

# POLYHEED® FC100

Mid-range water-reducing admixture

## DESCRIPTION:

**POLYHEED® FC100** ready-to-use non-chloride, mid-range water-reducing admixture is a new generation of admixture based on GLENIUM™ Technology. **POLYHEED FC100** admixture is specifically formulated to provide normal setting times with fly ash and or ground granulated blast-furnace slag (GGBFS) concrete mixtures.

**POLYHEED FC100** admixture meets ASTM C 494 requirements for Type A, water-reducing, admixtures, Type C, accelerating, admixtures and Type E, water-reducing and accelerating, admixtures. **POLYHEED FC100** admixture provides true mid-range water reduction (5 to 18%) and excellent performance across a wide slump range, especially the difficult slump range of 6 to 8 in. (150 to 200 mm).

## RECOMMENDED FOR:

- Use in all concrete containing increased levels of fly ash or GGBFS replacements
- Use in all concrete where superior workability, pumpability and finishability are desired
- Use in concrete where mid-range water-reduction (5-18%) is desired
- Use in all concrete where normal setting times and increased strength development is required

## ADVANTAGES:

- Reduced water content for a given slump
- Provides the opportunity to increase the level of fly ash or GGBFS replacement in a given concrete mixture
- Produces concrete with superior workability and pumpability even in concrete mixtures with low contents of cementitious materials
- Reduced segregation
- Consistent performance in low to high slump concrete mixtures, in particular, the mid-range slump of 6-8 in. (150-200 mm)
- Effective as a singular admixture or as a component in a Master Builders admixture system
- Improved performance with a wide range of cements, fly ashes, silica fumes, GGBFS, and aggregates (including coarse and manufactured sands)



## PERFORMANCE DATA:

### MIX DATA

600 lb/yd<sup>3</sup> (356 kg/m<sup>3</sup>) total cementitious content; 25% cement replacement with Class C fly ash for the Class C reference and **POLYHEED FC100** admixture mixes; Slump, 6-7 in. (150-175 mm); Air content 5-6%; Concrete temperature, 70 °F (21 °C); Ambient temperature, 50 °F (21 °C).

### Setting Time Performance

Mix	Initial Set h:min	Difference h:min
Plain Ref.	7:48	—
Class C Ref.	12:15	+ 4:27
<b>POLYHEED FC100 admixture</b>		
10 fl oz/cwt (650 mL/100 kg)	9:22	+1:34
20 fl oz/cwt (1,300 mL/100 kg)	6:54	- 0:54

### Compressive Strength Performance

Mix	7 Day			28 Day		
	psi	MPa	%	psi	MPa	%
Plain Ref.	3450	23.8	100	5420	37.4	100
Class C Ref.	2690	18.5	78	4820	33.2	89
<b>POLYHEED FC100 admixture</b>						
10 fl oz/cwt (650 mL/100 kg)	3600	24.8	104	5140	35.4	95
20 fl oz/cwt (1,300 mL/100 kg)	4250	29.3	123	6460	44.5	119

**Note:** The data shown is based on controlled laboratory tests. Reasonable variations from the results shown here may be experienced as a result of differences in concrete making materials and jobsite conditions.

## WHERE TO USE:

**POLYHEED FC100** mid-range water-reducing admixture improves conventionally-placed concrete mixes containing a wide range of cements, GGBFS, Class C and F fly ashes, silica fume and aggregates. The admixture is particularly effective in concrete mixes with increased levels of fly ash or GGBFS.

**POLYHEED FC100** admixture is recommended for use in all concrete where normal setting and strength development characteristics are desirable with concrete mixtures containing fly ash and/or GGBFS.

**POLYHEED FC100** admixture can be used as a single component or as part of an admixture system in conjunction with other Master Builders admixtures. When used in conjunction with other admixtures, each admixture must be dispensed separately into the mix.

**POLYHEED FC100** admixture can be used with air-entraining admixtures approved under ASTM, AASHTO and CRD specifications when air-entrained concrete is specified or desired. Master Builders air-entraining admixtures are recommended for use with **POLYHEED FC100** admixture when air-entrained concrete is specified or desired.

## QUANTITY TO USE:

**POLYHEED FC100** mid-range water-reducing admixture has a recommended dosage range of 8 to 30 fl oz per 100 lb (520 to 1,950 mL per 100 kg) of total cementitious for most concrete mixes.

Master Builders does not recommend the use of dosage rates outside the recommended range without trial testing. Consult your local Master Builders representative for assistance in determining the dosage rate for optimum performance.

## PACKAGING:

**POLYHEED FC100** admixture is supplied in 55 U.S. gallon (208 liter) drums, 275 U.S. gallon totes (1,040 liter) and by bulk delivery.

## TEMPERATURE PRECAUTION:

If **POLYHEED FC100** admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

## NON-CHLORIDE, NON-CORROSIVE:

**POLYHEED FC100** admixture will not initiate or promote corrosion of reinforcing steel embedded in concrete. This admixture does not contain intentionally added calcium chloride or chloride-based ingredients. The admixture, due to chlorides originating from all the ingredients used in its manufacture, contributes less than 0.00013% (1.3 ppm chloride ions by mass of cement when used at a dosage rate of 1 fl oz per 100 lb (65 mL per 100 kg) of cement.

## RELATED BULLETINS:

Material Safety Data Sheet - **POLYHEED FC100** admixture

For additional information on **POLYHEED FC100** admixture or its use in developing a concrete mixture with special performance characteristics, contact your local Master Builders representative.

**NOTE:** Follow ACI 301 and local State D.O.T. guidelines when designing a concrete mix containing fly ash and or GGBFS.

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