Protective & Marine Coatings

MAGNAPLATE®
VINYL ESTER NOVOLAC LAMINATE SYSTEM

PART A	939-X-465	RESIN
PART B	531-0-006	MEK PEROXIDE RED
PART B	531-0-001	MEK PEROXIDE CLEAR
	970-C-949	WAX SOLUTION
	530-0-001	GLASS MAT

Revised 1/12

PRODUCT INFORMATION

TRM.51

PRODUCT DESCRIPTION

MAGNAPLATE VINYL ESTER NOVOLAC LAMINATE SYSTEM is used to line the bottoms of steel storage tanks. The highly chemical resistant vinyl ester will withstand a wide range of crude and refined petroleum products including high aromatic lead free gasoline, aromatic solvents, alcohol and alcohol/fuel blends, MTBE, and a variety of non-lead octane boosters. Reinforced with fiberglass mat, Magnaplate provides an economical alternative to new steel bottoms and guards against product leakage.

PRODUCT CHARACTERISTICS

Color: Clear or Pink (depending on color of MEKP used)

Volume Solids: 100% ± 2%, theoretical

Note: Magnaplate is a 100% reactive material, theoretically. However, some shrinkage will occur in application due to styrene evaporation as well as normal spray losses. Resulting practical volume solids will be a approximately 80%.

VOC (ASTM D 2369 method E): <250 g/l; 2.0 lb/gal, mixed

Mix Ratio:
Use MEK Peroxide Catalyst at the rate of 2.0 - 3.0 fluid oz/gal of Part A. See Application Bulletin.

Recommended Spreading Rate:

For each 100 square feet of surface area, the approximate requirements are:
- 4 gallons or 36 lbs of resin for the laminate = 8-12 oz MEKP
- 2 gallons or 18 lbs of resin for the gel coat = 4-6 oz MEKP
- 10.5 lbs of glass mat
- MEKP: 12 - 18 oz

Recommended Thickness:
55 - 65 mils / 1375 - 1625 microns (single laminate)
95 - 110 mils / 2375 - 2750 microns (double laminate)

Drying Schedule:

@ 77°F/25°C
50% RH

To touch: 30-60 minutes
To recoat: When Barcol hardness test reaches 30+
Full cure: 1-2 days

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

Pot Life (1.8 oz MEK Peroxide catalyst):

@ 70°F/23°C	@ 77°F/25°C	@ 80°F/27°C	@ 85°F/29°C
37 minutes	25 minutes	15 minutes	12 minutes

Sweat-in-time: Not required

Shelf Life:	3 months, unopened Store indoors at 77°F (25°C).
Flash Point:	68°F (20°C), PMCC, mixed
Reducer:	Not recommended
Clean Up:	MEK, R6K10

RECOMMENDED USES

- As an interior lining for storage tanks containing crude oil and refined petroleum products.
- As a lining system for secondary containment applications.
- Economical alternative to new steel tank bottom.

PERFORMANCE CHARACTERISTICS

RESISTANCE GUIDE

IMMERSION
(Ambient temperature)

- Crude oil ..... Recommended
- Diesel fuel ..... Recommended
- Lubricating oils ..... Recommended
- Fuel oils ..... Recommended
- Aromatic gasoline ..... Recommended
- Hi-aromatic solvents ..... Recommended
- Ethanol gasohol ..... Recommended
- MTBE, ETBE, TAME ..... Recommended
- Ether/fuel blends (reformed gas) ..... Recommended
- Acids ..... Recommended*
- Methanol/methanol blends ..... Recommended

SECONDARY CONTAINMENT
(Immersion service up to 72 hours)

- 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/methanol blends ..... Recommended

* Consult your Sherwin-Williams representative for specific application, temperature, concentration, and exposure recommendations.

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RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Steel:			
1 ct..	Corobond Vinyl Ester Primer	2.0-3.0	(50-75)
1 ct.	Poly Glass Putty as needed		
1 ct.	Magnaplate Vinyl Ester Novolac Resin with 1½ oz. Glass Mat	40.0-45.0	(1000-1125)
1 ct.	Magnaplate Vinyl Ester Novolac Resin with Wax Solution (Gel Coat)	15.0-20.0	(375-500)
	Total laminate thickness	55.0-65.0	(1375-1625)
Concrete:			
1 ct.	Corobond Vinyl Ester Primer	3.5-4.5	(88-112)
1 ct.	Magnaplate Vinyl Ester Novolac Resin with 1½ oz. Glass Mat	40.0-45.0	(1000-1125)
1 ct.	Magnaplate Vinyl Ester Novolac Resin with Wax Solution (Gel Coat)	15.0-20.0	(375-500)

NOTE: In the event of a serious soilside corrosion potential, a double layer of laminate is recommended, for a total thickness of 95-110 mils (2375-2750 microns). When applying a double laminate, the Wax Solution is only added into the final gel coat.

