DARAVAIR® 1000 Data Sheet

Air-entraining admixture ASTM C260

Product Description

DARAVAIR® 1000 is a liquid air-entraining admixture that provides freeze thaw resistance, yield control, and finishability performance across the full range of concrete mix designs. DARAVAIR® 1000 is a clean, light orange product designed to generate specification-quality air systems. Based on a high-grade saponified rosin formulation, DARAVAIR® 1000 is chemically similar to vinsol-based products, but with increased purity and supply dependability. DARAVAIR® 1000 weighs approximately 8.5 lbs/gal (1.02 kg/L). DARAVAIR® 1000 does not contain intentionally added chloride.

Uses

DARAVAIR® 1000 air-entraining admixture may be used wherever the purposeful entrainment of air is required by concrete specifications. Formulated to perform across the entire spectrum of production mixes, DARAVAIR® 1000 generates quality, freeze-thaw resistant air systems in concrete conditions that include the following:

- Low slump
- Paving
- Central mix
- Extruded slip form
- Mixes containing hot water and accelerators
- Precast
- High cement factor
- Fly ash and slag
- Superplasticizers
- Manufactured sands

Product Advantages

- Rapid air build suitable for short mix cycles
- Can be used in wide spectrum of mix designs

Compatibility with Other Admixtures and Batch Sequencing

DARAVAIR® 1000 is compatible with most GCP admixtures as long as they are added separately to the concrete mix. In general, it is recommended that DARAVAIR® 1000 be added to the concrete mix near the beginning of the batch sequence for optimum performance, preferably by “dribbling” on the sand. 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. DARAVAIR® 1000 should not be added directly to heated water.

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. Please consult your GCP Applied Technologies representative for guidance.

Performance

Air is incorporated into the concrete by the mechanics of mixing and stabilized into millions of discrete semi-microscopic bubbles in the presence of a specifically designed air-entraining admixture such as DARAVAIR® 1000. These air bubbles act much like flexible ball bearings increasing the mobility, or plasticity and workability of the concrete. This can permit a reduction in mixing water with no loss of slump. Placeability is improved. Bleeding, plastic shrinkage and segregation are minimized.

Through the purposeful entrainment of air, DARAVAIR® 1000 markedly increases the durability of concrete to severe exposures particularly to freezing and thawing. It has also demonstrated a remarkable ability to impart resistance to the action of frost and de-icing salts as well as sulfate, sea and alkaline waters.

Addition Rates

There is no standard addition rate for DARAVAIR® 1000. The amount to be used will depend upon the amount of air required for job conditions, usually in the range of 4% to 8%. Typical factors which might influence the amount of air-entraining admixture required are temperature, cement, sand gradation and the use of extra fine materials such as fly ash and microsilica. Typical DARAVAIR® 1000 addition rates range from ½ to 3 fl oz/100 lbs (30 to 200 mL/100 kg) of cement. Pretesting of concrete should be performed to confirm dosage rates required to achieve desired concrete performance.

The air-entraining capacity of DARAVAIR® 1000 is usually increased when other concrete admixtures are contained in the concrete, particularly water-reducing admixtures and water-reducing retarders. This may allow up to ⅔ reduction in the amount of DARAVAIR® 1000 required.

Concrete Mix Adjustment

Entrained air will increase the volume of the concrete making it necessary to adjust the mix proportions to maintain the cement factor and yield. This may be accomplished by a reduction in water requirement and aggregate content.

Dispensing Equipment

A complete line of accurate automatic dispensing equipment is available. These dispensers can be located to discharge into the water line, the mixer, or on the sand.

Packaging & Handling

DARAVAIR® 1000 is available in bulk, delivered by metered tank trucks, totes and drums.

DARAVAIR® 1000 will freeze at about 30 °F (-1 °C) but its airentraining properties are completely restored by thawing and thorough mechanical agitation.

Specifications

Concrete shall be air entrained concrete, containing 4% to 8% entrained air. The air contents in the concrete shall be determined by the pressure method (ASTM Designation C231) or volumetric method (ASTM Designation C173). The air-entraining admixture shall be a completely neutralized rosin solution, such as DARAVAIR® 1000, as manufactured by GCP Applied Technologies, or equal, and comply with Standard Specification for Air-Entraining Admixtures (ASTM Designation C260). The air-entraining admixture shall be added at the concrete mixer or batching plant at approximately ½ to 3 fl oz/100 lbs (30 to 200 mL/100 kg) of cement, or in such quantities as to give the specified air contents.

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