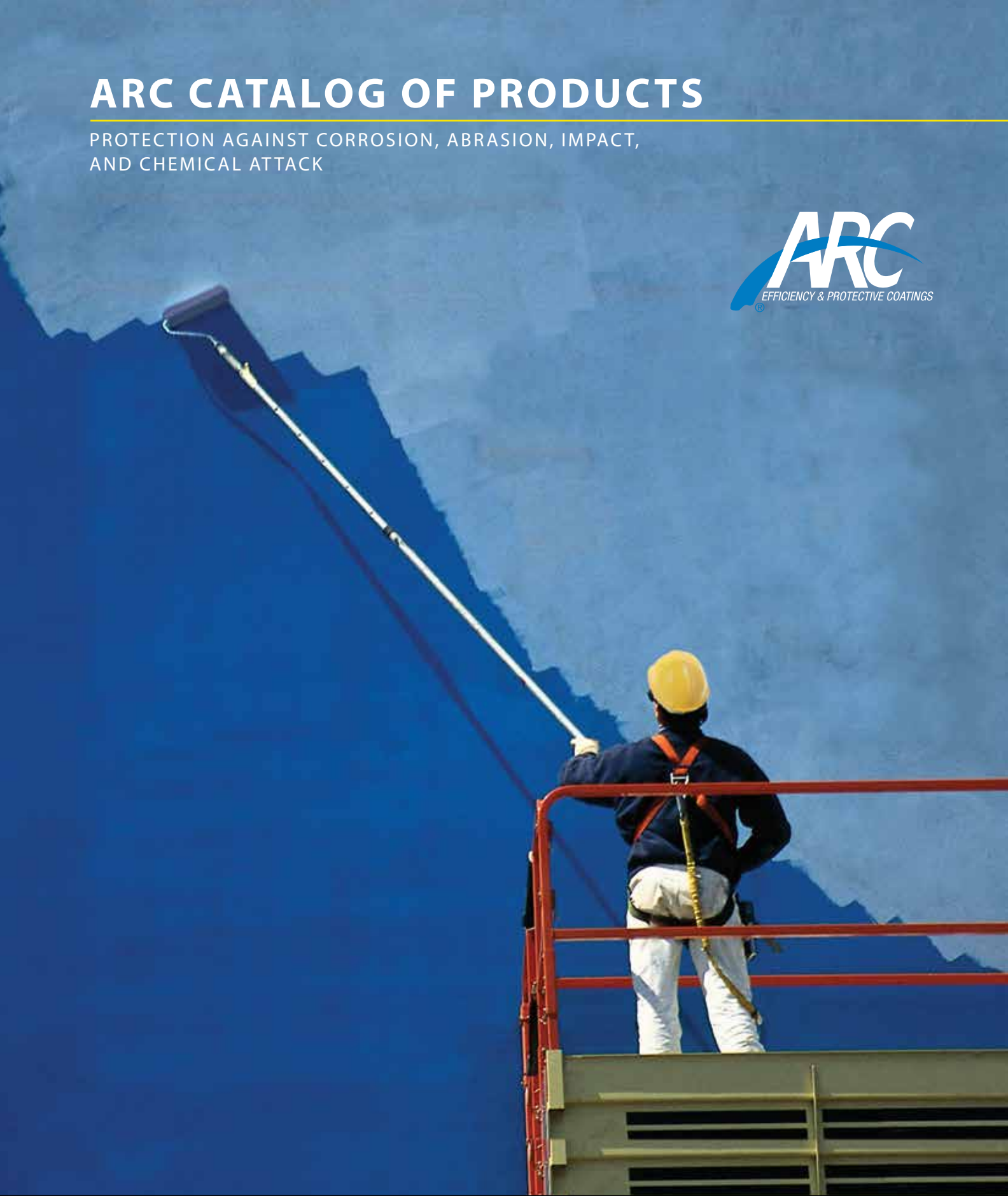


# ARC CATALOG OF PRODUCTS

PROTECTION AGAINST CORROSION, ABRASION, IMPACT,  
AND CHEMICAL ATTACK



[www.arc-epc.com](http://www.arc-epc.com)



# A World



# of Protection

ARC® Efficiency & Protective Coatings (ARC-EPC), a brand of the 135-year-old A.W. Chesterton Company, has achieved a nearly four-decade proven global track record of enhancing critical industrial equipment and structures.

## Innovation through Design

ARC-EPC products are engineered using the latest technologies and advanced material formulations—from ceramic bead reinforcement to nanotechnology—to withstand the most challenging environments. ARC's highly experienced engineering staff is constantly at work on new, innovative coating solutions to meet the needs of industries' critical application environments.

### Use ARC Efficiency & Protective Coatings to:

- Revitalize worn equipment and damaged concrete surfaces previously considered irreparable
- Provide cost-effective, long-term corrosion prevention compared to exotic alloys and conventional coatings
- Increase operational efficiency frequently resulting in higher sustained output

## Applications Expertise and Local Service

Backed by years of experience across a wide range of industries and applications, ARC's industrial coatings experts provide the applications insight and local service your company needs to ensure success.

### You'll be supported by:

- An extensive global network of Sales Specialists supported, by local Stocking Distributors, In-Field Product Managers, Factory-Based Application Engineering, and Qualified Applicators
- Follow-up guidance for application and troubleshooting issues
- Regular training programs—including online webinars

ARC has a total solutions approach that responds to your organization's needs no matter the location, scope, or challenge of the application. Contact us today to get started!



# Application Matrix Table

Product	Metal	Concrete	<60°C (145°F) Immersion	<90°C (200°F) Immersion	<130°C (260°F) Immersion	<150°C (300°F) Immersion	Concentrated Acid	Diluted Acid	Alkaline	Drinking Water	Mild Erosion	Severe Erosion	Moderate Abrasion	Severe Abrasion	Extreme Abrasion	Mild to Moderate Impact	Moderate to Severe Impact
SPECIALTY REPAIR	5/5ES	X	X					X	X	X	X						
	10	X	X					X	X		X						
EROSION/ CORROSION- RESISTANT	855	X	X					X	X	X		X					
	855N	X	X					X	X			X					
	858	X	X					X	X			X					
	HT-T	X			X			X	X			X					
	HT-S	X				X		X	X			X					
ABRASION- RESISTANT	BX1	X		X				X	X					X		X	
	BX2	X		X				X	X				X			X	
	BX5	X	X					X	X				X			X	
	I BX1	X		X				X	X					X			X
	I BX1 RC	X		X				X	X					X			X
	MX1	X		X				X	X						X		X
	MX2	X		X				X	X						X	X	
	T7 AR	X			X		X	X	X						X	X	
CORROSION CHEMICAL	S1PW	X	X					X	X	X	X						
	S2	X	X					X	X	X		X					
	S4+	X	X				X	X	X		X						
	SD4i	X	X					X	X			X					
	S7	X			X		X	X	X		X						
CONCRETE THIN-FILM	CS2		X	X				X	X	X	X						
	CS4		X	X			X	X	X		X						
	NVE VC		X	X			X	X	X		X						
CONCRETE HIGH-BUILD	791		X	X				X	X						X		
	988		X	X			X	X	X						X		
	NVE		X	X			X	X	X						X		

Disclaimer: This chart is an aid in product selection but should not be used as the sole method for product selection. Final product selection is the responsibility of the purchaser. All recommendations are based on ambient temperature exposures <32°C (90°F).

# Table of Contents

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## Specialty Repair

5/5ES .....	6
10.....	7

## Erosion/Corrosion-Resistant

855 .....	8
855N.....	9
858 .....	10
HT-T.....	11
HT-S .....	12

## Abrasion-Resistant

BX1.....	13
BX2.....	14
BX5.....	15
I BX1.....	16
I BX1 RC.....	17
MX1 .....	18
MX2 .....	19
T7 AR.....	20

## Corrosion Chemical

S1 PW.....	21
S2.....	22
S4+.....	23
SD4i .....	24
S7.....	25

## Concrete Thin-Film

CS2.....	26
CS4.....	27
NVE VC.....	28

## Concrete High-Build

791 .....	29
988 .....	30
NVE .....	31

## Overview

Accessories .....	32-33
ARC Composites .....	34-35

To use our Product Selector Tool to narrow your search of coatings for your application, go to:

[www.arc-epc.com](http://www.arc-epc.com)

or contact us:

Tel: +1 978 469 6888

Email: [arc-epc@chesterton.com](mailto:arc-epc@chesterton.com)

# ARC 5/5ES



## Rapid-curing, emergency leak sealing coatings

- Patches and seals leaks up to 3 mm (.125 in) diameter
- Fares smooth pitted regions and cures to a hard film within 15 minutes
- Cures under water and on damp surfaces
- 5ES meets requirements of NSF 61 for cold water service



### Application Areas

- Pitted metal surfaces
- Leaking ductwork
- Scored hydraulic rams and pistons
- Flange faces
- Cracked valves

### Packaging and Coverage

Nominal, based on a 3 mm (120 mil) thickness

- 5: 250 g kit covers 0,052 m<sup>2</sup> (0.056 ft<sup>2</sup>)
- 5ES: 114 g "stick" covers 20,00 cm<sup>2</sup> (3.10 in<sup>2</sup>)

### Technical Data

<b>5</b>	Pull-off Adhesion	(ASTM D 4541)	246,8 kg/cm <sup>2</sup> (24.2 MPa)	3,510 psi
	Maximum Temperature (Dependent on Service)	Wet Service	66°C	150°F
		Dry Service	93°C	200°F
<b>5ES</b>	Pull-off Adhesion	(ASTM D 4541)	300 kg/cm <sup>2</sup> (29.4 MPa)	4,200 psi
	Maximum Temperature (Dependent on Service)	Wet Service	54°C	130°F
		Dry Service	121°C	250°F

### Features and Benefits

- Cures on damp surfaces
  - Surface-tolerant for faster and easier application
- 100% solids, no VOCs, no free isocyanates
  - Enhances safe use
- Low temperature cure capable
  - Cures down to 4°C (40°F)
- Compliant to NSF 61 standard for cold water service



Certified to NSF/ANSI 61

## Product Case Study

### Challenge

#### Issue

Cracked and leaking valve required replacement. The repair would require taking plant off line

#### Goal

Avoid plant shutdown and repair valve until annual shutdown for complete replacement

#### Root Cause

Aging

### Solution

#### Preparation

Temporary leak stops were installed

External of valve was mechanically roughened to SP11 (white metal)

#### Application

ARC 5ES was pressed into crack to temporarily stop leaks

Two alternating layers ARC 5 and reinforcing mesh were spread over crack

### Results

#### Client Report

Repairs carried out in three hours without taking tank out of service

Tank stayed in service without leakage for six months, until annual shutdown allowed valve replacement

One day plant shutdown: \$125,000  
ARC repair: \$1,200

Savings: \$123,800

\$=USD



Valve leakage plugged with ARC 5ES.



