ARC 988

PRODUCT DATA SHEET

Description

A high performance, quartz reinforced composite designed to resurface and restore concrete surfaces, to protect new concrete, and to repair concrete damaged by severe chemical and physical abuse.

ARC 988 provides protection against chemical attack from highly aggressive substances including concentrated acids, alkalies and a wide variety of organic solvents. It is a trowelable overlayment which can be used at a thickness as low as 6 mm (1/4"). Its sag resistance makes it ideal for both vertical and horizontal applications. ARC 988 closes easily with a trowel, sealing the surface to prevent chemical attack on the substrate by permeation. The product produces a dense, fine textured surface. Non-shrinking, 100% solids. Colors are gray or red.

ARC 988 is generally used to repair and upgrade concrete surfaces or used as a replacement for acid resistant tiles, phenolics, furans, polyesters, sulfonated concretes and other overlayments. It is formulated to be thermally compatible with concrete. ARC 988 has the unusual ability to bond to damp concrete. ARC 988 is chosen over other ARC Composites for Concrete for its superior chemical resistance.

Composition - Polymer/Quartz Composite

Matrix - A modified multifunctional epoxy resin reacted with a cycloaliphatic amine curing agent.

Reinforcement - A proprietary blend of quartz reinforcements which are pretreated with a polymeric coupling agent, and engineered to produce optimal handling, high performance, and achieve a thermal coefficient of expansion compatible with concrete.

Suggested Uses

- Battery Rooms
- Pickling & Plating Lines
- Bleaching Areas
- Sumps, Trenches & Pits
- Chemical Containments
- Pump & Equipment Bases
- Concentrated Acid Areas
- Waste Water Treatment

Benefits

- Protects concrete and provides chemical containment of concentrated acids such as sulfuric acid up to 98%.
- Fine textured sealed surface produces a tough, durable, chemical resistant, low maintenance overlayment.
- Compatible thermal coefficient of expansion provides long term resistance to disbondment.
- Moisture insensitive primer provides outstanding adhesion to damp concrete, a unique feature for concrete overlayments.
- User friendly consistency makes installation and finishing fast and easy.
- The reinforcement is engineered to minimize air entrapment and to improve mixing.
- ARC 988 is stronger than standard concrete, and its tough resin structure resists mechanical impact.

Chemical Resistance

Recommended for exposure to a wide variety of concentrated chemicals such as hydrochloric acid, phosphoric acid, sulfuric acid, potassium hydroxide, and sodium hydroxide and other chemicals. Please refer to the ARC Chemical Resistance Charts for a comprehensive list of chemicals and associated exposure ratings at ambient temperature. Post curing will improve chemical resistance; contact ARC Technical Services for elevated temperature exposure.

NOTE: Due to localized surface reaction, ARC 988 may discolor in certain concentrated chemicals. This discoloration does not mean that the ARC composite has degraded. A corresponding trace discoloration of the process liquid may also occur. Please contact your local ARC Specialist for more information.

Technical Data

PROPERTY (TEST METHOD)			
Cured Density	———	2,0 g/cc	123 lb/cu.ft
Compressive Strength	(ASTM C 579)	1.000 kg/cm^2 (97,9 MPa)	14,200 psi
Tensile Strength	(ASTM C 307)	210 kg/cm^2 (20,7 MPa)	3,000 psi
Flexural Strength	(ASTM C 580)	390 kg/cm^2 (37,9 MPa)	5,500 psi
Flexural Modulus of Elasticity	(ASTM C 580)	1,3 x 10^5 kg/cm^2 (1,2 x 10^4 MPa)	1.8 x 10^6 psi
Bond Strength Excellent – 100% Concrete Failure	———	>28 kg/cm^2 (>2,8 MPa)	>400 psi
Linear Coefficient of Thermal Expansion	(ASTM C 531)	2,2 x 10^{-5} cm/cm/°C	1.2 x 10^{-5} in/in/°F
Thermal Compatibility to Concrete	(ASTM C 884)		Passes
Impact Resistance	(ASTM D 2794)		Greater than Concrete
Taber Abrasion H-18/250 gm wt/500 cycles	(ASTM D 4060) ———		136 mg Maximum Weight Loss
Maximum Service Temperature Dependent on Service (Water Immersion) Continuous (Water Immersion) Intermittent	 ——— ———	 66°C 93°C	 150°F 200°F

Surface Preparation

Proper surface preparation is important for the long term performance of this system. For detailed information on surface preparation and application, please refer to ARC Application Manual for Concrete. Generally new concrete must be cured for a minimum of 28 days. Remove all grease, oils, and grime by washing with an emulsifying alkaline water-base cleaner. All surface contaminants including old coatings, chemical salts, dust, loose concrete, and the laitance layer must be removed. This is best accomplished by hydro-blasting, steel shot-blasting, scabbling, scarifying, or dry abrasive blasting. The resulting surface must be structurally sound and free of all contaminants. Surface dampness is acceptable, standing water is not. For slab on grade applications a vapor barrier is recommended. If no vapor barrier is present check for vapor transmission.

