product creates a permanent non-wettable lining on the walls of the concrete pores, making them water repellent. The DARAPEL®S40 "built-in" water barrier guards against damage caused by water.

Improved Concrete Quality

Concrete shall be designed in accordance with *Standard Recommended Practice for Selecting Proportions for Concrete*, ACI 211.

Higher quality concrete will result from the use of DARAPEL® S40 admixture. The workability of mixes will be improved. The protection of embedded steel and resistance to bacteria or fungus growth may also be increased by keeping the concrete drier.

Curing

Proper curing of the in-place mix is vital. Allowing the mix to prematurely dry out should be prevented because re-wetting (and continued hydration) may not be effective.

Air Management Guidelines

Added by itself, DARAPEL®S40 admixture may have a slight effect on the entrained air volume. Trial mixes or field tests are recommended to evaluate its effect with actual materials at production site.

Requirements for minimum compressive strength, maximum water-cementitious ratio, and air contents listed in *Building Code Requirements for Structural Concrete*, ACI 318 must be strictly adhered to, being careful to select the appropriate exposure category for the structure and nominal maximum aggregate size for the concrete.

The following guidelines are recommended for concrete containing DARAPEL® S40 admixture and subject to freezing and thawing conditions. Note that minimum plastic concrete air contents represent plastic air at the point of placement.

- Minimum compressive strength at 28 days of 4,500 psi (31 MPa)
- Maximum water-cementitious materials ratio of 0.45
- Minimum fresh concrete air content in accordance with the maximum aggregate size

MAXIMUM AGGREGATE SIZE	MINIMUM PLASTIC CONCRETE AIR CONTENT
3/8 in. (9.5mm)	7.5%
1/2 in. (12.5mm)	7%
3/4 in. (19mm) or greater	6%

Addition Rates

Addition rate may be varied to achieve the desired water repellency. Typically, addition rates can vary from 2 to 5 fl oz/100 lb (130 to 325 mL/100 kg) of cementitious materials. Addition rates may vary depending on materials, job conditions and desired performance characteristics. Please consult your GCP Applied Technologies representative for information and assistance.

Compatibility with Other Admixtures and Batch Sequencing

DARAPEL® S40 water repelling admixture 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 the product be added to the concrete mix near the end of the batch sequence for optimum 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, and 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 airentraining 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 & Handling

DARAPEL®S40 water-repelling admixture is available in 275 gal (1040 L) totes, and in 55 gal (208 L) drums. The product will begin to freeze at approximately 14°F (-10°C). In storage and for proper dispensing, the temperature should be maintained above 32°F (0°C).

Dispensing Equipment

A complete line of accurate, automatic dispensing equipment is available.

Flammability

DARAPEL®S40 admixture has a flash point of 212°F (100°C). This is substantially above the upper limit of 140°F (60°C) for classification as a flammable material and above the limit of 200°F (93°C) for classification as a combustible material by DOT requirements. Nonetheless, this product must be treated with care and protected from excessive heat, open flame or sparks. For more information, consult the SDS.

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ca.gcpat.com/solutions/products/darapel-s40