

# DAREX<sup>®</sup> AEA

Air-entraining admixture ASTM C260

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## Product Description

DAREX<sup>®</sup> AEA admixture is an aqueous solution of a complex mixture of organic acid salts. DAREX<sup>®</sup> AEA is specially formulated for use as an air-entraining admixture for concrete and is manufactured under rigid control which provides uniform, predictable performance. It is supplied ready-to-use and does not require pre-mixing with water. One gallon weighs approximately 8.5 lbs (1.02 kg/L).

## Product Advantage

- Economical air entrainer is suitable for improving workability of harsh mixes
- Can be used in wide spectrum of mix designs

## Uses

DAREX<sup>®</sup> AEA is used in ready-mix and concrete products plants. It is also used on the job with job site mixers and highway pavers— wherever concrete is mixed and there is a need for purposeful air entrainment.

Because DAREX<sup>®</sup> AEA imparts workability to the mix, it is particularly effective with slag, lightweight, or manufactured aggregates which tend to produce harsh concrete. It also makes possible the use of natural sand deficient in fines.

## Performance

Air is entrained by the development of a semi-microscopic bubble system, introduced into the mix by agitation and stabilized by DAREX<sup>®</sup> AEA in the mortar phase of the concrete.

### Workability is improved

Millions of tiny air bubbles entrained with DAREX<sup>®</sup> AEA act as flexible ball bearings, lubricating and plasticizing the concrete mix. This permits a reduction in mixing water with no loss in slump. Placeability is improved—bleeding and segregation are minimized.

### Durability is increased

DAREX<sup>®</sup> AEA concrete is extremely durable, particularly when subjected to freezing and thawing. It has resistance to frost and de-icing salts, as well as to sulfate, sea and alkaline waters.

## Addition Rates

There is no standard addition rate for DAREX<sup>®</sup> AEA. The amount to be used will depend upon the amount of air required under job conditions, usually in the range of 4% to 8%. Typical factors which might influence the amount of air entrained are temperature, cement, sand gradation and use of extra fine materials such as fly ash. Typical DAREX<sup>®</sup> AEA addition rates range from ½ to 3 fl oz/100 lbs (30 to 200 mL/100 kg) of cement.

The air-entraining efficiency of DAREX<sup>®</sup> AEA becomes even greater when used with water-reducing and set-retarding agents. This may allow a reduction of up to ⅓ in the amount of DAREX<sup>®</sup> AEA required for the specified air content.

## 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.

## Compatibility with Other Admixtures and Batch Sequencing

DAREX<sup>®</sup> AEA is compatible with most GCP admixtures as long as they are added separately to the concrete mix. In general, it is recommended that DAREX<sup>®</sup> AEA 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. DAREX<sup>®</sup> AEA should not come in contact with any other admixture before or during the batching process, even if diluted in mix water. DAREX<sup>®</sup> AEA should not be added directly to heated water.

DAREX<sup>®</sup> AEA is not recommended for use in concrete treated with naphthalene-based admixtures including DARACEM<sup>®</sup>19 and DARACEM<sup>®</sup>100, or melamine-based admixtures including DARACEM<sup>®</sup>65.

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.

## Packaging & Handling

DAREX<sup>®</sup> AEA is available in bulk, delivered in metered tank trucks, totes and drums.

DAREX<sup>®</sup> AEA will freeze at about 30 °F (-1 °C), but its air-entraining properties are completely restored by thawing and thorough mechanical agitation.

## Dispensing Equipment

A complete line of automatic DAREX<sup>®</sup> AEA dispensers is available. Accurate and simple, these dispensers are easily adapted to existing facilities on paving mixers and in batching plants.

## 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 gravimetric method (ASTM Designation C138). The air-entraining admixture shall be DAREX® AEA, as manufactured by GCP Applied Technologies, or equal. The air-entraining admixture shall be added at the concrete mixer or batching plant in such quantities as to give the specified air contents.

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