SHERWIN-WILLIAMS.
Industrial & Marine Coatings

Date: December 6, 2006

Certificate of Analysis

Bridge Authority:	NYSDOT	**Product Name:**	Corothane I HS
Project Name & Contract Number:		**Product Number:**	B65W51

Test	Standard	Minimum	Maximum
Viscosity * (KU)	ASTM D562	69	81
VOC – reduced with R7K111 VOC Exempt Solvent per PDS (g/L)	ASTM D2369	-	340
Solids By Wt * (%)	ASTM D2369	73.1	80.8
Pigment by Wt * (%)	ASTM D2371	38	42
Mass per Volume (#/gal)	ASTM D1475	11.6	12.0
Dew Point Limit		-	None

* May Vary By Color

Note: The only approved thinner for NYSDOT is R7K111 (VOC Exempt Solvent). This does not contribute to VOC emissions, and should be used in lieu of thinners stated on the Technical Data Sheet. This will ensure that the VOC will be < 340 g/L.

Certification Approval

Approved By:

Title: Industrial & Marine Marketing Manager

Date: December 6, 2006

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COROTHANE® I HS
ALIPHATIC FINISH COAT
B65-50 SERIES

PRODUCT INFORMATION

Revised 4/06

PRODUCT DESCRIPTION

COROTHANE I HS is a single component, VOC compliant, moisture curing urethane designed for low temperature or high humidity applications while providing UV resistance and chemical resistance equivalent to two part urethane coatings.

- Low temperature application - down to 20°F
- Superior resistance to yellowing, chalking, or degradation by sunlight
- Superior adhesion to most prepared surfaces
- Superior abrasion resistance
- Outstanding chemical resistance
- VOC compliant
- One component

RECOMMENDED USES

- Color coat where maximum color and gloss retention are required
- Suitable for use in the following industries:
  - Marine
  - Petro-Chemical
  - Industrial
  - Pulp and Paper
  - Bridge and Highway
  - Rail
  - Water and Waste Water
- Suitable for use in USDA inspected facilities.
- Conforms to AWWA D102-03 OCS #2

PRODUCT CHARACTERISTICS

Finish: Gloss

Color: Wide range of colors available

Volume Solids: 61% ± 1%, may vary by color

Weight Solids: 77% ± 2%

VOC (EPA Method 24):
Unreduced: <340 g/L; 2.8 lb/gal
Reduced 5% <360 g/L; 3.0 lb/gal

Recommended Spreading Rate per coat:

Wet mils:	3.5 - 5.0
Dry mils:	2.0 - 3.0
Coverage:	326 - 489 sq ft/gal approximate

Drying Schedule @ 4.0 mils wet @ 50% RH:

	@ 40°F	@ 77°F	@ 100°F
To touch:	4 hours	2 hours	45 minutes
To recoat:			
minimum:	24 hours	12 hours	6 hours
maximum:	14 days	14 days	14 days
To cure:	7 days	3 days	3 days

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.

Shelf Life: 12 months, unopened
Store indoors at 40°F to 100°F.
(Tinted colors must be used within 7 days after tinting)

Flash Point: 101°F, Seta Flash

Reducer/Clean Up: Reducer #15, R7K15, or Aromatic 100 Reducer, R2K5

PERFORMANCE CHARACTERISTICS

System Tested: (unless otherwise indicated)
Substrate: Steel
Surface Preparation: SSPC-SP6
1 ct: Corothane I MIO-Aluminum @ 3.0 mils dft
1 ct: Corothane I HS @ 3.0 mils dft

Abrasion Resistance:
Method: ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load
Result: 80 mg loss

Adhesion:
Method: ASTM D4541
Result: 1296 psi

Corrosion Weathering:
Method: ASTM D5894, 12 cycles, 4032 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 10 per ASTM D714 for blistering

Direct Impact, topcoat only:
Method: ASTM D2794
Result: 70 in lb

Flexibility, topcoat only:
Method: ASTM D522, 180° bend, 1/8" mandrel
Result: Passes

Humidity:
Method: ASTM-D4585, 1000 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 10 per ASTM D714 for blistering

Pencil Hardness:
Method: ASTM D3363
Result: HB

Salt Fog Resistance:
Method: ASTM B117, 1000 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 10 per ASTM D714 for blistering

Thermal Cycling :
Method: ASTM D2246, 15 cycles
Result: Passes, no cracking, checking, or blistering; no loss of adhesion; 100% gloss retention

Meets requirements of SSPC Paint 38, Level II.

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PRODUCT INFORMATION

RECOMMENDED SYSTEMS

Steel:
1 ct. Corothane I MIO-Aluminum @ 2.0 - 3.0 mils dft
1 ct. Corothane I Ironox B @ 3.0 - 5.0 mils dft
1 ct. Corothane I HS @ 2.0 - 3.0 mils dft

Steel:
1 ct. Corothane I MIO-Aluminum @ 2.0 - 3.0 mils dft
1-2 cts. Corothane I HS @ 2.0 - 3.0 mils dft/ct

Steel:
1 ct. Corothane I GalvaPac Zinc Primer @ 3.0 - 4.0 mils dft
1 ct. Corothane I Ironox B @ 3.0 - 5.0 mils dft
1 ct. Corothane I HS @ 2.0 - 3.0 mils dft

Steel:
1 ct. Corothane I PrePrime @ 1.0 - 1.5 mils dft
1 ct. Corothane I MIO-Aluminum @ 2.0 - 3.0 mils dft
1 ct. Corothane I Ironox B @ 3.0 - 5.0 mils dft
1 ct. Corothane I HS @ 2.0 - 3.0 mils dft

