



# AR-500 POLYMER CONCRETE

The STEBBINS Engineering and Manufacturing Company  
Watertown, NY USA  
<http://www.StebbinsEng.com>

## PRODUCT INFORMATION

### DESCRIPTION

STEBBINS AR-500 Polymer Concrete is a chemical resistant polymer concrete based on a vinyl ester resin, catalyst and STEBBINS aggregate blend. This is the same resin base used to produce AR-500 Mortar. It should be noted that it DOES NOT CONTAIN water or any hydraulic cement such as Portland Cement and should not be consider a cementitious concrete.

It exhibits excellent resistance to chemical attack by bleach solutions, inorganic acids, organic acids, alkaline solutions and some solvents.

AR-500 Polymer Concrete can provide both structural strength and chemical resistance to form pump bases, walls, floors and other structural components that are subject to chemical splashes, spills and submersion.

AR-500 Polymer Concrete will develop excellent compressive strength within hours, unlike a hydraulic concrete such as a Portland Cement based concrete, which do not reach full strength until weeks after it is poured.

It can also be modified to a chemical resistant Polymer Grout to pour into smaller annular spaces such as wall cavities of a lining.

The pourable grout consistency or a very stiff consistency is made by adjusting the amount of aggregates in the mix. In order to maintain the quality of AR-500 Polymer Concrete, any adjustments must be approved by STEBBINS' Technical Services group.

### COMPONENT PACKAGING

AR-500 Polymer Concrete is available in two (2) unit sizes and supplied as five (5) separately packaged components as follows:

#### Small Unit:

COMPONENT	PACKAGING	WEIGHT PER CONTAINER
AR-500 Polymer Concrete Resin	5-gallon (19 L) Metal Pail	44.0 lb. (20.0 kg)
AR-500 Polymer Concrete Catalyst	1-quart (946 mL) Plastic Container	0.66 lb. (300 g)
AR-500 Aggregate	(2) 5-gallon (19 L) Metal Pails	37 lb. (16.8 kg) each
Fumed Silica	3-gallon (11.4 L) Metal Pail	0.84 lb. (380 g)
Special Silica Sand	(2) 5-gallon (19 L) Metal Pails	37 lb. (16.8 kg) each

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### Large Unit:

COMPONENT	PACKAGING	WEIGHT PER CONTAINER
AR-500 Polymer Concrete Resin	55-gallon (19 L) Metal Drum	459.0 lb. (208 kg)
AR-500 Polymer Concrete Catalyst	1-gallon (3.8 L) Plastic Jug	6.9 lb. (3.1 kg)
AR-500 Aggregate	Bulk Bag (per job requirements)	776 lb. (352 kg) per unit
Fumed Silica	Bag	10 lb. (4.5 kg)
Special Silica Sand	Bulk Bag (per job requirements)	764 lb. (346.5 kg) per unit

### TYPICAL PHYSICAL PROPERTIES

<b>Physical State</b>	Solid				
<b>Composition</b>	Polymer Concrete				
<b>Color</b>	Dark green and Gray				
<b>Density</b>	120 lb./ft <sup>3</sup> (1922 kg/m <sup>3</sup> )				
<b>Coverage Per Unit</b>	<table border="0"> <tr> <td><b>Small Unit</b></td> <td>1.61 ft<sup>3</sup>(0.046 m<sup>3</sup>)</td> </tr> <tr> <td><b>Large Unit</b></td> <td>16.8 ft<sup>3</sup> (0.48 m<sup>3</sup>)</td> </tr> </table>	<b>Small Unit</b>	1.61 ft <sup>3</sup> (0.046 m <sup>3</sup> )	<b>Large Unit</b>	16.8 ft <sup>3</sup> (0.48 m <sup>3</sup> )
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<b>Splitting Tensile Strength, (ASTM C496)</b>	1700 psi (11.7 MPa)				
<b>Compressive Strength, (ASTM C-579)</b>	≥ 10000 psi (68.9 MPa)				
<b>Water Absorption, (ASTM C-413)</b>	< 1%				
<b>Linear Thermal Expansion, (ASTM E228)</b>	0.4% at 257°F (125°C)				
<b>Total Shrinkage Upon Setting and Cure</b>	< 1%				

### WORKING AND SETTING TIMES (approximate)

At 75°F (24°C), AR-500 Polymer Concrete will be hard in 24 hours. "Hard" means that it will be difficult or impossible to penetrate the surface of the material with a metal trowel.

Do not attempt to control the working time by changing the amount of catalyst that is added to the resin. Hotter temperatures will cause a decrease in the working time while colder temperatures will cause an increase in the working time of the polymer concrete.

To obtain the optimum working characteristics, the components should be stored at 70°F (21°C) for 24-48 hours before use. However, the product can be used outside this temperature range.

### APPLICATION

AR-500 Polymer Concrete can be prepared in small or large batches. For small batches, a rotary mixer with a mixing drum capacity of five (5) or then (10) gallons (19 - 38 L) can be used. Portable, rotating drum cement mixers can be utilized for preparing larger batches of polymer concrete. When large batches are prepared it is important to clean the mixing drum before the AR-500 Concrete sets to a hard consistency.

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## STORAGE

Do not store the resin in direct sunlight at temperatures above 100°F (38°C). Store in a cool, dry area. Keep the containers closed tightly when not in use.

## SAFETY PRECAUTIONS/DISCLAIMER

Mixes and applications of this product present a number of hazards. The purchaser and user must read and follow the hazard information, precautions and first aid directions on the individual product labels and safety data sheets before using.

All data contained in this Product Information sheet are averaged results of ASTM tests on laboratory prepared samples. Reasonable variations can be expected. The data should not be used for specification purposes.

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**End of PI-48**