Reinforcing mesh being placed.



Repaired valve with ARC 5.

# ARC 10



**A polymer alloy blend used to resurface scored and pitted regions which may be machined at a later stage to single tolerances**

- Resurface worn metal parts which require machining to tolerances afterwards
- Resurface corroded and pitted metal surfaces
- Easily apply by trowel



## Application Areas

- Flange faces
- Scored hydraulic rams
- Worn valve bodies
- Bearing housings
- Worn keyways
- Corroded stuffing boxes
- Shafts
- Pitted metal

## Packaging and Coverage

Nominal, based on a 3 mm (120 mil) thickness

- 250 g kit covers 0,04 m<sup>2</sup> (0.45 ft<sup>2</sup>)
- 1,5 liter kit covers 0,50 m<sup>2</sup> (5.38 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	256,6 kg/cm <sup>2</sup> (25.2 MPa)	3,650 psi
Maximum Temperature (Dependent on Service)	Wet Service	66°C	150°F
	Dry Service	93°C	200°F

## Features and Benefits

- **Resistant to a wide spectrum of chemicals including alkalis, acids, and solvents**
  - Covers a broad range of chemical exposures
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use
- **High build viscosity**
  - Suitable for rebuilding pitted and scored surfaces to a thickness of more than 6 mm (.24 in) in a single coat

## Product Case Study

### Challenge

#### Issue

Various areas with high metal loss were found when inspecting a salt water pump, which affected performance

#### Goal

Resurface internals and recover efficiency; Protect equipment from corrosive operating conditions; Reduce 10-month delivery time for a new pump

#### Root Cause

The corrosive conditions added to content of solids in pumped fluid caused corrosion and erosion

### Solution

#### Preparation

Decontaminate and grit blast to Sa 2.5 with 3 mil (75-125 µm) profile

#### Application

Weld metal plate in cut water and apply **ARC BX1** at 250 mil (6 mm)

Apply **ARC 10** at 80-160 mil (2-4 mm) on flanges and machine to level

Apply **ARC 858** at 250-315 mil (3-8 mm), to mold wear ring seats and smoothen all internal surface

Apply **ARC S2** in a two-coat system at 20-24 mil (500-600 µm) on all internals

### Results

#### Client Report

New pump: \$126,800  
 New impellor and accessories: \$39,016  
**ARC solution: \$24,215**

**Total savings: \$63,569**

Delivery time for new pump: 300 days  
**Repair time with ARC: 20 days**

\$=USD



Pump body as inspected.



Repair being performed, body and cover.



Reconstructed and finished pump.

# ARC 855



## 100% solids, ceramic reinforced thin-film coating to protect metal against chemicals, abrasion, and corrosion

- Upgrade new and old equipment exposed to abrasion, corrosion, or chemical attack
- Replace traditional coatings, special alloys, engineered plastics, ceramics, etc.
- Easily apply by roller or brush



### Application Areas

- Pump casings
- Heat exchangers
- Tanks and vessels
- Impellers and blades
- Water boxes
- Valves

### Packaging and Coverage

Nominal, based on a 750 µm (30 mil) thickness

- 0,75 liter kit covers 0,98 m<sup>2</sup> (10.60 ft<sup>2</sup>)
- 5 liter kit covers 6,67 m<sup>2</sup> (71.76 ft<sup>2</sup>)
- 1,5 liter kit covers 2,00 m<sup>2</sup> (21.53 ft<sup>2</sup>)
- 16 liter kit covers 21,33 m<sup>2</sup> (229.63 ft<sup>2</sup>)

### Technical Data

Pull-off Adhesion	(ASTM D 4541)	352,7 kg/cm <sup>2</sup> (34,6 MPa)	5,020 psi
Maximum Temperature (Dependent on Service)	Wet Service	65°C	149°F
	Dry Service	120°C	248°F

### Features and Benefits

- **Abrasion-resistant surface**
  - Extends equipment life
- **High gloss, low drag surface**
  - Enhances efficiency
- **High adhesive strength**
  - Prevents under-film corrosion
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Unscheduled shutdowns, due to bearing vibration failure, result in production losses and increased maintenance costs

#### Goal

Reduce dust attachment to fan blades to lower resulting imbalance and vibration; Extend bearing life—MTBR (Mean Time Between Repairs); Control corrosion and abrasion

#### Root Cause

High humidity atmosphere with chlorides corrodes fan blades and accelerates dust attachment, creating fan imbalance

### Solution

#### Preparation

Decontaminate to remove chlorides; Dynamic balancing of fan; Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

#### Application

Apply **ARC BX2** at 120 mil (3 mm) to leading edge of vanes

Apply **ARC 855** at total DFT of 20 mil (500 µm)

Fan is statically balanced

### Results

#### Client Report

Shutdowns reduced to one per year at cost of \$25,000

Bearing life extended as a result of reduced vibration

#### Estimated Savings

Annual fan costs including semi-monthly cleaning: \$628,000  
**ARC material and labor:** \$32,000

**Estimated yearly savings:** \$596,000

ROI: less than 1 month

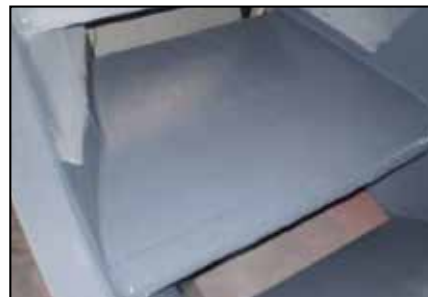
\$=USD



Build-up on fan blades.



ARC BX2 applied to leading edge.



Protected fan.





# ARC 855N

**100% solids, reinforced thin-film coating to protect structures against chemical attack and corrosion**

- Meet the requirements of Mil Spec 32171
- Protect metal against chemical attack and corrosion
- Apply by brush or roller

## Application Areas

- Deck coating
- Machine spaces
- AFFF stations
- Elevator rooms
- Structural steel
- Chain lockers

## Packaging and Coverage

Nominal, based on 2 coats at 375 µm (15 mil) thickness

- 1,5 liter kit covers 2,00 m<sup>2</sup> (21.53 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	352,7 kg/cm <sup>2</sup> (34,6 MPa)	5,020 psi
Maximum Temperature (Dependent on Service)	Wet Service	65°C	149°F
	Dry Service	120°C	248°F



## Features and Benefits

- **Meets Mil Spec. 32171**
  - Certified for on-board applications
- **Low viscosity**
  - Easily applied
- **High adhesive strength**
  - Prevents under-film corrosion
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Heavy traffic and chemical exposures damaged deck coating, increasing slip and fall hazards in machine space area

#### Goal

Reduce slip and fall hazard

#### Root Cause

Hydraulic oils and hydrocarbon-based fuels compounded by heavy foot traffic

### Solution

#### Preparation

Surfaces were power tool cleaned to SP11 (white metal) with 2+ mil (50 µm) profile

#### Application

30 mil (750 µm) of ARC 855N applied by roller and then broadcast with 20-40 grit Al<sub>2</sub>O<sub>3</sub> for non-slip surface.

Excess abrasive was removed and a 15 mil (375 µm) sealer coat of ARC 855N was applied

### Results

#### Client Report

System complies to Mil Spec 32171 high durability deck coating surfaces

80% reduction in slip hazards noted

Annual coatings before ARC:	\$65,000
Annual ARC coating:	\$43,000

Savings:	\$22,000
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\$=USD



Previous coating one year after installed.



High traffic regions coated for non-slip.



High traffic regions coated for non-slip.

# ARC 858



## 100% solids, thick film, ceramic-reinforced abrasion control epoxy compound

- Upgrade new and old equipment exposed to abrasion, corrosion, or chemical attack
- Rebuild surfaces with erosion-resistant protection outperforming weld overlays
- Fill grooves, pits, etc. in metal prior to overcoating with another ARC product



### Application Areas

- Pump casings
- Back plates
- Transport screws
- Impellers and blades
- Heat exchangers
- Valves

### Packaging and Coverage

Nominal, based on a 750 µm (120 mil) thickness

- 250 g kit covers 0,20 m<sup>2</sup> (2.21 ft<sup>2</sup>)
- 5 liter kit covers 6,67 m<sup>2</sup> (71.76 ft<sup>2</sup>)
- 940 ml cartridge covers 1,25 m<sup>2</sup> (13.50 ft<sup>2</sup>)
- 16 liter kit covers 21,33 m<sup>2</sup> (229.63 ft<sup>2</sup>)
- 1,5 liter kit covers 2,00 m<sup>2</sup> (21.53 ft<sup>2</sup>)

### Technical Data

Pull-off Adhesion	(ASTM D 4541)	478,5 kg/cm <sup>2</sup> (47 MPa)	6,810 psi
Maximum Temperature (Dependent on Service)	Wet Service	70°C	158°F
	Dry Service	160°C	320°F

### Features and Benefits

- **High build - single coat applications**
  - Quick applications
- **High adhesive strength**
  - Reduces under-film corrosion
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Failed coal tar coating resulted in pitting corrosion on face of gate. Corrosion kept gates from actuating and sealing correctly. Leakage down spillway channel creates icing in winter months

#### Goal

Prevent further corrosion to gate;  
Promote improved actuating and sealing

#### Root Cause

Galvanic corrosion

### Solution

#### Preparation

Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

#### Application

Apply **ARC 858** to rebuild pitted areas  
Top coat with two coats of **ARC S2** at total DFT of 20 mil (500 µm) to provide smooth, flow efficient surface

### Results

#### Client Report

After two years in operation, no signs of corrosion and erosion

After applying the ARC solution, the spillway gates opened and closed effectively

Further icing issues reduced



Corrosion and pitting on the spillway gate.



