TYTRO® AE 270

Air-entraining admixture for shotcrete

Product Description

TYTRO®AE 270 admixture is an aqueous solution of a complex mixture of organic acid salts. TYTRO®AE 270 is specially formulated for use as an air-entraining admixture for shotcrete and is manufactured under rigid control which provides uniform, predictable performance. It is supplied ready-to-use and does not require premixing with water. One Litre weighs approximately 1.02kg ± 0.01kg.

TYTRO®AE 270 meets the requirements of the following specifications for chemical admixtures for concrete: ASTM C260; AS1478 and AASHTO M154.

Applications

TYTRO®AE 270 is used in shotcrete applications. Because TYTRO®AE 270 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.

Air-Entraining Action

Air is entrained by the development of a semi-microscopic bubble system introduced into the mix by agitation and stabilised by TYTRO®AE 270.

- ### Workability is Improved

Millions of tiny air bubbles entrained with TYTRO®AE 270 act as flexible ball bearings, lubricating and plasticising the shotcrete mix. This permits a reduction in mixing water with no loss in slump. Placeability is improved, and bleeding and segregation are minimised.

- ### Durability is Increased

TYTRO®AE 270 shotcrete is extremely durable, particularly when subjected to freezing and thawing. It has resistance to frost and deicing salts, as well as to sulfate, sea and alkaline waters.

Addition Rates

There is no standard addition rate for TYTRO®AE 270. The amount to be used will depend upon the amount of air required under job conditions, usually in the range of 3 to 6%. 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 TYTRO®AE 270 addition rates range from 20 to 100mL / m3 of cementitious material. Higher addition rates can be used for various projects. Addition rates as high as 300 to 500mL / m3 of cementitious material can be considered.

The air-entraining efficiency of TYTRO®AE 270 becomes even greater when used with water-reducing and set-retarding agents. This may allow a reduction of up to two-thirds in the amount of TYTRO®AE 270 required for the specified air content.

It is GCP's recommendation that trials are conducted to determine the optimum addition range for your application.

Mix Water Reduction

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

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

Health and Safety

See TYTRO®AE 270 Material Safety Data Sheet or consult GCP Applied Technologies.

Compatibility with Other Admixtures

TYTRO®AE 270 is compatible in shotcrete with TYTRO®accelerating admixtures, water-reducing admixtures and water-reducing retarders. By combining the separate effects of air entrainment with the dispersion of a water-reducing admixture, the water requirement of shotcrete may be reduced with proportional increases in strength and improvement in durability. Each admixture should be added separately to the mix.

Packaging

TYTRO®AE 270 is available in bulk, and 205L drums. TYTRO®AE 270 contains no flammable ingredients. It freezes at about -1 °C, but its air-entraining properties are completely restored by thawing and thorough agitation.

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gcpat.uk/solutions/products/tytro-shotcrete-system/tytro-ae-270