ARC 797 Primer: Mixing and Application

Each system kit contains a two component primer (ARC 797) which is packaged in the proper mix ratio. Add Primer Part B to Primer Part A and mix thoroughly; the properly mixed primer should be clear not cloudy. Apply with a brush, roller, squeegee or spray to the freshly prepared concrete. The primer coat should be a uniform wet coat with a wet film thickness of 175 - 250 microns (7-10 mils). Do not prime more surface area than can be top coated within 4 hours, depending on ambient conditions. For vertical substrates and applications where concrete is porous, double prime the area.

NOTE: To reduce the chance of vapor blistering or disbondment, the overlayment should not be installed while the concrete's temperature is rising. In outdoor applications, it is best to install in the evening or at night to avoid this problem.

Each mixed A & B kit of ARC 797 primer covers approximately 5 m^2 (55 square feet) for the system kit.

Working Time - Minutes

	10°C 50°F	16°C 60°F	25°C 77°F	32°C 90°F
ARC 797 Primer	65 min.	40 min.	30 min.	18 min.
ARC 988 Top Coat	NR	50 min.	40 min.	20 min.

NR =Not Recommended.
"Working time" begins when mixing is initiated.

ARC 988 Top Coat: Mixing and Application

To facilitate mixing and application, all material temperatures should be between 21°- 32°C (70°-90°F) prior to mixing. ARC 988 should be applied shortly after application of primer. The primer must still be tacky prior to applying ARC 988, otherwise the area must be reprimed. This is normally within 4 hours of application, depending on ambient conditions.
ARC 988 should be applied at a minimum thickness of 6 mm (1/4 inch). Minimum application temperature is 16°C (60°F), although application will be easier at 25°C (77°F).

ARC 988 System Kit - Mixing

Premix Part A to disperse pigments. Thoroughly mix Top Coat Part A and Part B in a suitable pail, using a slow speed mixer. Next transfer the blended resins to a mortar mixer and gradually add in 3 bags of QRV reinforcement. Total mixing time should be a minimum of 3 minutes or until uniformly blended.

NOTE: 1A + 1B + 3 bags of QRV reinforcement will require a mixer suitable to handle 35 liters (1 1/4 ft^3) mix.

ARC 988 Bulk Kit - Mixing

Please follow the ARC 988 Bulk Packaging Mix Instructions (provided separately).

Application

ARC 988 may be distributed to the floor surface by using screed guides and rigid bar, or screed box, not exceeding 1,2 m (4 ft) wide. Apply a minimum of 6 mm (1/4 inch) and finish the surface using steel trowels. ARC 988 may be applied by use of a hawk and trowel. During application, ARC 988 must be pressed firmly onto the substrate to promote contact with the primer and to ensure that it is well compacted. Finish the surface to the desired texture with a trowel. Remove all trowel marks and unevenness before the end of " Working Time" (see chart). All non-moving horizontal cracks must be pre-filled with ARC 797 and fiber mesh. All vertical cracks must be pressure injected with a suitable injection system. All pre-existing joints must be respected.

Packaging and Coverage

ARC 988 is available in a System Kit covering 4,1 m^2 at 6 mm (45 ft^2 at 1/4"). The ARC 988 System Kit contains an ARC 797 primer pack, an ARC 988 resin pack and 3 bags of QRV reinforcement. All components are pre-measured and pre-weighed. Also included in every kit are a Product Data Sheet, brush, and mixing tool that are used for mixing and applying the primer.

ARC 988 is also available in Bulk Kit packaging. Please see your ARC specialist for more information.

Curing Schedule

	10°C 50°F	16°C 60°F	25°C 77°F	32°C 90°F
Foot Traffic	NR	5 hrs.	2 hrs.	1.5 hrs.
Light Load	NR	8 hrs.	4 hrs.	3 hrs.
Full Load	NR	34 hrs.	13 hrs.	8 hrs.
Full Chemical	NR	14 days	12 days	5 days

NR = Not Recommended.
Cure times are based on substrate temperature and thickness of 6 mm (1/4 inch).
Thicker films will cure more rapidly.

Clean Up

Use commercial solvents (Acetone, Xylene, Alcohol, Methyl Ethyl Ketone) to clean tools immediately after use. Once cured, the material would have to be mechanically abraded.

Storage

The recommended storage temperature is between 10°C (50°F) and 32°C (90°F). Excursions beyond this range which may occur during shipping, are acceptable as long as the material is prewarmed to room temperature before use. The shelf life is two years in unopened containers. Mix each liquid component well before using.

Safety

Before using any products, always review the appropriate Material Safety Data Sheet (MSDS) or appropriate Safety Sheet for your area.
Follow standard confined space entry and work procedures, if appropriate.

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