Pitting repaired using ARC 858.



Gate top coated with 2 coats of ARC S2.

# ARC HT-T

**100% solids, ceramic-reinforced abrasion-resistant epoxy that protects metal against mild abrasion, corrosion, and erosion in elevated temperature immersion**

- Rebuild and protect new and old metal equipment
- Perform in immersed aqueous solution conditions up to 110°C (230°F)
- Easily apply by trowel

## Application Areas

- Oil/water separators
- Heat exchangers
- Tanks and vessels
- Oil/gas separators
- Pressure vessels
- Crystalizers

## Packaging and Coverage

Nominal, based on a 750 µm (30 mil) thickness

- 5 liter kit covers 6,67 m<sup>2</sup> (71.76 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	316,9 kg/cm <sup>2</sup> (31,1 MPa)	4,510 psi
Maximum Temperature (Dependent on Service)	Wet Service	110°C	230°F
	Dry Service	150°C	302°F



## Features and Benefits

- **Strong, tough, durable**
  - Reduces downtime
- **Incorporates fine-graded sizes of reinforcements**
  - Permeation and blister resistance
- **Spark testable per NACE SP0188**
  - Easy inspection
- **High adhesive strength**
  - Provides reliable performance
  - No under film corrosion
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Severe corrosion affected performance, resulting in reduced production capacity from well heads. Reduced reliability required weld repair of heat exchangers every 15-18 months

#### Goal

Increase operation reliability to more than 18 months; Eliminate weld repair and protect heat exchanger intervals

#### Root Cause

High temperature sea water with high chlorides accelerated corrosion of unprotected steel

### Solution

#### Preparation

Decontaminate surfaces  
Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

#### Application

Apply **ARC HT-T** at 40-60 mil (1-1.5 mm) to bare smooth pitted surfaces  
Critical sealing surfaces required machined molds to achieve required tolerances

### Results

#### Client Report

Exceeded 18-month maintenance cycle goal

Inspection at 30 months showed no signs of corrosion damage

Prior maintenance cycle cost (30 months): **\$83K**  
ARC repair cost (30 months): **\$22K**

**Savings: \$61K**

\$=USD



Corroded divider plates.



Repaired divider plates.



Completed tube sheet.

# ARC HT-S

**100% solids, high temperature resistant, ceramic-reinforced abrasion-resistant epoxy that protects metal against mild abrasion, corrosion, and erosion in elevated temperature immersion**

- Perform in immersed aqueous solution conditions up to 150°C (302°F)
- Replace exotic alloys, engineered plastics, ceramics, and conventional coatings
- Easily apply by roller, brush, squeegee, or airless spray

## Application Areas

- Oil/water separators
- Heat exchangers
- Tanks and vessels
- Oil/gas separators
- Fans and housings
- Pumps and valves

## Packaging and Coverage

Nominal, based on a 375 µm (15 mil) thickness

- 5 liter kit covers 6,67 m<sup>2</sup> (71.76 ft<sup>2</sup>)
- 16 liter kit covers 21,33 m<sup>2</sup> (229.63 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	365,4 kg/cm <sup>2</sup> (35,9 MPa)	5,200 psi
Maximum Temperature (Dependent on Service)	Wet Service	150°C	302°F
	Dry Service	175°C	347°F



## Features and Benefits

- **Strong, tough, durable**
  - Reduces spare part inventory
  - Reduces downtime
- **Incorporates fine-graded sizes of reinforcements**
  - Resistant to cold wall delamination and permeation
- **Spark testable per NACE SP0188**
- **High adhesive strength to metal**
  - Reduces under-film corrosion
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Internal tank corrosion is limiting its service life

#### Goal

Increase equipment life; Protect internal surface against corrosive operating conditions

#### Root Cause

Operation conditions with condensate (demineralized water) and temperature (110°C/230°F) are highly corrosive for the carbon steel tank

### Solution

#### Preparation

Wash surfaces with hot water  
Grit blast to Sa 2.5 with 3 mil (75-125 µm) angular profile

#### Application

Apply **ARC HT-S** in a two-coat system at 20-24 mil (500-600 µm) final thickness

### Results

#### Client Report

New tank: \$134,500  
**ARC solution:** -\$10,000

**Total cost prevention:** \$124,500

#### Additional Benefits

Demineralized water quality meets specification requirements

#### Client Follow Up

Client plans to coat next tank

\$=USD



Corroded tank internal surface.



Product mixing.



Coated tank internals.

# ARC BX1



**100% solids, modified epoxy formulation reinforced with a proprietary blend of ceramic beads and powders for extremely abrasive sliding wear environments**

- Protect areas exposed to sliding abrasion
- Replace ceramic tiles and rubber linings which can disbond more easily
- Easily apply by trowel

## Application Areas

- Bins and silos
- Slurry pumps
- Wear plates
- Blow lines
- Chutes
- Transport screws

## Packaging and Coverage

Nominal, based on a 6 mm (240 mil) thickness

- 1,5 liter kit covers 0,25 m<sup>2</sup> (2.69 ft<sup>2</sup>)
- 5 liter kit covers 0,83 m<sup>2</sup> (8.97 ft<sup>2</sup>)
- 20 kg kit covers 1,37 m<sup>2</sup> (14.70 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	238,9 kg/cm <sup>2</sup> (23,5 MPa)	3,400 psi
Maximum Temperature (Dependent on Service)	Wet Service	95°C	203°F
	Dry Service	205°C	400°F



## Features and Benefits

- **High ceramic loading level**
  - Extends life of equipment exposed to coarse particle wear
- **Chemically resistant polymer matrix**
  - Covers a broad range of chemical exposures
- **High adhesive strength**
  - Resists disbonding
- **High build - single coat**
  - Allows for vertical build capability to most substrates
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Buckets on continuous excavator were wearing out in less than six months. Traditional weld repair resulted in stress fatigue failure

#### Goal

Client sought to extend repair interval by 200% and eliminate heat-associated stress fatigue

#### Root Cause

Heat-related stress fatigue was weakening grain boundaries, leading to cracks and accelerated abrasive wear

### Solution

#### Preparation

Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

#### Application

Apply **ARC BX1** at an average thickness of 6-8 mm (250-320 mil) only to the regions exposed to sliding abrasion

### Results

#### Client Report

Heat-related stress fatigue minimized by using **ARC BX1**

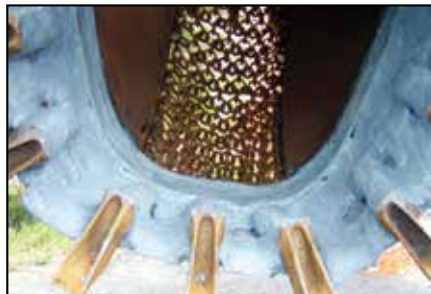
Service life increased from 6 to more than 12 months

At 20-month maintenance period only 5 kg of **ARC BX1** was needed to repair localized damage

**ARC BX1** coating has been applied to three more excavators in same manner at this mine site



Repair life of 6 months with hard face welding.



ARC BX1 coating applied to the boarders between the teeth.



After 20 months only 5 kg of ARC BX1 was needed for repair.

# ARC BX2



**100% solids, modified epoxy formulation reinforced with a proprietary blend of ceramic beads and powders for fine particle, abrasive sliding wear environments**

- Protect areas exposed to moderate sliding abrasion
- Resurface damaged metal in lieu of more traditional weld overlays
- Easily apply by trowel

## Application Areas

- Slurry pumps
- Transport screws
- Wear plates
- Hydropulpers
- Slurry pipes
- Hydrocyclones

## Packaging and Coverage

Nominal, based on a 3 mm (120 mil) thickness

- 1,5 liter kit covers 0,50 m<sup>2</sup> (5.38 ft<sup>2</sup>)
- 5 liter kit covers 1,67 m<sup>2</sup> (17.94 ft<sup>2</sup>)
- 20 kg kit covers 2,82 m<sup>2</sup> (30.32 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	238,2 kg/cm <sup>2</sup> (23,4 MPa)	3,390 psi
Maximum Temperature (Dependent on Service)	Wet Service	95°C	203°F
	Dry Service	205°C	400°F

## Features and Benefits

- **High ceramic loading level**
  - Extends life of equipment exposed to fine particle wear
- **High adhesive strength**
  - Resists disbonding
- **Low mixed viscosity**
  - Eases mixing, application and finishing
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Flue gas desulfurization units are highly corrosive and hard on equipment

#### Goal

Extend the life of absorber agitators made with expensive, super duplex alloy to operate in corrosive and abrasive desulfurization environments

#### Root Cause

Abrasive lime slurry at high velocity in high chloride environment

### Solution

#### Preparation

Abrasive blast surface to Sa 2.5 with 3 mil (75 µm) angular profile using aluminum oxide media

#### Application

Apply [ARC 855](#) as a primer  
Apply [ARC BX2](#) at 3 mm (120 mil)  
Dynamically balance impellers and rotating lances using [ARC BX2](#)

### Results

#### Client Report

Periodic inspection reports support a minimum of 3 years performance before maintenance



Mixer during operation.