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

DISCLAIMER

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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, 2-3 mils (50-75 microns) profile

Concrete & Masonry:
Immersion: SSPC-SP13/NACE 6, or ICRI No. 310.2, CSP 4-6

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

Do not tint.

APPLICATION CONDITIONS

Temperature:	60°F (16°C) minimum, 110°F (43°C) maximum (air, surface and material)
	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:

Part A:	53 gallon (200L) drum
Part B:	1 gallon (3.78L) MEKP
Wax Solution:	1 gallon (3.78L)
Glass Mat:	approximately 97 lbs per roll

Weight: ~8.9 lb/gal ; ~1.07 Kg/L

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.

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APPLICATION BULLETIN

TRM.51

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 (2-3 mils / 50-75 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.
Prime all blast-cleaned surface with Corobond Vinyl Ester Primer, applied at a dry film thickness of 2.0-3.0 mils (50-75 microns).
Apply Poly-Glass Polyester Putty, to fill corrosion pits along floor and shell lap joints, and in the corner chine to a 3 inch radius (as needed). See Technical Resource Manual for treatment of leg support pads.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2, CSP 4-6. 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. 310.2 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. 310.2, CSP 4-6.

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:	60°F (16°C) minimum, 110°F (43°C) maximum (air, surface and material) 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 .....MEK, R6K10

Equipment:
External mix airless catalyst injection system. Equipment includes 30:1 airless pump with Binks Catalyst Tank, material hopper, and polycraft gun mounted on portable cart with all necessary regulators, hoses, and fittings.

Tip orifice: 043-.052
Fan width .....40°
Fluid pressure .....2000-4000 psi
Filter screen .....30 mesh

Consult your Sherwin-Williams representative for further information.

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

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APPLICATION PROCEDURES

For detailed installation instructions, refer to the Installation Procedures for the respective system type in the ControlTech Technical Resource Manual.

Surface preparation must be completed as indicated.

Mixing Instructions:
Add MEK Peroxide Catalyst, at the rate 2.0 - 3.0 ounces per gallon of Part A, with catalyst injection. For final gel only, add Wax Solution at the rate of 2 gallons (7.56L) per drum before adding catalyst. Mix thoroughly with a Jiffy Mixer.

Measure a section of the floor or shell to be covered by a segment of 1½ oz. glass mat roll. Apply catalyzed resin at the rate of 4 gallons (15.1L) per 100 sq ft. Apply in a continuous film.

Immediately apply glass mat. Saturate the mat by rolling with an aluminum or plastic grooved roller to work out the air bubbles. Apply additional resin as necessary to saturate the glass mat (DO NOT FLOOD). Remove air bubbles and any excess resin from the glass mat by working with a roller.

Prior to gel coat application, check laminate for full cure with a Barcol 934 Hardness Tester. The reading should be 30-40 after 24 hours at a minimum temperature of 60°F (16°C). Take film thickness reading for proper film thickness and continuity. Inspect for holidays using a 3000 volt spark detector. Repair any holidays. Repeat Barcol hardness test. Apply wax containing gel coat at a 15-20 mils (375-500 microns) wet film thickness.

After gel coat has cured, repeat Barcol hardness test and inspect for holidays using 5000 volt spark type detector. Repair any pinholes or voids. Repeat Barcol hardness test.

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

Recommended Spreading Rate:

For each 100 square feet of surface area, the approximate requirements are:
- 4 gallons or 36 lbs of resin for the laminate = 8-12 oz MEKP
- 2 gallons or 18 lbs of resin for the gel coat = 4-6 oz MEKP
- 10.5 lbs of glass mat
- MEKP: 12 - 18 oz

Recommended Thickness:
55 - 65 mils / 1375 - 1625 microns (single laminate)
95 - 110 mils / 2375 - 2750 microns (double laminate)

Drying Schedule:

	@ 77°F/25°C 50% RH
To touch:	30-60 minutes
To recoat:	When Barcol hardness test reaches 30+
Full cure:	1-2 days

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

Pot Life (1.8 oz MEK Peroxide catalyst):

@ 70°F/23°C	@ 77°F/25°C	@ 80°F/27°C	@ 85°F/29°C
37 minutes	25 minutes	15 minutes	12 minutes

Sweat-in-time: Not required

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

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PERFORMANCE TIPS

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.

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 MEK R6K10

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.

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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