Protective & Marine Coatings

EXPRESSCOTE HCR FF

CHEMICAL RESISTANT LINING WITH OPTI-CHECK OAP TECHNOLOGY

PART A	B62-250	SERIES
PART B	B62V250	HARDENER

Revised 12/09

PRODUCT INFORMATION

TRM.32

PRODUCT DESCRIPTION

ExpressCote HCR FF is a glass flake filled epoxy novolac lining engineered to protect concrete and steel tank interiors from chemicals and solvents at ambient and elevated temperatures. It provides rapid return to service, high film build, and edge retentive protection compared to conventional epoxies.

- Fast return to service
- One coat protection
- Edge Retention > 70%
- 5 hours dry to walk on @ 77°F (25°C)
- 24 hours return to service @ 77°F (25°C)
- Designed for plural-component application equipment.
- 100 % Solids - Zero VOC
- Product contains Opti-Check OAP pigment technology for rapid holiday detection with safe blue light inspection lamps

PRODUCT CHARACTERISTICS

Finish: Semi-Gloss

Color: Off White

Volume Solids: 100%, mixed

Weight Solids: 100%, mixed

Mix ratio: 2:1 (2 components)

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**20.0** 500	**30.0** 750
Dry mils (microns)	**20.0** 500	**30.0*** 750*
~Coverage sq ft/gal (m^2/L)	**53.0** 1.3	**80.0** 2.0
Theoretical coverage sq ft/gal (m^2/L) @ 1 mil / 25 microns dft	**1600** 39.2	

*See Recommended Systems.

Drying Schedule @ 20.0 mils wet (500 microns):

	@ 50°F/10°C	@ 77°F/25°C *50% RH*	@ 100°F/38°C
To touch:	3 hours	2 hours	50 minutes
To handle:	12 hours	5 hours	3 hours
Foot traffic:	12 hours	5 hours	3 hours
To recoat:			
minimum:	12 hours	5 hours	3 hours
maximum:	7 days	7 days	7 days
Cure to service:	7 days	24 hours	24 hours

Drying time is temperature, humidity, and film thickness dependent.

Pot Life:	50 minutes	25 minutes	10 minutes
Sweat-in-Time:		None required	

Shelf Life:	24 months, unopened at 77°F (25°C)
Flash Point:	>200°F (93°C), PMCC, mixed
Reduction:	Not recommended
Clean Up:	MEK (R6K10)

RECOMMENDED USES

For use over prepared concrete and steel in the following industrial and marine exposures:

- Petrochemical storage tanks and piping
- Trenches, troughs, sumps, pits
- Ballast tanks interiors and crude oil storage tank interiors
- Water and waste water facilities
- Where rapid return to service is required
- Meets performance requirements of Mil-PRF-23236C
- Chemical Holding Tanks (CHT)
- Well deck overheads
- Concrete, Primary and Secondary Containment
- Power plant FGD duct and tanks
- Acceptable for use with 100% ethanol cargo
- Acceptable for use with cathodic disbondment systems

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

1 ct. ExpressCote HCR FF @ 40 mils (1000 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	89 mg loss
Adhesion	ASTM D4541, Patti Tester	2830 psi
Cathodic Disbondment	MIL-PRF-23236C	Passes, avg disbondment area of 0% obtained
Direct Impact Resistance	ASTM D2794	10 in-lbs.
Dry Heat Resistance	ASTM D2485, Method A, Quench Test	No cracking or de-lamination @ 500°F (260°C)
Flexibility	ASTM D522, 180° bend, 1" mandrel	greater than 1"
Fresh Water Immersion Resistance	ASTM D870, 2 years ambient	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Heat Resistance for FGD Systems	ASTM D5499, Test Method A, 350°F (177°C), 40 mils (1000 microns) DFT	Passes, No cracking, chipping, or flaking 2,000 psi Patti adhe-sion
Salt Water Immersion Resistance	ASTM D870, 2 years ambient	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Sulfuric Acid Resistance for FGD Systems	ASTM D6137, 20% Sulfuric Acid, 350°F (177°C), 40 mils (1000 microns) DFT	Passes, No cracking, chipping, or flaking 4 mil discoloration, good adhesion

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RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Immersion:			
Steel*:			
1 ct.	ExpressCote HCR FF	20.0-30.0	(500-750)
Steel: 1 ct. High Build System			
1 ct.	ExpressCote HCR FF	40.0-50.0	(1000-1250)
Concrete:			
1 ct.	Corobond HS Epoxy Primer**	3.0-4.0	(75-100)
1 ct.	ExpressCote HCR FF	20.0-30.0	(50-750)
Concrete:			
1 ct.	Corobond 100 Epoxy Primer	4.0-6.0	(100-150)
1 ct.	ExpressCote HCR FF	20.0-30.0	(50-750)
or			
1 ct.	ExpressCote HCR FF	40.0-50.0	(1000-1250)

* Fast Clad Epoxy Primer Also Acceptable
** Corobond LT Epoxy Primer Also Acceptable

Under certain application conditions a"blush" layer may form on the surface of the coating. If a blush forms this must be removed by cleaning with a water detergent solution prior to repair/touch-up.