Mixer and lance with the applied ARC 855 and ARC BX2 coatings.



Design was modified to include additional support for the mixer and lance.

# ARC BX5



**Rapid curing, 100% solids, ceramic-reinforced multi-component coating, formulated for moderate sliding wear and abrasion caused by fine particles**

- Cure under adverse conditions with maximum adhesion
- Quickly patch and repair worn equipment and structures
- Easily apply by trowel

## Application Areas

- Pneumatic conveyors
- Screw conveyors
- Wear plates
- Transport fans
- Cyclones and hoppers
- Pipe elbows

## Packaging and Coverage

Nominal, based on a 3 mm (120 mil) thickness

- 0,75 liter kit covers 0,25 m<sup>2</sup> (2.69 ft<sup>2</sup>)
- 2,5 liter kit covers 0,83 m<sup>2</sup> (8.97 ft<sup>2</sup>)

Pull-off Adhesion	(ASTM D 4541)	224,8 kg/cm <sup>2</sup> (22,1 MPa)	3,200 psi
Maximum Temperature (Dependent on Service)	Wet Service	60°C	140°F
	Dry Service	120°C	248°F



## Features and Benefits

- **Rapid cure chemistry**
  - Quick return to service
- **Surface-tolerant formulation**
  - Bonds to moist and suboptimally prepared substrates
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Ceramic tile lasts 4-6 months before cracking and delamination occurs. Exposed steel wears through and requires weld repair before retiling.

#### Goal

Extend patch repair to greater than 30 days; Reduce maintenance cycle time to less than 12 hours

#### Root Cause

Brittle fracture failure of ceramic tiles results from impact of coal; Acidic wash water corrodes steel.

### Solution

#### Preparation

Grind down residual ceramic epoxy with power tool  
Decontaminate surface with solvent (MEK)  
Roughen with a rotary grinding tool

#### Application

Apply **ARC BX5** at 120-200 mil (3-5 mm) to steel and cove up onto the ceramic tile

Apply **ARC S2** at 12 mil (300 µm)

### Results

#### Client Report

ARC repairs completed in eight hours  
ARC solution provided over six months' service before a touch-up was required  
Due to success, client has selected ARC coatings as "patch repair" for all tile-lined chutes and lines



Damage to existing ceramic tiles caused unscheduled shutdown and loss of production.



Installation of ARC BX5.



ARC BX5 with ARC S2 topcoat cures rapidly, allowing fast return to service of chute.

# ARC I BX1



**100% solids, impact-resistant, ceramic-reinforced epoxy/urethane hybrid coating for severe abrasive wear and high impact resistance**

- Protect surfaces exposed to impact  $\leq 50$  ft lb. ( $\leq 68$  Nm) and sliding abrasion
- Provide a longer lasting alternative to rubber lining and ceramic tiles
- Resist direct as well as reverse impact forces

## Application Areas

- Hoppers/chutes
- Discharge plates
- Slurry elbows
- Rubber insert repair
- Pulverizer exhausters
- Vibrating screen decks

## Packaging and Coverage

Nominal, based on a 6 mm (240 mil) thickness

- 20 kg kit covers 1,39 m<sup>2</sup> (14.93 ft<sup>2</sup>)

Pull-off Adhesion	(ASTM D 4541)	222,7 kg/cm <sup>2</sup> (21,9 MPa)	3,170 psi
Maximum Temperature (Dependent on Service)	Wet Service	95°C	203°F
	Dry Service	205°C	400°F



## Features and Benefits

- **Urethane-modified formulation**
  - Resists repeated direct and reverse impact forces
- **No free isocyanates, 100% solids, no VOCs**
  - Enhances safe use
- **High ceramic loading level**
  - Resists moderate to severe impact

## Product Case Study

### Challenge

#### Issue

Failure of a rubber and tile lined chute caused leaks and unscheduled outages with lost production costs of more than \$115K/day

#### Goal

Plant sought increased life cycle of chutes

#### Root Cause

Seams in rubber lining exposed to highly abrasive slurry discharge caused rubber tears and delamination

### Solution

#### Preparation

Pressure wash and decontaminate surfaces

Power tool clean to Sa 2.5

#### Application

Apply **ARC I BX1** to prepared surfaces to mate up to damaged rubber and tile sections

Use radiant heat lamps to accelerate cure to less than 24 hours

### Results

#### Client Report

Over 200 hours of increased production as a result of utilization of ARC coatings

Rubber (material/labor/downtime): \$1.5M

**ARC (material/labor/downtime): \$417K**

**Net savings: \$1,083M**

**ARC I BX1** and now **ARC I BX1 RC** are standard repair items in plant

\$=USD



Discharge flume with damaged tile/rubber liners.



Applying ARC I BX1.



ARC I BX1 coated surfaces.





# ARC I BX1 RC

**A rapid-curing, high impact-resistant, 100% solids, epoxy/urethane hybrid coating with ceramic reinforcements for severe wear regions and impact**



- Cure quickly allowing a faster turnaround with repairs
- Coat and protect surfaces exposed to moderate-to-severe impact and sliding abrasion
- Rapidly repair/replace cracked ceramic tile or rubber lining where impact forces combined with sliding wear tear seams and edges
- Easily apply by trowel

## Application Areas

- Rubber pump liners
- Pipe elbows
- Rubber-lined agitators
- Discharge plates
- Tile-lined chutes
- Vibrating screen decks

## Packaging and Coverage

Nominal, based on a 6 mm (240 mil) thickness

- 1,5 liter kit covers 0,25 m<sup>2</sup> (2.69 ft<sup>2</sup>)
- 2,5 kg kit covers 0,42 m<sup>2</sup> (4.49 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	238,2 kg/cm <sup>2</sup> (23,4 MPa)	3,390 psi
Maximum Temperature	Wet Service	95°C	203°F
(Dependent on Service)	Dry Service	205°C	400°F

## Features and Benefits

- **Urethane-modified formulation**
  - Resists repeated direct and reverse impact for reliable performance
- **Modified rapid cure curing agent**
  - Reduces cure time to less than 3 hours, getting equipment back online faster
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Coal pulverizers experience unscheduled shutdowns due to impact damage to tile liner. Alternative coatings lasted less than one month

#### Goal

Extend repair cycle to a minimum of 6 months

#### Root Cause

High velocity coal fines impacting brittle ceramic tile

### Solution

#### Preparation

Power tool clean to SP 11 with 2+mil (50 µm profile)

#### Application

Apply 240-375 mil (6-9 mm) of **ARC I BX1 RC**, on 12-hour shutdown to damaged areas, butting up to remaining tile

### Results

#### Client Report

Inspection after one month showed 95% of product thickness remained with zero delamination

Tile repairs:	\$50,000/year
Alternative coatings:	\$10,000/year
<b>ARC I BX1 RC:</b>	<b>\$3,500/year</b>

<b>Savings on tiles:</b>	<b>\$46,500/year</b>
<b>Savings on coating:</b>	<b>\$6,500/year</b>

\$=USD



MPS Coal Pulverizer.



Damaged pulverizer walls.



Coated pulverizer after 1 month.



# ARC MX1

**100% solids, ceramic-reinforced multi-component system, formulated for extreme impact and sliding-wear abrasion caused by medium-to-coarse particle flow**

- Protect surfaces against both, dry coarse particle erosion and wet slurry abrasion
- Provide a longer lasting alternative to rubber linings and ceramic wear tiles under impact
- Replace CD4, Ni-hard or hardox as wear-resistant material



## Application Areas

- Pulverizers
- Hoppers and silos
- Pumps and pipe elbows
- Fans/blowers/cyclones
- Ceramic tile deflector hoods
- Rubber-lined deflector hoods
- Conveyor screws

## Packaging and Coverage

Nominal, based on a 6 mm (240 mil) thickness

- 6 kg kit covers 0,37 m<sup>2</sup> (3.97 ft<sup>2</sup>)
- 20 kg kit covers 1,23 m<sup>2</sup> (13.23 ft<sup>2</sup>)

Pull-off Adhesion	(ASTM D 4541)	224,8 kg/cm <sup>2</sup> (22,1 MPa)	4,200 psi
Maximum Temperature (Dependent on Service)	Wet Service	95°C	203°F
	Dry Service	205°C	400°F

## Features and Benefits

- **Tough, ceramic-reinforced coating resists broad range of slurries**
  - Extends life of equipment exposed to coarse particle wear
- **Advanced hybrid polymer matrix**
  - Resists repeated high impact force
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use

## Product Case Study

### Challenge

#### Issue

Hard face weld overlay was not meeting 12-month maintenance cycle. Associated repair costs every 12 months equal \$4.5K

#### Goal

Restore and protect conveyor screw from abrasion, improving reliability; Eliminate need for weld overlay on entire flyght

#### Root Cause

Severe abrasion from bark with up to 10% sand abrade drum and flyghts

### Solution

#### Preparation

Grit blast to Sa 2.5 with 3 mil (75 µm) profile

#### Application

Apply **ARC MX1** at 6 mm (1/4 in) to flyght faces and shaft

Reinforce flyght tips only with hardened weld overlay

### Results

#### Client Report

Maintenance cycle increased from less than 12 months to more than 72 months

Estimated 72-month savings per screw:

\$27K

\$=USD



Abraded screw conveyor.



ARC MX1 applied and tips welded.



After 12 months: client identified no issues with performance.



