Protective & Marine Coatings

SHELCOTE® II FLAKE FILLED

PART A	920R355	REDDISH GRAY
PART B	700C764	HARDENER
PART B	700C826	LOW TEMPERATURE HARDENER

Revised June 15, 2016

PRODUCT INFORMATION

TRM.23

PRODUCT DESCRIPTION

SHELCOTE II FLAKE FILLED is a high-solids, amine cured epoxy with micaceous iron oxide. Designed for use as part of a system for internal tank linings and a wide range of industrial applications. Low temperature hardener available for applications from 35°F (1.6°C) minimum to 80°F (27°C) maximum.

The micaceous iron oxide provides:
- Improved abrasion and blister resistance
- Lower moisture vapor transmission
- Film reinforcement
- Higher temperature resistance
- Improved edge protection

PRODUCT CHARACTERISTICS

Finish:	Eg-Shel
Color:	Reddish Gray
Volume Solids:	57% ± 2%, mixed
Weight Solids:	75% ± 2%, mixed
VOC (calculated):	<340 g/L; 2.8 lb/gal, mixed
Mix Ratio:	4:1 by volume

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**9.0** (225)	**11.0** (275)
Dry mils (microns)	**5.0** (125)	**6.0** (150)
~Coverage sq ft/gal (m^2/L)	**150** (3.7)	**180** (4.4)
Theoretical coverage sq ft/gal (m^2/L) @ 1 mil / 25 microns dft	**912** (22.3)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 9.0 mils wet (225 microns):

With 700C764	@ 55°F/13°C	@ 77°F/25°C *50% RH*	@ 120°F/49°C
To touch:	7 hours	2 hours	15 minutes
To recoat:			
minimum:	48 hours	16 hours	4 hours
maximum:	30 days	30 days	30 days
Cure to service:	14 days	7 days	3 days
Pot Life:	8 hours	4 hours	2 hours
Sweat-in-time:	20 minutes	15 minutes	10 minutes

Drying Schedule @ 9.0 mils wet (225 microns):

With 700C826	@ 35°F/1.6°C	@ 55°F/13°C	@ 77°F/25°C *50% RH*
To touch:	12 hours	4 hours	2 hours
To recoat:			
minimum:	24 hours	18 hours	12 hours
maximum:	30 days	30 days	30 days
Cure to service:	7 days	7 days	7 days
If maximum recoat time is exceeded, abrade surface before recoating.			
Drying time is temperature, humidity, and film thickness dependent.			
Pot Life:	8 hours	4 hours	2 hours
Sweat-in-Time:	30 minutes	15 minutes	None

PRODUCT CHARACTERISTICS (CONT'D)

Shelf Life:	36 months Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point:	97°F (36°C), PMCC, mixed
Reduction:	Not recommended
Clean Up:	255-C-005

RECOMMENDED USES

Designed as part of a system to improve performance in immersion service compared to non-micaceous iron oxide filled coatings.

Internal tank lining for products such as
- Crude oil
- Unleaded gasoline
- Wastewater
- Motor fuels
- Alkalies
- Brines
- Most aromatic solvents

Part of a coatings system for secondary containment applications.

Acceptable for use with cathodic protection systems.

PERFORMANCE CHARACTERISTICS

RESISTANCE GUIDE IMMERSION (at ambient temperature)
- Alkalies ..... Recommended
- Crude oil ..... Recommended
- Diesel fuel ..... Recommended
- Lubricating oils ..... Recommended
- Fuel oils ..... Recommended
- Aromatic solvents ..... Recommended
- Hi-aromatic gasoline ..... Recommended
- Ethanol gasohol ..... Recommended
- MTBE, ETBE, TAME ..... Recommended
- Ether/fuel blends (reformed gas) ..... Recommended
- Acids ..... Recommended*
- Methanol, ethanol, or blends ..... Recommended**
- Aviation Gasoline/Jet Fuel ..... Recommended

SECONDARY CONTAINMENT (Immersion service up to 72 hours)
- Alkalies ..... Recommended
- Crude oil ..... Recommended
- Diesel fuel ..... Recommended
- Lubricating oils ..... Recommended
- Fuel oils ..... Recommended
- Aromatic solvents ..... Recommended
- Hi-aromatic gasoline ..... Recommended
- Ethanol gasohol ..... Recommended
- MTBE, ETBE, TAME ..... Recommended
- Ether/fuel blends (reformed gas) ..... Recommended
- Dilute acids ..... Recommended
- Methanol, ethanol, or blends ..... Recommended
- Aviation Gasoline/Jet Fuel ..... Recommended

Surface Preparation: SSPC-SP5

System Tested: 2 cts. Shelcote II Flake Filled @ 5 mils (125 microns) dft/ct

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	54 mg loss
Adhesion	ASTM D4541	750 psi
Dry Heat Resistance	ASTM D2485	200°F (93°C); intermittent 250°F (121°C), discolors
Moisture Condensation Resistance	ASTM D4585, 100°F (38°C), 1000 hours	Rating 10 per ASTM D610 for rusting
Pencil Hardness	ASTM D3363	2H

Epoxy coatings may darken or yellow following application and curing.
* Consult your Sherwin-Williams representative for specific application, temperature, concentration, and exposure recommendations.
** Not recommended when using Low Temperature Hardener

