COR-COTE® VEN
VINYL ESTER NOVOLAC

PRODUCT INFORMATION

COR-COTE VEN Vinyl Ester Novolac is a self-leveling, multifunctional epoxy novolac based vinyl ester. It provides resistance to many aromatic and aliphatic solvents, organic and mineral acids, strong oxidizers and excellent resistance to thermal degradation.

- Low viscosity easily wets out aggregate and reinforcing
- Variable pot life with variable catalyst addition
- Ambient cure or heated postcure
- Excellent chemical resistance
- Time tested and proven technology

PRODUCT CHARACTERISTICS

Finish: Matte
Color: Haze Gray, Tile Red, Clear
Volume Solids: 100% Reactive

Note: Cor-Cote Vinyl Ester Novolac is a reactive material, however some shrinkage will occur in application due to styrene evaporation as well as normal spray losses. Resulting practical volume solids will be approximately 80%.

VOC (ASTM D 2369 method E): <100 g/L; 0.83 lbs/gal
Mix Ratio: Use CHP catalyst at the rate of 2.0 - 4.0 fluid oz. per gallon of Part A, depending on environmental conditions.

Recommended Spreading Rate per coat*:
*Varies with system and application. See recommended systems. Not to be used as a stand alone coating.

PRODUCT USES

Cor-Cote VEN Vinyl Ester Novolac is used as a binder resin with select aggregate in self-leveling, mortar, and mortar laminate applications.

Protects concrete and steel surfaces in immersion and atmospheric exposure.

Ideally suited for lining, containment and flooring applications in various facilities including:
- FGD Systems
- Chemical processing
- Electronics
- Metal & mining
- Power
- Water & wastewater
- Acceptable for use in sodium hypochlorite up to 16% concentration.

TEST RESULTS (coating): ASTM D4060

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Test Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion Resistance</td>
<td>ASTM D4060</td>
<td>1000 g 1000 cycles</td>
</tr>
<tr>
<td>Adhesion</td>
<td>ASTM D4541</td>
<td>Concrete - 350 psi; Steel - 1000 psi</td>
</tr>
<tr>
<td>Atlas Cell, DI Water</td>
<td>NACE TM0174</td>
<td>Pass, 160°F (71°C)</td>
</tr>
<tr>
<td>Coefficient of Linear Thermal Expansion</td>
<td>ASTM C531 (in/in/°F)</td>
<td>Self-leveling - 15 x 10^-6; Mortar - 13 x 10^-6; Mortar Laminate - 15 x 10^-6</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>ASTM C579</td>
<td>Self-leveling - 15,000 psi; Mortar - 13,000 psi; Mortar Laminate - 12,000 psi</td>
</tr>
<tr>
<td>Flexural Strength</td>
<td>ASTM C580</td>
<td>Self-leveling - 10,000 psi; Mortar - 4,500 psi; Mortar Laminate - 9,000 psi</td>
</tr>
<tr>
<td>Heat Resistance for FGD Systems</td>
<td>ASTM D5499, Test Method A, 350°F (177°C)</td>
<td>Passes</td>
</tr>
<tr>
<td>Sulfuric Acid Resistance for FGD Systems</td>
<td>ASTM D6137, 350°F (177°C)</td>
<td>Passes</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>ASTM C307</td>
<td>Self-leveling - 8,000 psi; Mortar - 2,100 psi; Mortar Laminate - 3,000 psi</td>
</tr>
<tr>
<td>Water Vapor Transmission, Mortar Laminate</td>
<td>ASTM E96</td>
<td>0.0031 perm in.</td>
</tr>
</tbody>
</table>

Drying Schedule @ 20.0 mils wet (500 microns):
- @ 60°F/16°C @ 73°F/23°C @ 90°F/32°C 50% RH
- To recoat:
  - minimum: 12 hours 3 hours 2 hours
  - maximum*: 4 days 72 hours 48 hours
- To handle: 16 hours 6 hours 3 hours
- To cure: 48 hours 24 hours 16 hours

*If uncertain, test by rubbing surface with styrene. If surface does not become tacky, surface must be lightly blasted or sanded prior to recoating. Drying time is temperature, humidity, and film thickness dependent.