# ARC MX2

**100% solids, ceramic-reinforced multi-component coating, formulated for extreme sliding-wear and abrasion caused by fine particles**

- Protect surfaces against both dry fine particle erosion and wet slurry abrasion
- Restore worn equipment to near-original condition
- Easily apply by trowel



## Application Areas

- Cyclones
- Valves
- Agitators
- Mixers
- Cleaner cones
- Pipe spools

## Packaging and Coverage

Nominal, based on a 3 mm (120 mil) thickness

- 2,5 liter kit covers 0,83 m<sup>2</sup> (8.97 ft<sup>2</sup>)
- 16 liter kit covers 5,33 m<sup>2</sup> (57.41 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	238,9 kg/cm <sup>2</sup> (23,5 MPa)	3,400 psi
Maximum Temperature (Dependent on Service)	Wet Service	95°C	203°F
	Dry Service	205°C	400°F

## Features and Benefits

- **Tough, ceramic-reinforced coating resists broad range of slurries**
  - Extends life of equipment exposed to coarse particle wear
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use
- **Low viscosity formulation**
  - Simplifies application
  - Lowers installed cost

## Product Case Study

### Challenge

#### Issue

Mine production impacted by insufficient pump performance to meet required 300M<sup>3</sup>/hour flow

#### Goal

Avoid purchasing additional pumps with an acquisition cost of \$25K and operational cost of \$3.5K; Meet flow demand and reduce maintenance and operational costs

#### Root Cause

After 20,000 hours operation in acidic mine water with entrained solids degraded pump internals and critical tolerances

### Solution

#### Preparation

Surfaces grit blasted to Sa 2.5 with 3 mil (75 µm) angular profile

#### Application

Apply **ARC 858** to rebuild pump back to tolerances where abrasion and erosion had damaged casing and impeller

Apply **ARC MX2** in high-wear regions to address abrasive suspended solids

Apply final topcoat of **ARC 855** for additional corrosion protection and to improve flow efficiency

### Results

#### Client Report

After repair, pumps operated at more than 94% of OEM efficiency with 3% less energy consumed

#### Cost Avoidance

New pump installation/operation: \$28.50K

**ARC material and labor:** \$6.80K

Associated energy saving: \$3.29K

**Total first year savings (per pump): \$18.41K**

\$=USD



Bank of dewatering pumps.



Pumps rebuilt with ARC 858 and ARC MX2. Top-coated with ARC 855.



Coated sections of pump.

# ARC T7 AR



**A ceramic reinforced novolac vinyl ester, protective barrier coating for high-temperature, chemical exposures where aggressive, abrasive conditions may be present**

- Resist a wide range of inorganic, as well as organic, acids and hydrocarbon-based chemical compounds
- Resists abrasion
- Easily apply by trowel

## Application Areas

- Flue gas ducts
- Process tanks
- Agitator blades
- Slurry pumps
- Pipes
- Rubber-lined reactor tanks

## Packaging and Coverage

Nominal, based on a 3 mm (120 mil) thickness

- 20,4 kg kit covers 2,50 m<sup>2</sup> (27.00 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	158 kg/cm <sup>2</sup> (15,5 MPa)	2,249 psi
Maximum Temperature (Dependent on Service)	Wet Service (water)	135°C	275°F
	Dry Service (continuous)	180°C	355°F

## Features and Benefits

- **Chemical-resistant polymer matrix**
  - Resists a broad spectrum of organic and inorganic acids
- **Incorporates high-strength ceramic reinforcements**
  - Permeation-resistant
  - Abrasion-resistant
- **Toughened resin structure**
  - Resists cracking and disbondment under thermal cycling conditions

## Product Case Study

### Challenge

#### Issue

Rubber-lined exhaust elbows clog up with gypsum and wear out in less than six months requiring unit shutdown to replace

#### Goal

Extend repair cycle and reduce gypsum buildup

#### Root Cause

Carryover contains gypsum and highly corrosive phosphoric acid

### Solution

#### Preparation

Damaged rubber lining removed  
Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

#### Application

Apply **ARC T7 AR** to 240-360 mil (6-9 mm)  
Apply veil coat of **ARC T7 ARVC**

### Results

#### Client Report

Elbows lasted 6 months and localized high-wear region was repaired at nominal cost

Additional product thickness to be applied in future elbows

Annual rubber lining: \$75,000  
**ARC lining: \$52,000**

**Savings: \$23,000**

\$=USD



Flash cooler with exhauster.



Exhaust elbow in shop laydown.



Repaired unit ready for install.

# ARC S1PW

**100% solids, reinforced thin film coating to protect structures against erosion, corrosion, and chemical attack. ARC S1PW is certified for cold water service requiring NSF 61 certification**

- Provide excellent barrier protection against erosion, corrosion, and chemical attack
- Meet all requirements of NSF 61 for potable, cold water service
- Easily apply by brush, roller, or plural component spray

## Application Areas

- Crude oil storage tanks
- Wastewater clarifiers
- Cooling water systems
- Chemical storage tanks
- Thickener tanks
- Potable water pumps, valves, and fittings

## Packaging and Coverage

Nominal, based on a 375 µm (15 mil) thickness

- 1125 ml cartridge covers 3,0 m<sup>2</sup> (32.3 ft<sup>2</sup>)
- 5 liter kit covers 13,33 m<sup>2</sup> (143.52 ft<sup>2</sup>)
- 16 liter kit covers 42,67 m<sup>2</sup> (459.26 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion (Metal)	(ASTM D 4541)	477 kg/cm <sup>2</sup> (46,8 MPa)	6,790 psi
Maximum Temperature (Dependent on Service)	Wet Service (NSF 61)	23°C	75°F
	Dry Service (General)	62°C	144°F
	Wet Service (General)	52°C	126°F

## Product Case Study

### Challenge

#### Issue

Exposed aggregate in sand filter was promoting algae growth, leading to increased vessel draining and cleaning

#### Goal

Seal surface and apply coating to reduce algae growth

#### Root Cause

Exposed aggregate promotes algae retention

### Solution

#### Preparation

Surfaces grit blasted to CSP3 finish

#### Application

Skim coat of cementitious mortar applied to resurface concrete.

Two coats of **ARC S1PW** applied at 15-20 mil (375-500 µm) in alternating colors

### Results

#### Client Report

Vessel has been in continuous service for over seven years

Algae cleaning can be easily done with low pressure hoses

Cleaning time reduced from two times per month to three times per year—saving over 200 man-hours per year



## Features and Benefits

- **Ceramic-reinforced**
  - Resists erosion
- **Low viscosity**
  - Easy to apply
- **Excellent adhesion**
  - No under-film corrosion
- **Compliant to NSF 61 standard for cold water service**
  - Non-contaminating formulation



Certified to NSF/ANSI 61



Drained sand filter vessel.



Installing ARC S1PW coating.



Sand filter in service.

# ARC S2



**100% solids, ceramic-reinforced thin film coating to protect structures against erosion, abrasion, and corrosion**

- Protect against corrosion and erosion
- Provide improved material flow properties
- Apply by brush, roller, airless or plural component spraying

## Application Areas

- Tank lining
- Fans and housings
- Condensers
- Heat exchangers
- Hoppers
- Pumps and valves

## Packaging and Coverage

Nominal, based on a 375 µm (15 mil) thickness

- 1125 ml cartridge covers 3,00 m<sup>2</sup> (32.29 ft<sup>2</sup>)
- 1,5 liter kit covers 3,94 m<sup>2</sup> (42.4 ft<sup>2</sup>)
- 5 liter kit covers 13,33 m<sup>2</sup> (143.52 ft<sup>2</sup>)
- 16 liter kit covers 42,67 m<sup>2</sup> (459.26 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	463 kg/cm <sup>2</sup> (45,5 MPa)	6,590 psi
Maximum Temperature (Dependent on Service)	Wet Service	52°C	125°F
	Dry Service	80°C	175°F



## Features and Benefits

- **High-gloss, low-drag surface**
  - Improves material flow
  - Enhances efficiency
- **High adhesive strength**
  - Prevents under-film corrosion
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use
- **Low viscosity: brush, roller, or spray applied coating**
  - Easy to apply

## Product Case Study

### Challenge

#### Issue

Previously applied coal tar coatings failed prematurely at two years, resulting in unanticipated floor corrosion. Corrosion protection of six years required for maintenance cycle

#### Goal

Reduce pitting corrosion; Extend maintenance cycle to six years

#### Root Cause

Thickener solution, containing sulfates, chlorides, and abrasive slurry attacks unprotected steel

### Solution

#### Preparation

Grit blast remove old coal tar epoxy  
Grit blast to Sa 2.5 with 3 mil (75 µm) profile

#### Application

Apply ARC S2 stripe coat to weld seams  
Apply two coats of ARC S2 at 15-20 mil (375-500 µm)/coat

### Results

#### Client Report

ARC coating providing more than six years of service life (three times more than coal tar solution)

Elimination of two thickener clean outs provide additional savings

#### Annualized Coating Solution

Previous coal tar (material and labor): \$12K  
ARC repair (material and labor): \$6K

Savings per year: \$6K

\$=USD



Slurry thickener at a major South American mine.



Alternating colors of ARC S2.



ARC S2 still in excellent condition.

# ARC S4+

**100% solids, advanced-reinforced thin film coating to protect structures against extreme chemical attack**

- Protect against extreme chemical attack in immersion
- Apply by brush, roller, airless or plural component spraying

## Application Areas

- Exhaust gas ductwork
- Heat exchangers
- Chimneys and stacks
- Chemical storage tanks
- Fans and housings
- Tank linings

## Packaging and Coverage

Nominal, based on a 375 µm (15 mil) thickness

- 1125 ml cartridge covers 3,00 m<sup>2</sup> (32.30 ft<sup>2</sup>)
- 5 liter kit covers 13,33 m<sup>2</sup> (143.52 ft<sup>2</sup>)
- 16 liter kit covers 42,70 m<sup>2</sup> (459.30 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	330 kg/cm <sup>2</sup> (32,4 MPa)	4,700 psi
Maximum Temperature (Dependent on Service)	Wet Service	60°C	140°F
	Dry Service	150°C	300°F
	Post Cure Wet Service	95°C	203°F

## Product Case Study

### Challenge

#### Issue

Contamination from aging rubber lining created water quality issues that impacted steam-generation equipment

#### Goal

Eliminate sulfur leaching into water; Apply barrier coating that is resistant to demineralized water and regeneration chemicals

#### Root Cause

Aged vulcanized rubber lining leaches sulfur into demineralized water

### Solution

#### Preparation

Hydro blast to remove rubber lining

Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

#### Application

Apply **ARC 858** to restore and smooth surface

Apply two coats of **ARC S4+** at total DFT 25-30 mil (630-750 µm)

### Results

#### Client Report

After coating, filled vessels require no flush or rinse to remove residual contamination

In operation, the vessels showed sulfur levels not greater than 1 ppb

Lining has been in service for more than 5 years



## Features and Benefits

- **Multi-functional chemistry**
  - Resists concentrated chemicals
- **High cross-link density**
  - Permeation-resistant
  - Improved thermal stability
  - Enhanced mechanical properties
- **Spark testable per NACE SP0188**
  - Easy post-application inspection
  - Facilitates quality assurance
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use



Removal of the rubber lining in progress. Blistering of the lining is visible.