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 for immersion:

Iron & Steel:	SSPC-SP10, 2-3 mil (50-75 micron) profile
Concrete:	SSPC-SP13/NACE 6, or ICRI 03732, CSP 3-5
Concrete & Masonry:	
Atmospheric:	SSPC-SP13/NACE 6, or ICRI 03732 CSP3-5
Immersion:	SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI 03732 CSP 3-5

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

B62V250 Part B 5 gallon Component may be tinted with up to 3 oz of Maxitoner Phthalo Green, Phthalo Blue or Black colorant

Colors: Light Green, Light Blue, and Gray.

APPLICATION CONDITIONS

Temperature:	Surface:	50°F (10°C) minimum, 120°F (49°C) maximum
	Air:	50°F (10°C) minimum, 100°F (38°C) maximum
	Material:	100°F (38°C) minimum, 130°F (54°C) maximum

At least 5°F (2.8°C) above dew point.
Relative humidity:.....85% maximum

Refer to product Application Bulletin for detailed application information. Material should be stored and kept at or above 50°F (10°C).

ORDERING INFORMATION

Packaging:	15 gallons (56.7L) mixed
Part A	10 gal (37.8L) in two 5 gal (18.9L) containers
Part B	5 gal (18.9L) in a 5 gal (18.9L) container
Weight:	12.78 ± 0.2 lb/gal ; 1.53 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.

DISCLAIMER

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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.

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APPLICATION BULLETIN

TRM.32

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. For better performance a White Metal Blast Cleaning per SSPC-SP5/NACE 1 can be used. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). Coat any bare steel the same day as it is cleaned or before flash rusting occurs. Remove all weld splatter.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI 03732, CSP 3-5. 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.

Always follow the standard methods listed below:
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 03732 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 03732, CSP 3-5.

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:
- Surface: 50°F (10°C) minimum, 120°F (49°C) maximum
- Air: 50°F (10°C) minimum, 100°F (38°C) maximum
- Material: 100°F (38°C) minimum, 130°F (54°C) maximum

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

Clean up……MEK (R6K10)

Plural Component Equipment
Pump……Graco Xtreme Mix or equivalent
Pressure…… 5000 Psi
Hose……3/8" ID minimum
Gun.....Graco Silver Series or XTR Series
Tip……023-.033
Material temperature at
Gun tip……100°F (38°C) to 130°F (54°C)
Static Mixing Tubes.....Place one 1/2 " ID 5 " long static mixing tube between the reemote mix manifold and 25' long 3/8" ID integrated hose. Place a second 1/2 " ID 5" long static mixing tube between the 3/8 " ID integrated hose and 15' long 1/4" ID whip hose that is connected to the gun.

The material should be 100°F-130°F (38°C-54°C) (vary as needed) at the mixing block for optimal atomization based on tip size and pump pressure. **Do not heat above 140°F (60°C). Material temperature for Part A and B components should be the same during application.**

*Contact S-W Tech Service for proper location of the mixers.

Brush
For stripe coating or repair only:
Brush……..Nylon/Polyester Natural Bristle

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.

ExpressCote HCR FF comes in premeasured containers which when mixed provides 15 gallons (56.7L) of ready-to-apply material.

Mixing Instructions: Mix contents of each component thoroughly with low speed power agitation at slow speeds. Make sure no pigment remains on the bottom or the side of the can. Then fill plural component hoppers with part A and B respectively.

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

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**20.0** 500	**30.0** 750
Dry mils (microns)	**20.0** 500	**30.0*** 750*
~Coverage sq ft/gal (m^2/L)	**53.0** 1.3	**80.0** 2.0
Theoretical coverage sq ft/gal (m^2/L) @ 1 mil / 25 microns dft	**1600** 39.2	

*See Recommended Systems.

Drying Schedule @ 20.0 mils wet (500 microns):

	@ 50°F/10°C	@ 77°F/25°C *50% RH*	@ 100°F/38°C
To touch:	3 hours	2 hours	50 minutes
To handle:	12 hours	5 hours	3 hours
Foot traffic:	12 hours	5 hours	3 hours
To recoat:			
minimum:	12 hours	5 hours	3 hours
maximum:	7 days	7 days	7 days
Cure to service:	7 days	24 hours	24 hours
Drying time is temperature, humidity, and film thickness dependent.			
Pot Life:	50 minutes	25 minutes	10 minutes
Sweat-in-Time:		None required	

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 MEK, R6K10. Clean tools immediately after use with MEK, R6K10. 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 coat 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, over thinning, climate conditions, and excessive film build.

No reduction of material is recommended, as this can affect film build, appearance and performance.

Brush application is for stripe coating and small areas only.

Under certain application conditions a"blush" layer may form on the surface of the coating. If a blush forms this must be removed by cleaning with a water detergent solution prior to the application of a second coat/repair.

Do not mix previously catalyzed material with new

Do not apply the material beyond recommended pot life.

Prior to immersion service, evaluate coating using the Opt-Check feature with appropriate holiday detection equipment such as SureFire or Innova inspection lamps.

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

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended down time with MEK, R6K10.

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

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