

# DARAVAIR<sup>®</sup> AE4

Air-entraining agent

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## Product Description

DARAVAIR<sup>®</sup>AE4 is a liquid air-entraining agent for use in all types of mortar and concrete mixes. It is particularly designed for use in the production of foamed concrete and for use with synthetic and naturally occurring lightweight aggregates, where the density of fine aggregate/cement paste is normally required to be similar to that of the aggregate. Daravair AE4 is formulated from carefully selected raw material and is manufactured under controlled conditions to give a consistent product. It is a blend of anionic surfactants.

Daravair AE4 is a pale, straw-coloured liquid intended for use as supplied. Daravair AE4 does not contain chlorides as an intentional component and it is non-corrosive.

One litre weighs approximately  $1.03\text{kg} \pm 0.02\text{kg}$ .

## Applications

Daravair AE4 may be used whenever the purposeful entrainment of air is required by concrete specifications. It is particularly useful in mass concrete and in high-cement, low-slump paving mixes, which require efficient, effective air-entraining admixtures. Daravair AE4 should be added to concrete mixes or mortar mixes during the mixing process at the same time as the water or the aggregates. It should not be added directly to the cement or mortar.

## Air-Entraining Action

Air is incorporated into the concrete by the mechanics of mixing and stabilised into millions of discrete, semi-microscopic bubbles in the presence of a specifically designed air-entraining admixture such as Daravair AE4. These air bubbles act much like flexible ball bearings increasing the workability of the concrete. This permits a reduction in mixing water with no loss of slump. Placeability is improved, and bleeding and segregation are minimised.

Through the purposeful entrainment of air, Daravair AE4 markedly increases the durability of concrete to all exposures – particularly to freezing and thawing. It has also demonstrated a remarkable ability to impart resistance to the action of frost and deicing salts as well as sulphates, sea and alkaline waters.

## Addition Rates

The performance of Daravair AE4 is best assessed after preliminary tests on site using the actual mix and the plant under consideration to determine the optimum dosage rates which will give the desired concrete properties.

For foamed concrete-mortar, a 5 – 7% solution of Daravair AE4 is usually added via a foam tube. The quantity of Daravair AE4 added will determine the resultant density of the concretemortar produced.

Hence the volume of aqueous solution added is proportional to the concrete-mortar density required. Conventional mixing equipment can be used to produce foamed, lightweight aggregate concrete.

As a guide to trials, an addition rate of 200mL of Daravair AE4 per 50kg cement should be evaluated.

The air content of air regularly checked, and because of the absorptive nature of most lightweight aggregates, a gravimetric determination is most suitable.

## Product Advantages

- Daravair AE4 will entrain air into types of concrete, even those with highly angular crushed aggregates.
- It can be used with all types of lightweight aggregates to produce very low-density concrete mixes.
- Daravair AE4 can be employed to entrain air in mixes containing high proportions of pulverised fuel ash.
- An aqueous solution of Daravair AE4 can be performed to give a very stable, foamed concrete.

## Compatibility with Other Admixtures

Daravair AE4 is compatible in concrete with all known accelerating admixtures, water-reducing admixtures and water-reducing retarders. Each admixture should be added separately to the mix, and not premixed with other admixtures.

## Effects of Overdosing

As with all air-entraining agents, Daravair AE4 in any given mix will proportionately reduce compressive strengths as the level of entrained air is increased. Overdosing Daravair AE4 will normally produce an increase in air content and workability, together with a loss in ultimate compressive strengths.

## Dispensing Equipment

Please contact your local GCP representative for further information regarding the dispensing equipment for this product.

## Packaging and Storage

Daravair AE4 is supplied in 205L drums and in 1,000L totes. Daravair AE4 should preferably be stored in sealed conventional containers protected from the elements. Daravair AE4 does not contain any flammable ingredients.

## Health and Safety

See Daravair AE4 Material Safety Data Sheet or consult GCP Applied Technologies.

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