External view of the tank.



After proper surface preparation, ARC S4+ was applied in a two-coat system.

# ARC SD4i



**100% solids, advanced-reinforced thin film coating to protect structures and equipment in extreme immersion services**

- Protect against corrosion and erosion
- Provide extended protection in aggressive chemical immersion services
- Apply by brush, roller, or airless or plural component spraying



## Application Areas

- Flotation cells
- Hydrocyclones
- Slurry tanks
- Thickener tanks
- Slurry pipes
- Bins, hoppers, and silos

## Packaging and Coverage

Nominal, based on a 375 µm (15 mil) thickness

- 1125 ml cartridge covers 3,00 m<sup>2</sup> (32.30 ft<sup>2</sup>)
- 5 liter kit covers 13,33 m<sup>2</sup> (143.52 ft<sup>2</sup>)
- 16 liter kit covers 42,67 m<sup>2</sup> (459.26 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	241 kg/cm <sup>2</sup> (23,7 MPa)	3,430 psi
Maximum Temperature (Dependent on Service)	Wet Service	65°C	149°F
	Dry Service	120°C	248°F

## Features and Benefits

- **Abrasion-resistant surface**
  - Extends equipment life
- **High gloss, low drag surface**
  - Improves material flow
- **100% solids, no VOC's, no free isocyanates**
  - Enhances safe use
- **Low viscosity, thin film, brush, roller, and spray applied**
  - Easy to apply

## Product Case Study

### Challenge

#### Issue

Hydrocyclone on offshore platform corrodes rapidly without protection, requiring repeated weld overlay repairs

#### Goal

Improve the efficiency of separation by preventing corrosion and metal loss/damage; Avoid equipment replacement with a super duplex stainless steel unit at a cost of greater than \$65K

#### Root Cause

High chloride and solids concentration of solids and hydrocyclone turbulence

### Solution

#### Preparation

Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

Treat to remove residual chlorides

#### Application

Apply [ARC 858](#) to areas of severe corrosion pitting and rebuild smooth surface

Apply two coats of [ARC SD4i](#) with DFT of 30-40 mil (750-1000 µm) per coat for abrasion and corrosion protection and enhanced flow

### Results

#### Client Report

Unit is operational for more than 4 years since ARC solution. Inspection at 3-year point showed no signs of coating failure or pitting

Replacement:	\$65,000
<b>ARC material:</b>	<b>\$3,200</b>
Labor to install:	\$13,000

**Total Savings:** **\$48,800**

Payback vs. Replacement = less than 3 months

\$=USD



After cleaning and decontamination, ARC 858 is applied to fill and smooth surface.



After application of ARC 858, ARC SD4i is applied for protection and enhanced flow efficiency.



After cleaning and decontamination, ARC 858 is applied to fill and smooth surface.



# ARC S7

**A low-VOC, novolac vinyl ester, sprayable protective barrier coating for high-temperature chemical exposures where thermal cycling conditions may be present**

- Resist thermal cycling conditions up to 180°C (350°F)

## Application Areas

- Flue gas ducts
- Gas/gas heat exchangers
- Chimney stack liners
- Storage and process tanks
- Electrostatic precipitators
- Bag filters

## Packaging and Coverage

Nominal, based on a 375 µm (15 mil) thickness

- 14 liter kit covers 37,33 m<sup>2</sup> (401.86 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	166 kg/cm <sup>2</sup> (16,3 MPa)	2,370 psi
Maximum Temperature (Dependent on Service)	Wet Service	135°C (water)	275°F
	Dry Service	180°C (continuous)	355°F



## Features and Benefits

- **Chemical-resistant polymer matrix**
  - Resists a broad spectrum of organic and inorganic acid
- **Incorporates fine-graded sizes of reinforcements**
  - Permeation-resistant
- **Toughened resin structure**
  - Resists cracking and disbondment under thermal cycling conditions
- **High dielectric resistivity**
  - Allows user to inspect with high voltage spark testing per NACE SP0188

## Product Case Study

### Challenge

#### Issue

Previously specified coating failed within 12 months. Cost of alloy cladding was not justified. If left unprotected, exposed steel would fail due to corrosion within 12 months

#### Goal

Extend service life to more than 24 months with no evident corrosion

#### Root Cause

Condensing acids at the cold areas of the ductwork caused heavy corrosion on framework of the duct

### Solution

#### Preparation

Decontaminate surface  
Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

#### Application

Apply **ARC S7** by brush as stripe coat to all weld seams

Airless spray apply **ARC S7** at total DFT of 20 mil (500 µm)

### Results

#### Client Report

After extensive testing and approval, **ARC S7** was selected by OEM as new lining system

Six units were coated with **ARC S7** and shipped to job sites for installation

More than 1200 m<sup>2</sup> of **ARC S7** has been installed in bag houses for OEM client



Original coating started to fail within 12 months of application.



ARC S7 is applied in ducts using airless spray equipment.



Bag house protected with ARC S7 in service over 2 years with no failures.

# ARC CS2



## 100% solids, mineral-reinforced, wear-resistant, low-viscosity epoxy

- Protect new and old concrete subject to mild chemical and/or physical damage
- Replace tiles, outlast paints and other concrete coatings
- Apply by roller, brush, squeegee, or airless or heated plural component spray

### Application Areas

- Concrete tanks
- Water intakes and dams
- Process floor areas
- Secondary containment
- Sumps, drains, and pits
- Pump and equipment bases

### Packaging and Coverage

Nominal, based on a 500 µm (20 mil) thickness

- 16 liter kit covers 32,00 m<sup>2</sup> (344.45 ft<sup>2</sup>)

### Technical Data

Pull-off Adhesion	(ASTM D 4541)	>35,1 kg/cm <sup>2</sup> (>3,4 MPa)	>500 psi Concrete Failure
Maximum Temperature (Dependent on Service)	Wet Service	52°C	125°F
	Dry Service	93°C	200°F



### Features and Benefits

- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use
- **Can be applied to dry or damp concrete**
  - Saves time by allowing application under a variety of conditions
- **Surface modified mineral reinforcements**
  - Excellent resistance to permeation
- **Adhesion exceeds cohesive strength of concrete**

## Product Case Study

### Challenge

#### Issue

Coating destroyed in secondary containment bund after spills of aluminum sulfate

#### Goal

Protect concrete and other structures from chemical attack; avoid cost of lost product and potential fines

#### Root Cause

Reinforcement content of previous coating allowed wicking of aggressive chemicals; Substrate attack caused failure

### Solution

#### Preparation

HP water blast 600 bar (8500 psi)

Decontaminate with IMS II

#### Application

Apply **ARC 797** to prime

Apply **ARC 988** to pitch to grade

Apply **ARC CS4** to seal floor

Apply **ARC CS2** to protect walls

### Results

#### Client Report

More than 3 years without damage to the coating

Avoided possible fines

Avoided annual reconstruction costs

Avoided first year recoat costs: \$8.5K

**3 year savings for recoating: \$25.5K**

\$=USD



Failed coating after spills.



Cleaned and prepared surface.



Applying ARC CS4 topcoat.

# ARC CS4

**100% solids, highly chemical-and wear-resistant low viscosity, thin film 100% Novolac epoxy**

- Protect new and old concrete subject to severe chemical attack
- Apply by roller, brush, squeegee, or airless or heated plural component spray

## Application Areas

- Chemical tanks
- Sumps, drains, and pits
- Neutralization tanks
- Secondary containment
- Chemical process floors
- Pump foundations

## Packaging and Coverage

Nominal, based on a 500 µm (20 mil) thickness

- 5 liter kit covers 10,00 m<sup>2</sup> (107.64 ft<sup>2</sup>)
- 16 liter kit covers 32,00 m<sup>2</sup> (344.45 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	>35,1 kg/cm <sup>2</sup> (>3,4 MPa)	>500 psi Concrete Failure
Maximum Temperature (Dependent on Service)	Wet Service (continuous)	40°C	105°F
	Wet Service (intermittent)	52°C	125°F
	Dry Service	80°C	175°F



## Features and Benefits

- Resistant to broad range of acids and caustics
  - Easy coating selection
- Durable high-performance coating
  - Outlasts conventional coatings
- 100% solids, no VOCs, no free isocyanates
  - Enhances safe use
- Adhesion exceeds cohesive strength of concrete

## Product Case Study

### Challenge

#### Issue

Severe corrosion to failing acid brick-lined concrete basin resulted in leaks and environmental fines

#### Goal

Avoid future fines and return basin to chemical-resistant status

#### Root Cause

Sulfuric and hydrochloric acids

### Solution

#### Preparation

Old acid brick was removed as well as damaged concrete

Surfaces abrasive grit blasted and alkaline washed

#### Application

Cementitious mortar used to resurface damaged concrete

All surfaces coated with two coats of ARC CS4 at 15-20 mil (375-500 µm)/coat

### Results

#### Client Report

Repairs carried out over 2-week period  
Basin operated for more than six years before repairs were required

Acid brick estimate:	\$150,000
ARC lining:	\$47,000
<b>Savings:</b>	<b>\$103,000</b>

\$=USD



Basin in petrochemical complex.