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RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Steel, Immersion:			
1 ct.	Shelcote II Flake Filled	5.0-6.0	(125-150)
1-2 cts.	Shelcote II	5.0-6.0	(125-150)
Steel, Immersion:			
2 cts.	Shelcote II Flake Filled	5.0-6.0	(125-150)
Concrete, smooth, Immersion:			
1 ct.	Corobond 100 Epoxy Primer/Sealer	4.0-6.0	(100-150)
1 ct.	Shelcote II Flake Filled	5.0-6.0	(125-150)
1-2 cts.	Shelcote II	5.0-6.0	(125-150)
Concrete, rough, Immersion:			
1 ct.	Corobond 100 Epoxy Primer/Sealer	4.0-6.0	(100-150)
1-2 cts.	Kem Cati-Coat HS Epoxy Filler/Sealer as required to fill voids and provide a continuous substrate	10.0-20.0	(250-500)
1-2 cts.	Shelcote II Flake Filled	5.0-6.0	(125-150)

The use of Steel-Seam FT910 is acceptable for filling and fairing on steel and concrete under Shelcote II Flake Filled

The systems listed above are representative of the product's use, other systems may be appropriate.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel Immersion: SSPC-SP10/NACE 2, 2 mil (50 micron) profile

Concrete & Masonry Immersion: SSPC-SP13/NACE 6-4.3.1 or 4.3.2 or ICRI No. 310.2R CSP 2-3

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	SSPC	NACE
White Metal		Sa 3	SP 5	1
Near White Metal		Sa 2.5	SP 10	2
Commercial Blast		Sa 2	SP 6	3
Brush-Off Blast		Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	SP 2	-
	Pitted & Rusted	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	SP 3	-
	Pitted & Rusted	D St 3	SP 3	-

TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature: (air and surface)

with 700-C-764 Hardener: 55°F (13°C) minimum, 110°F (43°C) maximum

with 700-C-826 Hardener: 35°F (1.6°C) minimum, 80°F (27°C) maximum

Material must be mixed at 55°F (13°C) minimum

At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging: 5 gallons (18.9L) mixed

Part A: 4 gallons (15.1L) in a 5 gallon (18.9L) container

Part B: 1 gallon (3.78L)

Weight: 12.72 ± .2 lb/gal ; 1.52 Kg/L, mixed

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

DISCLAIMER

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APPLICATION BULLETIN

TRM.23

SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel (immersion service)
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Remove all weld spatter and round all sharp edges. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Iron & Steel (atmospheric service)
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 2-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required.

Follow the standard methods listed below when applicable:
ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

Concrete, Immersion Service:
For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI No. 310.2R, CSP 2-3.

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	SSPC	NACE
White Metal		Sa 3	SP 5	1
Near White Metal		Sa 2.5	SP 10	2
Commercial Blast		Sa 2	SP 6	3
Brush-Off Blast		Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	SP 2	-
	Pitted & Rusted	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	SP 3	-
	Pitted & Rusted	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature: (air and surface)
with 700-C-764 Hardener: 55°F (13°C) minimum, 110°F (43°C) maximum
with 700-C-826 Hardener: 35°F (1.6°C) minimum, 80°F (27°C) maximum
Material must be mixed at 55°F (13°C) minimum
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reduction .....Not recommended

Cleanup 255-C-005

Airless Spray:
Pressure.....2000 - 2500 psi
Hose.....1/4" - 3/8" ID
Tip .....015" - .017"
Filter.....30 mesh

Conventional Spray:
Gun .....Binks 95
Tip and Needle.....63C/63A
Air Car.....63 PE
Atomization Pressure.....70 -80 psi
Fluid Pressure.....20 -25 psi

Brush:
Brush.....Nylon/Polyester or Natural Bristle

Roller:
Cover .....3/8" woven with solvent resistant core

If specific application equipment is not listed above, equivalent equipment may be substituted.

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mixing Instructions: Mix contents of each component thoroughly, by using low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine 4 parts by volume of Part A with 1 part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated. Re-stir before using.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**9.0** (225)	**11.0** (275)
Dry mils (microns)	**5.0** (125)	**6.0** (150)
~Coverage sq ft/gal (m^2/L)	**150** (3.7)	**180** (4.4)
Theoretical coverage sq ft/gal (m^2/L) @ 1 mil / 25 microns dft	**912** (22.3)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 9.0 mils wet (225 microns):

With 700C764	@ 55°F/13°C	@ 77°F/25°C *50% RH*	@ 120°F/49°C
To touch:	7 hours	2 hours	15 minutes
To recoat:			
minimum:	48 hours	16 hours	4 hours
maximum:	30 days	30 days	30 days
Cure to service:	14 days	7 days	3 days
Pot Life:	8 hours	4 hours	2 hours
Sweat-in-time:	20 minutes	15 minutes	10 minutes

Drying Schedule @ 9.0 mils wet (225 microns):

With 700C826	@ 35°F/1.6°C	@ 55°F/13°C	@ 77°F/25°C *50% RH*
To touch:	12 hours	4 hours	2 hours
To recoat:			
minimum:	24 hours	18 hours	12 hours
maximum:	30 days	30 days	30 days
Cure to service:	7 days	7 days	7 days
If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.			
Pot Life:	8 hours	4 hours	2 hours
Sweat-in-Time:	30 minutes	15 minutes	None

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer 255-C-005. Clean tools immediately after use with Reducer 255-C-005. Follow manufacturer's safety recommendations when using any solvent.

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PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Reduction of material will affect film build, appearance, and adhesion.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with reducer 255-C-005

Low temperature hardener recommended for applications below 55°F (13°C).

Low temperature hardener not recommended for use at application temperatures above 80°F (27°C)

Use of low temperature hardener may cause accelerated yellowing of the coating.

Do not use low temperature hardener for immersion service in methanol, ethanol, or blends.

Excessive film build, poor ventilation, and cool temperatures may cause solvent entrapment and premature coating failure.

For Immersion Service: (if required) Holiday test in accordance with ASTM D5162 for steel, or ASTM D4787 for concrete.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

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