

# ADVA<sup>®</sup> 190 Data Sheet

High-range water-reducing admixture -- ASTM C494 Type A and F and ASTM C1017 Type I

## Product Description

ADVA<sup>®</sup>190 is a polycarboxylate-based high-range water-reducing admixture specifically formulated to meet the needs of the concrete industry. It is a low viscosity liquid, which has been formulated by the manufacturer for use as received. ADVA<sup>®</sup>190 is manufactured under closely controlled conditions to provide uniform, predictable performance and is formulated to comply with specifications for Chemical Admixtures for Concrete, ASTM Designation C494 as a Type A and F, and ASTM C1017 Type I admixture. ADVA<sup>®</sup>190 does not contain intentionally added calcium chloride. One gallon weighs approximately 8.8 lbs (1.1 kg/L).

## Product Advantages

- Highly efficient, producing high slump concrete at very low dosages
- Provides a combination of slump life with near neutral set time
- Consistent air entrainment
- Consistent performance across cement chemistries
- Concrete finishes easily without stickiness, spotty set or tearing

## Uses

ADVA<sup>®</sup>190 superplasticizer produces concrete with extremely workable characteristics referred to as high slump. It also allows concrete to be produced with very low water/cement ratios for high strength.

While ADVA<sup>®</sup>190 is ideal for use in any concrete where it is desired to minimize the water/cementitious ratio yet maintain workability, ADVA<sup>®</sup>190 is primarily intended for use in ready-mix concrete, but may also be used in other applications such as precast concrete and self-consolidating concrete.

## Addition Rates

ADVA<sup>®</sup>190 superplasticizer addition rates can vary with type of application, but will normally range from 3 to 15 fl oz/100 lbs (195 to 980 mL/100 kg) of cementitious. In most instances, the addition of 3 to 6 fl oz/100 lbs (195 to 375 mL/100 kg) of cementitious will be sufficient. At a given water/cementitious ratio, the slump required for placement can be controlled by varying the addition rate. Should conditions require using more than the recommended addition rates, please consult your GCP Applied Technologies representative.

ADVA<sup>®</sup>190 dosage requirements may also be affected by mix design, cementitious content and aggregate gradations. Please consult with your GCP Applied Technologies representative for more information and assistance.

## Compatibility with Other Admixtures and Batch Sequencing

ADVA<sup>®</sup>190 is compatible with most GCP admixtures as long as they are added separately to the concrete mix. However, ADVA<sup>®</sup> products are not recommended for use in concrete containing naphthalene-based admixtures including DARACEM<sup>®</sup>19 and DARACEM<sup>®</sup>100, and melamine-based admixtures including DARACEM<sup>®</sup>65. In general, it is recommended that ADVA<sup>®</sup>190 be added to the concrete mix near the end of the batch sequence for optimum performance. Different sequencing may be used if local testing shows better performance. Please see GCP Technical Bulletin TB-0110, *Admixture Dispenser Discharge Line Location and Sequencing for Concrete Batching Operations* for further recommendations.

Pretesting of the concrete mix should be performed before use and as conditions and materials change in order to assure compatibility with other admixtures, 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<sup>®</sup> or DAREX<sup>®</sup> product lines) is recommended to provide suitable air void parameters for freeze/thaw resistance. Please consult your GCP Applied Technologies representative for guidance.

## Packaging & Handling

ADVA<sup>®</sup>190 is available in bulk, delivered by metered tank trucks, in totes and drums. It will begin to freeze at approximately 32 °F (0 °C), but will return to full strength after thawing and thorough agitation. In storage, and for proper dispensing, ADVA<sup>®</sup>190 should be maintained at temperatures above 32 °F (0 °C).

## Dispensing Equipment

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

## ADVA<sup>®</sup> 190 ASTM C494 Type F High-Range Water Reducer Test Data

	US UNITS - CONTROL	US UNITS - ADVA <sup>®</sup> 190	METRIC - CONTROL	METRIC - ADVA <sup>®</sup> 190
Cement (pcy) (kg/m <sup>3</sup> )	517	517	307	307
Coarse aggregate (pcy) (kg/m <sup>3</sup> )	1944	1944	1153	1153
Fine aggregate (pcy) (kg/m <sup>3</sup> )	1144	1214	679	720
Water (pcy) (kg/m <sup>3</sup> )	235	204	139	121
w/cm	0.455	0.405	0.455	0.405
Slump (inches)	3.75	3.5	95	90
Plastic air (%)	5.5	5.4	5.5	5.4
<b>Compressive strength</b>				
1 day (psi) (MPa)	1860	2650	12.8	18.4
7 day (psi) (MPa)	4520	5530	31.2	38.1
28 day (psi) (MPa)	5440	6690	37.5	46.1

Initial set time (hr:min)	4:02	3:55	4:02	3:55
Length change 28 day (%)	-0.031	-0.028	-0.031	-0.028
Freeze-thaw resistance (RDME %)	92	98	92	98

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This product or its use may be covered by US Patent Nos. 7,462,236; 8,187,376; 8,317,918.

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GCP Applied Technologies Inc., 2325 Lakeview Parkway, Suite 475, Alpharetta, GA 30009, USA

GCP Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6

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