Surface preparation.



ARC CS4 final application.

# ARC NVE VC



**2-layer system, high-performance modified novolac vinyl ester coating for concrete where extreme chemical resistance is required**

- Serve as a stand-alone, thin film coating
- Protect against a wide range of concentrated acids, organic solvents, and alkalis
- Easily apply by brush, roller, squeegee, or airless spray



## Application Areas

- Battery rooms
- Bleaching areas
- Chemical containments
- Pickling/plating lines
- Sumps, trenches, and pits
- Pickling rooms

## Packaging and Coverage

Nominal, based on a 500 µm (20 mil) thickness

- System Kit covers 9,60 m<sup>2</sup> (103.30 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	>38 kg/cm <sup>2</sup> (3,8 MPa)	551 psi
Maximum Temperature (Dependent on Service)	Wet	130°C	266°F
	Dry	200°C	392°F

## Features and Benefits

- **Resistant to concentrated chemicals including alkalis, acids and solvents**
  - Selection with confidence
  - Covers a broad range of chemical exposures
- **Specialized blend of reinforcements**
  - Long-term resistance to permeation

## Product Case Study

### Challenge

#### Issue

Fiberglass mat-reinforced polyester lining cracked and delaminated from process floor in ClO<sub>2</sub> mixing room in bleach plant

#### Goal

Replace failed lining with more chemically resistant liner

#### Root Cause

Spills of 15% ClO<sub>2</sub>

### Solution

#### Preparation

Surfaces decontaminated then surface ground to CSP3 finish

#### Application

Damaged concrete re-pitched to drain at 2° slope using cementitious mortar

ARC NVE primer applied followed by two coats of ARC NVE VC at 15-20 mil (375-500 µm)/coat

### Results

#### Client Report

Coated areas have been in continuous service for over 4 years

Fiberglass\*: \$35,000  
ARC repairs: \$27,000

**Savings: \$12,000**

\*Lasts one year

\$=USD



Delaminated fiberglass mat polyester.



NVE VC in service.



NVE VC in service.



# ARC 791

**100% solids, high-build, quartz (SiO<sub>2</sub>)-reinforced, highly chemically resistant, modified epoxy coating that can bond to damp concrete, concrete resurfacer**



- Resurface concrete damaged by chemical attack or mechanical stress
- Bond to damp concrete, making substrate impermeable for aggressive chemicals
- Apply to vertical substrates at nominal DFT of 6 mm (250 mil) using ARC 797 primer
- Easily apply by trowel

## Application Areas

- Acid and alkali spill areas
- Bottling lines
- Wastewater treatment
- Concrete tanks/sumps
- Food processing plants
- Trenches and drains
- Tile repointing

## Packaging and Coverage

Nominal, based on a 6 mm (240 mil) thickness

- System Kit covers 4,10 m<sup>2</sup> (44.13 ft<sup>2</sup>)
- Bulk Kit covers 16,70 m<sup>2</sup> (180.00 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion	(ASTM D 4541)	>35,1 kg/cm <sup>2</sup> (>3,4 MPa)	>500 psi Concrete Failure
Maximum Service Temperature (Dependent on Service) (Water immersion)	Wet Service (continuous)	66°C	150°F
	Dry Service (continuous)	93°C	200°F

## Features and Benefits

- **Coefficient of thermal expansion comparable to concrete**
  - Resists cracking and delamination
- **100% solids, no VOCs, no free isocyanates**
  - Enhances safe use
- **Bonds to dry or damp concrete**
  - Saves time
  - Versatile
- **Adhesion exceeds cohesive strength of concrete**

## Product Case Study

### Challenge

#### Issue

Uncoated concrete neutralization pit for boiler feed water treatment required protection against dilute acid used in demineralization process

#### Goal

Provide long-term protection of the concrete

#### Root Cause

As part of the demineralization process, pits, drains, and plinths are exposed to flush water with HCl and NaOH

### Solution

#### Preparation

Allow concrete to reach full 28-day cure

Mechanically scarify surface to CSP3 finish

#### Application

Apply **ARC 791** coating to mild areas of exposure at .250 in (6.4 mm)

Apply **ARC 988** coating to aggressive areas of exposure at .250 in (6.4 mm)

### Results

#### Client Report

ARC was in service for 5 years without problem until plant was closed for economic reasons



Concrete protected with ARC 791 and ARC 988.



ARC specified by plant engineer.



Environmental conditioning required during application.



# ARC 988

## Highly chemically resistant, 100% solids, pure novolac resin-based, quartz-reinforced concrete resurfacer

- Resurface new and rebuild old concrete degraded by chemical or physical damage
- Protect against concentrated acids (98% sulfuric acid), organic solvents, and alkalis
- Easily apply by trowel

### Application Areas

- Battery rooms
- Sumps, trenches, and pits
- Pump foundations
- Pickling/plating lines
- Chemical containments
- Concentrated acid areas

### Packaging and Coverage

Nominal, based on a 6 mm (240 mil) thickness

- System Kit covers 4,10 m<sup>2</sup> (44.13 ft<sup>2</sup>)
- Bulk Kit covers 16,70 m<sup>2</sup> (180.00 ft<sup>2</sup>)

### Technical Data

Pull-off Adhesion	(ASTM D 4541)	>35,1 kg/cm <sup>2</sup> (>3,4 MPa)	>500 psi Concrete Failure
Maximum Temperature (Dependent on Service) (Water immersion)	Wet Service (continuous)	66°C	150°F
	Dry Service (intermittent)	93°C	200°F



### Features and Benefits

- Resists concentrated chemicals, including alkalis, acids and solvents
  - Covers a broad range of chemical exposures
- Coefficient of thermal expansion comparable to concrete
  - Resists cracking and delamination
- 100% solids, no VOCs, no free isocyanates
  - Enhances safe use
- Bonds to dry or damp concrete
  - Saves time
  - Versatile
- Adhesion exceeds cohesive strength of concrete

## Product Case Study

### Challenge

#### Issue

Current coatings used in chemical storage areas were failing within 2 years of application; Exposed concrete results in increased risk of environmental spills

#### Goal

Provide no less than 2 years of protection to concrete infrastructure, reducing risk of environmental spill

#### Root Cause

Continuous exposure to 54% H<sub>3</sub>PO<sub>4</sub> attacks cement paste in concrete leading to concrete degradation

### Solution

#### Preparation

Neutralize and thoroughly scarify concrete

#### Application

Trowel apply 6 mm (.25 in) of ARC 988

Recut expansion joints and fill with chemically resistant joint sealant

### Results

#### Client Report

Coating performing without failure for more than 3 years

Based on success, a further 10,000 m<sup>2</sup> (100,000 ft<sup>2</sup>) has been coated with ARC products

#### Benefits

Protection of concrete containment  
Reduced risk of environmental spills and associated fines



ARC 988-coated pump base: good condition after four years.



ARC 988-coated processing areas.



ARC 988-coated floor areas.

# ARC NVE

**Three-layer system, high-performance, quartz-reinforced novolac vinyl ester lining for concrete applications requiring extreme chemical resistance and moderate abrasion and impact protection**

- Replace acid-resistant tiles or overlayers of phenolic, furan, polyester, or concrete
- Protect against concentrated acids, organic and inorganic acids, solvents, and alkalis

## Application Areas

- Battery rooms
- Bleaching areas
- Chemical containments
- Pickling/plating lines
- Sumps, trenches, and pits
- Chemical loading stations

## Packaging and Coverage

Nominal, based on a 6 mm (240 mil) thickness

- System Kit covers 9,70 m<sup>2</sup> (104.00 ft<sup>2</sup>)

## Technical Data

Pull-off Adhesion (Excellent - 100% Concrete Failure)	(ASTM D 4541)	>39 kg/cm <sup>2</sup> (3,86 MPa)	>560 psi
Maximum Temperature (Dependent on Service)	Wet Service (continuous)	135°C	275°F
	Dry Service (continuous)	200°C	392°F



## Features and Benefits

- **Resists concentrated chemicals, including alkalis, acids and solvents**
  - Covers a broad range of chemical exposures
- **Coefficient of thermal expansion comparable to concrete**
  - Resists disbondment
- **Deep penetrating primer system**
  - Promote high adhesion to concrete

## Product Case Study

### Challenge

#### Issue

Failing tile liner and underlying concrete contaminating stock product; Outage for repairs was only 72 hours

#### Goal

Resurface and seal chest walls and prevent future contamination of pulp stock

#### Root Cause

Hot bleached stock attacked mortar and grout lines causing tile delamination and attack of underlying concrete

### Solution

#### Preparation

Old tile removed, then surfaces abrasive grit blasted to CSP 3 finish

#### Application

NVE primer applied followed by 3 coats of NVE topcoat at 120-200 mil (3-5mm)/coat; Total DFT 360-600 mil (9-12.5mm)

Final veil coat of NVE VC applied at 15-20 mil (375-500 µm)

### Results

#### Client Report

Repairs carried out over 3 days

Chest is operational now for more than 1 year with no issues

Tile replacement\*: \$65,000

ARC repairs: \$47,000

**Savings: \$22,000**

\*Tile repair would have only addressed 25% of area

\$=USD



Chest wall after tile removed and blasted.



Installing ARC NVE coating.



Applying NVE sealer coat.

