

GCP Optima 270

New polymer-based superplasticiser for high performance, high durability concrete

Product Description

GCP Optima 270 is an advanced superplasticizer that harnesses the power of polycarboxylate ether polymer technology. Meticulously designed, GCP Optima 270 superplasticizer is engineered to produce flowing concrete with heightened workability, increased slump, and enhanced strength and durability. Importantly, GCP Optima 270 is free from chloride and conforms to the specifications set forth for chemical admixtures for concrete, including BS EN 934-2:2009+A1:2012. One litre weighs approximately 1.03 +/-0.02kg.

Dispersion

Leveraging state-of-the-art comb polymer technology, GCP Optima 270 distinguishes itself as a high-performance dispersing admixture, showcasing a remarkable capacity to efficiently disperse cement agglomerates typically found in a cement-water suspension. Unlike conventional superplasticizers, which depend partially on electrostatic charge repulsion, GCP Optima 270 utilizes a robust steric repulsion model to effectively scatter cement particles. This leads to the benefit of reduced dosages and improved control over the dispersion process.

Product Advantages

- Long slump life with controlled retardation.
- Finishes easily without stickiness, tearing or spotty set characteristics.
- High slump concrete less susceptible to segregation and bleeding.
- Highly efficient in producing high slump concrete with no loss in strength.
- Easily added with the concrete mix water for rapid batching.

Compatibility with Other Admixtures

For concrete incorporating GCP Optima 270, it is advisable to include an air-entraining agent like DARAVAIR® or DAREX® AEA® to establish appropriate air void parameters for resistance against freeze-thaw damage. The synergistic interaction between GCP Optima 270 and air-entraining agents may allow for a reduction in the quantity of air-entraining admixture needed in the concrete. Please seek dosage guidance from your GCP representative. Most water reducers or water-reducing retarders are compatible with GCP Optima 270 Superplasticiser as long as they are added separately to the concrete.

Caution should be exercised when using GCP Optima 270 with a retarder, as excessive retardation can occur if the admixture dosages are too high. Pre-testing of the concrete should be performed to optimise dosages and addition times of these admixtures. The admixtures should not be in contact with each other before they enter the concrete.

Dispensing Equipment

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



Applications

GCP Optima 270 produces concrete characterized by outstanding workability, especially suitable for high-slump, flowing applications. It enables the creation of concrete with extremely low water-cement ratios, even at low or standard slumps. This is particularly advantageous in situations where it is essential to uphold a minimal water-cement ratio while achieving the required workability for effortless placement and consolidation. Furthermore, the incorporation of GCP Optima 270 imparts fluidity to the concrete, making it ideal for applications such as tremie concreting or scenarios that necessitate high slumps.

Addition Rates

Depending on the application, dosage rates can range from 200 to 2,000mL / 100kg of cementitious material. However, in most superplasticiser applications, 800 to 1,200mL / 100kg of cementitious material will be sufficient. For best results, GCP Optima 270 should be added with the mix water. At a given water-cement ratio, the slump required for placement can be controlled by varying the addition rate. Should job site conditions require using more than recommended addition rates, please consult your local GCP representative.

Packaging

GCP Optima 270 is available in bulk and in 205L drums. GCP Optima 270 contains no flammable ingredients. It will begin to freeze at approximately 0°C, but will return to full strength after thawing and thorough agitation. In terms of storage, and for proper dispensing, GCP Optima 270 should be maintained at temperatures above 0°C.

Health and Safety

See GCP Optima 270 Material Safety Data Sheet or consult GCP Applied Technologies.

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