

MIRA® 110 Data Sheet

Water-reducing and mid-range water-reducing admixture ASTM C494 Type A and F

Product Description

MIRA® 110 is a linear dose mid-range and high-range water-reducing admixture, manufactured under rigorous quality control to ensure uniform, predictable performance. MIRA® 110 does not contain added calcium chloride. MIRA® 110 weighs approximately 8.8 lbs/gal (1.06 kg/L). The superior dispersion capability of MIRA 110 produces concrete with significantly improved early and ultimate compressive strength. MIRA® 110 is formulated to provide neutral set times at lower ambient temperatures and/or with the use of pozzolans. At 70°F (20°C) MIRA® 110 will provide fast set times.

Uses

MIRA® 110 is recommended for use with a wide range of concrete slumps including 4 to 9 in. (100 to 225 mm) where superior finishing characteristics is desired, particularly in commercial and residential flatwork, and formed concrete applications. MIRA® 110 may be used in a wide variety of applications, including ready-mix, job site, and concrete paving plants for normal and lightweight concrete, and in block and precast products.

Product Advantages

MIRA® 110 offers significant advantages over conventional water reducers:

- Mid-range and high-range water reduction capability. The neutral set capability of MIRA® 110 throughout a wide range of dosage rates allows the producer to have “peace of mind” by knowing they can utilize a single admixture to meet all their mid-range and high-range water reducer needs and requirements. The versatile water reduction capability of MIRA® 110 may be used to produce high quality, workable concrete over a wide range of water/cement ratios.
- Superior strength performance. The superior water reduction properties (up to 20%) and excellent dispersion characteristics allow the production of lower water-to-cement ratio concrete, with more complete cement hydration. This combined effect results in increased compressive and flexural strengths at all ages.
- Neutral set times. With MIRA® 110 concrete, neutral setting times can be maintained over a wide range of dosage rates, including lower ambient temperatures and when pozzolans are used.
- Superior workability and finishability. The exceptional water-reducing performance allows for concrete production at 4 to 9 in. (100 to 225 mm) slumps providing smooth flowing concrete with improved placement properties. Formulated with proven finishing enhancing components, MIRA® 110 controls bleeding while bringing the mortar to the surface. Floating and troweling, by machine or by hand, easily imparts a smooth, close tolerance surface with less machine time and labor.
- Improved performance for use with pozzolans. MIRA® 110 improves the quality of lean, harsh concrete mixes, and concrete that contains fly ash (both Class C and Class F and GGBF slag, delivering superior workability, finishability and pumpability. The neutral set characteristics allow incremental cement replacement with pozzolans.

Addition Rates

Addition rate may be varied to achieve the desired water reduction and set time. The addition rate can range between 2 fl oz/100 lb and 20 fl oz/100 lb (130 mL/100 kg and 1300 mL/100 kg) of cementitious materials. Typically, addition rates as a mid-range water reducer are 6–9 fl oz/100 lbs (390–585 mL/100 kg) and as a high-range water reducer are 10–15 fl oz/100 lbs (650–1000 mL/100 kg) of cementitious materials. Other addition rates may be used if testing with local materials provides the required performance. Addition rates may vary depending on materials, job conditions and desired performance characteristics. Please consult your GCP Applied Technologies representative for information and assistance.

Compatibility with Other Admixtures and Batch Sequencing

MIRA[®] 110 is compatible with most GCP admixtures as long as they are added separately to the concrete mix, usually through the water holding tank discharge line. However MIRA[®] 110 is not recommended for use in concrete containing naphthalene-based admixtures including DARACEM[®]19 and DARACEM[®] 100, and melamine-based admixtures including DARACEM[®] 65. In general, it is recommended that MIRA[®] 110 be added to the concrete mix near the end of the batch sequence for optimum performance. Please see GCP Technical Bulletin TB-0110, *Admixture Dispenser Discharge Line Location and Sequencing for Concrete Batching Operations* for further recommendations. Different sequencing may be used if local testing shows better performance.

Pretesting of the concrete mix should be performed before use, and as conditions and materials change in order to ensure compatibility, and to optimize dosage rates, addition times in the batch sequencing and concrete performance. For concrete that requires air entrainment, the use of an ASTM C260 air-entraining agent (such as DARAVAIR[®] or DAREX[®] product lines) is recommended to provide suitable air void parameters for freeze-thaw resistance. Please consult your GCP Applied Technologies representative for guidance.

Finishability

The cement paste or mortar provided by MIRA[®] 110 concrete has improved trowelability. Floating or troweling by hand or machine imparts a smooth, close tolerance surface.

Packaging & Handling

MIRA[®] 110 is available in bulk, delivered by metered tank trucks, totes and drums.

MIRA[®] 110 will begin to freeze at approximately 25 °F (–5 °C) but will return to full strength after thawing and thorough agitation. In storage and for proper dispensing, the temperature of MIRA 110 should be maintained above 32 °F (0 °C).

Dispensing Equipment

A complete line of accurate, automatic dispensing equipment is available.

Specifications

Concrete shall be designed in accordance with *Standard Recommended Practice for Selecting Proportions for Concrete*, ACI 211.

The mid-range water-reducing admixture shall be MIRA[®]110 as manufactured by GCP Applied Technologies, or its equivalent. It shall be manufactured to meet all the requirements of *Specification for Chemical Admixtures for Concrete*, ASTM Designation C494 as a Type A and Type F admixture.

The admixture shall be delivered as a ready-to use, liquid product and shall not require mixing at the batching plant or job site. The admixture shall not contain added calcium chloride. It shall be used in strict accordance with manufacturer's recommendations.

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