# Dispensing Systems

***Pneumatically operated dispensing and spraying systems promotes accurate mixing and product placement with minimal waste for those ARC coatings packaged in dual component cartridges. Auto-orienting, resealable caps, auto-lock static mixers, and snap-on atomizing spray heads compliment this approach.***

## Simple to Use

- Same gun is adjustable for all ARC products in cartridge configuration
- Easy, drop-in side loading
- Retraction trigger automatically releases cartridge when empty
- Optimized static mixer design ensures complete mix at head
- Resealable, auto-aligning end caps extend shelf life of partially used cartridges
- Low air volume demand allows for convenience of plant air (dry and oil-free) use

## Pneumatic Gun

The heart of the system is the ergonomically correct, pneumatically actuated gun with adjustable mix ratio setting capabilities for 1:1, 2:1, 3:1, and 4:1 mix ratios. This single unit allows for application of ARC 858, S1PW, S2, SD4i and S4+, all of which are configured to the two-component cartridge fill package. Its sealed unit construction is virtually maintenance-free and its adjustable fluid and atomizing air regulators allow you to optimize flow and atomizing air to meet your specific application requirement. The dual-stage trigger with integrated atomizing air regulator and piston feed allows for single-point adjustment. This unit is ideal for shop applications as well as smaller field installations and touch ups for larger jobs.



## Static Mixers

Atomizing mixers for ARC S1PW, S2, SD4i, and S4+ utilize a unique four-chamber static mixer which is highly efficient and reduces mixer length, enabling increased mobility and ease of use. These mixers have a quick lock alignment capability to ensure proper attachment to cartridge. They are available with preconfigured straight pattern tips.

Dispensing tips for ARC 858 utilize a helical mix chamber design for consistency and completeness of mix. These mixers have a quick lock alignment capability to facilitate proper attachment to cartridge.





# Application Tools

*Having the right tool to apply the product is always a benefit. Now you can buy the same tools supplied with each kit of ARC coating. Made of tough, injection molded polyethylene these tools are designed to provide comfort, ease, of use, and a high quality finish.*

## Mixing Sticks

These 4.7 cm (12 in) long mixing sticks have an ergonomically designed handle to provide increased comfort when mixing highly viscous products. A double chamfered chisel design on the end as well as sides improves use as a mixing stick when using the tool to scrape unmixed product off the bottom or side wall of a container or when used as an application tool.



## Applicator Spatula

Made from injection-molded polyethylene, these flexible tools are ideal for applying and finishing high-viscosity grade ARC coatings.

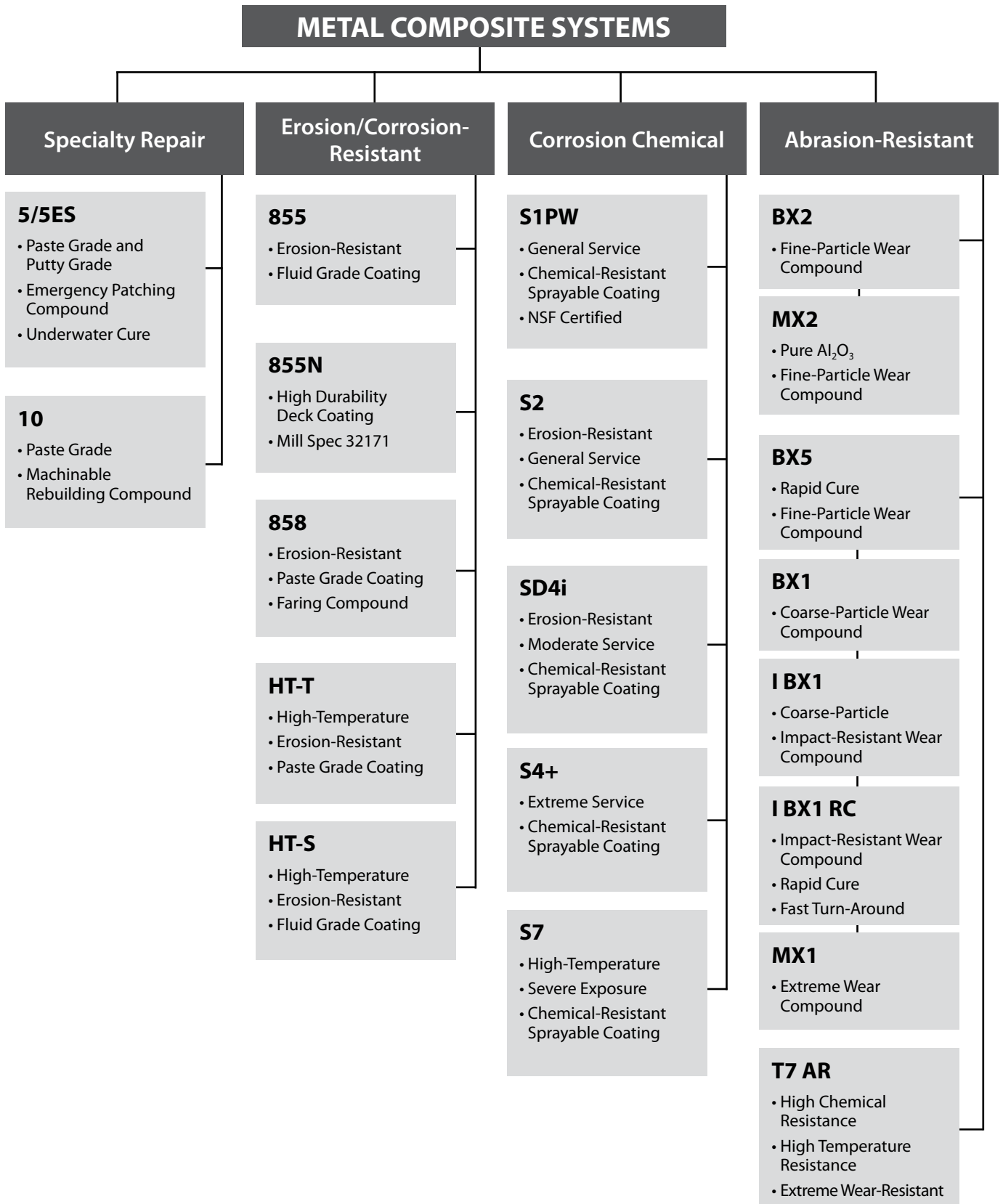


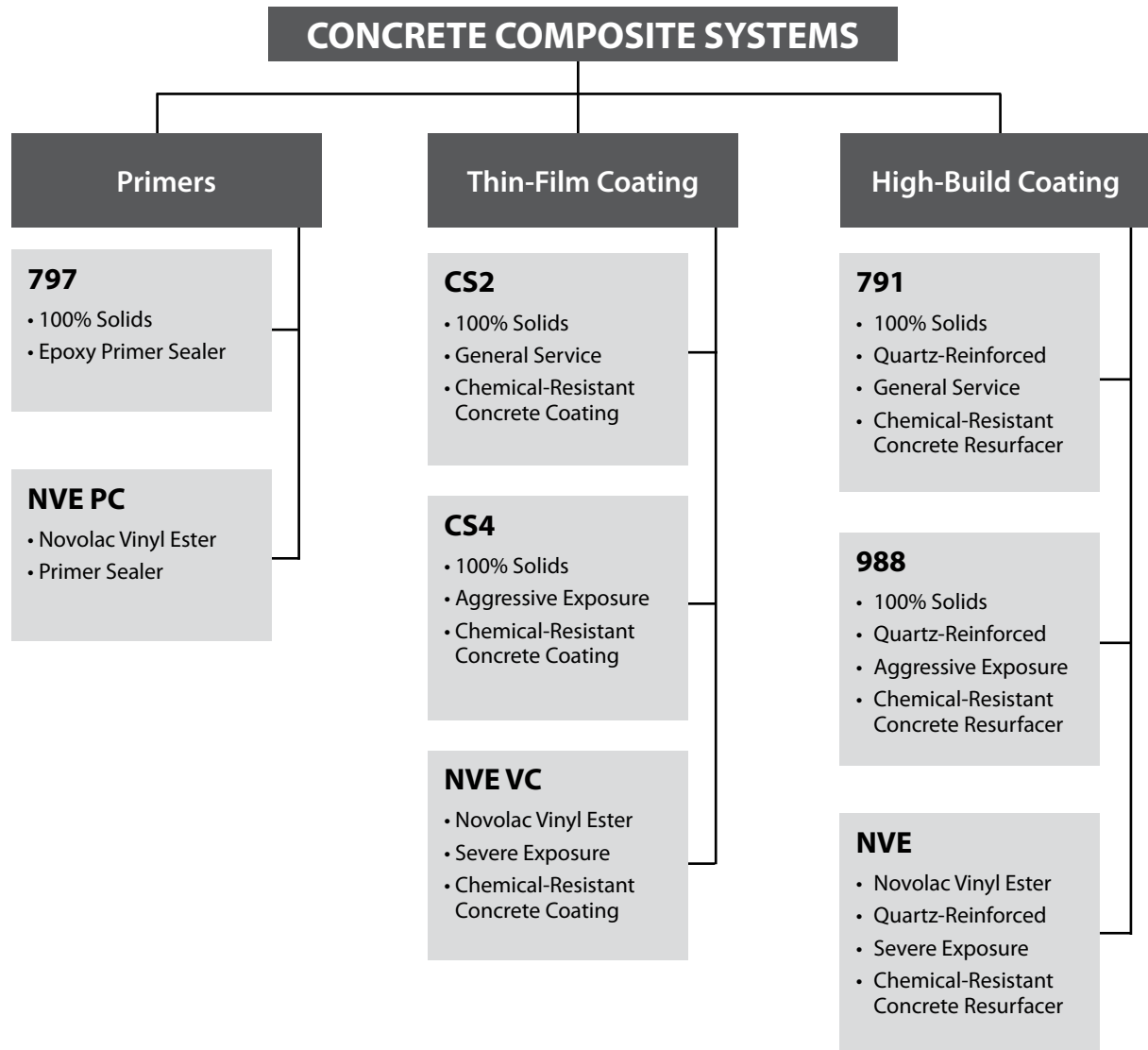
## Applicator Brush

These 15 cm (6 in) long injection-molded polyethylene handled brushes have 5 cm (2 in) wide nylon bristle brushes which are cut back for stiffness, making them ideal for applying 100% solids ARC coatings.



# ARC Composites















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