Steel (Epoxy Primer):
1 ct Dura-Plate MT @ 6.0 - 8.0 mils dft
1-2 cts Corothane I HS Coat @ 2.0 - 3.0 dft/ct

Concrete, smooth:
1 ct. Corothane I PrePrime @ 1.0 - 1.5 mils dft
1 ct. Corothane I HS @ 2.0 - 3.0 mils dft

Concrete, rough:
On deeply profiled or damaged concrete floor:
1 ct. Kem Cati-Coat HS Epoxy Filler/Sealer @ 10.0 - 20.0 mils dft/ct, as required to fill voids and provide a continuous substrate.
1 ct. Corothane I HS @ 2.0 - 3.0 mils dft

Previously Painted Surfaces:
Spot prime bare steel with 1 coat of Corothane I GalvaPac Zinc Primer
1 ct. Corothane I HS @ 2.0 - 3.0 mils dft
or
1 ct. Corothane I Ironox B @ 3.0 - 5.0 mils dft
1 ct. Corothane I HS @ 2.0 - 3.0 mils dft
(Check compatibility)

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: SSPC-SP6/NACE 3
* Concrete & Masonry: SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3
Previously Painted SSPC-SP2 or SP3

* Primer required

TINTING

Tint B65W51 and B65T54 only with 844 colorants, 100% tint strength. Must be used within 7 days after tinting.

APPLICATION CONDITIONS

Temperature:	
air and surface:	20°F minimum, 100°F maximum
material:	45°F minimum Do not apply over surface ice
Relative humidity:	Can be applied at relative humidities up to 99%.

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	1 and 5 gallon containers
Weight per gallon:	11.79 ± 0.2 lb, may vary by color.

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

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

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

Revised 4/06

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.

Iron & Steel

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). Prime any bare steel the same day as it is cleaned.

Poured Concrete

New

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3. Surface must be clean, dry, sound, and offer sufficient profile to achieve adequate adhesion. Minimum substrate cure is 28 days at 75°F. Remove all form release agents, curing compounds, salts, efflorescence, laitance, and other foreign matter by sandblasting, shotblasting, mechanical scarification, or suitable chemical means. Refer to ASTM D4260. Rinse thoroughly to achieve a final pH between 8.0 and 10.0. Allow to dry thoroughly prior to coating.

Old

Surface preparation is done in much the same manner as new concrete; however, if the concrete is contaminated with oils, grease, chemicals, etc., they must be removed by cleaning with a strong detergent. Refer to ASTM D4258. Form release agents, hardeners, etc. must be removed by sandblasting, shotblasting, mechanical scarification, or suitable chemical means. If surface deterioration presents an unacceptably rough surface, Kem Cati-Coat HS Epoxy Filler/Sealer is recommended to patch and resurface damaged concrete.

Fill all cracks, voids and bugholes with ArmorSeal Crack Filler.

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

Previously Painted Surfaces

If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

APPLICATION CONDITIONS

Temperature:	
air and surface:	20°F minimum, 100°F maximum
material:	45°F minimum Do not apply over surface ice
Relative humidity:	Can be applied at relative humidities up to 99%.

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 compatible with the existing environmental and application conditions.

Reducer/Clean Up

Brush/Roll	Reducer #15, R7K15
Spray	Aromatic 100 Reducer, R2K5

Airless Spray

Pump	30:1
Pressure	1800 - 2000 psi
Hose	1/4" ID
Tip	.011" - .015"
Filter	60 mesh
Reduction	As needed up to 5% by volume

Conventional Spray

Unit	Graco	Binks
Gun	900	95
Fluid Nozzle	070	66/65
Air Nozzle	947	66PR
Atomization Pressure	60-70 psi	60-70 psi
Fluid Pressure	15-20 psi	15-20 psi
Reduction	As needed up to 5% by volume	

Brush

Brush	Natural bristle
Reduction	As needed up to 5% by volume

Roller

Cover	1/4" natural or synthetic with phenolic core
Reduction	As needed up to 5% by volume

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.

Stir paint thoroughly prior to use with a power agitator. Filter slowly through a 55 mesh screen.

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

Recommended Spreading Rate per coat:

Wet mils:	3.5 - 5.0
Dry mils:	2.0 - 3.0
Coverage:	326 - 489 sq ft/gal approximate

Drying Schedule @ 4.0 mils wet @ 50% RH:

	@ 40°F	@ 77°F	@ 100°F
To touch:	4 hours	2 hours	45 minutes
To recoat:			
minimum:	24 hours	12 hours	6 hours
maximum:	14 days	14 days	14 days
To cure:	7 days	3 days	3 days

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.

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

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.

Excessive reduction of material can affect film build, appearance, and adhesion.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15, R7K15.

Pour a small amount of Reducer #15, R7K15 over the top of the paint in the can to prevent skinning or gelling.

Place a temporary cover over the pail to keep excessive moisture, condensation, fog, or rain from contaminating the coating.

Do not exceed recommended dry film thickness.

When applying Corothane I - HS over dark colors, Corothane I Zinc Primers, or porous surfaces, an intermediate coat or a minimum of 2 finish coats is required for adequate hide and uniformity of appearance.

Tinted colors must be used within 7 days after tinting.

E-Z Roll Urethane Defoamer is acceptable for use. See data page 5.99 for details.

Corothane KA Accelerator is acceptable for use. See data page 5.98 for details.

It is recommend that partially used cans not be sealed/closed for use at a later date.

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

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #15, R7K15. Clean tools immediately after use with Reducer #15, R7K15. Follow manufacturer's safety recommendations when using any solvent.

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