Pot Life: 20-25 minutes
Sweat-in-Time: None required

Shelf Life: 3 months, unopened
Flash Point (PMCC): 82°F (27°C)
Viscosity (mixed): 3,000 cps
Reducer: Not recommended
Clean Up: MEK, R6K10

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PRODUCT INFORMATION

TRM.46

Revised: September 17, 2020

RECOMMENDED SYSTEMS

<table>
<thead>
<tr>
<th>Dry Film Thickness / ct. Mils (Microns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete or Steel (lining, containment, flooring):</td>
</tr>
<tr>
<td>Mortar Laminate</td>
</tr>
<tr>
<td>1 ct. Corbond Vinyl Ester Primer</td>
</tr>
<tr>
<td>1 ct. Poly-Glass Putty as required for filling pits and transitioning sharp edges, weld seams, etc. to fill voids and bugholes to provide a continuous substrate.</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN (Clear) with 20 lbs Type M Aggregate per 1.0 gallon (3.78L) yields 45-50 sq. ft (1.1-1.2 m²/L)</td>
</tr>
<tr>
<td>1 ct. 1 oz. glass mat with Cor-Cote VEN (Clear) (with glass mat)</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN FF Flake Filled with Wax Solution</td>
</tr>
<tr>
<td>Heavy Duty Mortar Laminate</td>
</tr>
<tr>
<td>1 ct. Corbond Vinyl Ester Primer</td>
</tr>
<tr>
<td>1 ct. Poly-Glass Putty as required for filling pits and transitioning sharp edges, weld seams, etc. to fill voids and bugholes to provide a continuous substrate.</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN (Clear) with 20 lbs Type M Aggregate per 1.0 gallon (3.78L) yields 45-50 sq. ft (1.1-1.2 m²/L)</td>
</tr>
<tr>
<td>1 ct. 10.0 oz. woven roving fiberglass mat with Cor-Cote VEN (Clear) (with glass mat)</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN (Clear) with 20 lbs Type M Aggregate per 1.0 gallon (3.78L) yields 45-50 sq. ft (1.1-1.2 m²/L)</td>
</tr>
<tr>
<td>Concrete (containment and flooring):</td>
</tr>
<tr>
<td>Self-Leveling Mortar (horizontal only)</td>
</tr>
<tr>
<td>1 ct. Corbond Vinyl Ester Primer</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN with 19 lbs. Type S Aggregate per 1.0 gallon (3.78L) yields 42-46 sq. ft. (1.0-1.1 m²/L)</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN FF Flake Filled with Wax Solution</td>
</tr>
<tr>
<td>Self-Leveling Mortar Broadcast (horizontal only)</td>
</tr>
<tr>
<td>1 ct. Corbond Vinyl Ester Primer</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN with 19 lbs. Type S Aggregate per 1.0 gallon (3.78L) yields 42-46 sq. ft. (1.0-1.1 m²/L)</td>
</tr>
<tr>
<td>1 ct. Broadcast silica sand @ 0.5 lbs per square foot</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN</td>
</tr>
<tr>
<td>1 ct. Cor-Cote VEN FF Flake Filled with Wax Solution</td>
</tr>
</tbody>
</table>

*Corbond Vinyl Ester Primer is applied at 2.0-3.0 mils (50-75 microns) dft on steel and 3.5-4.5 mils (88-112 microns) dft on concrete. The systems listed above are representative of the product's use, other systems may be appropriate.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of 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.

CONTACT INFORMATION

TRM.46

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:

Atmospheric: SSPC-SP6/NACE 3, 2 mil (50 micron) profile

Immersion: SSPC-SP10/ NACE 2, 2-3 mil (50-75 micron) profile

Concrete & Masonry:

Atmospheric: SSPC-SP13/NACE 6, or ICRI No. 310.2R CSP 3-5

Immersion: SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI No. 310.2R, CSP 3-5

TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature: 60°F (16°C) minimum, 90°F (32°C) maximum (air, surface, 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: 1 gallon (3.78L) and 5 gallons (18.9L)

Part B: 1 gallon (3.78L) and 5 gallons (18.9L)

Safety Precautions

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 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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**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.

**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 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.

If surface deterioration presents an unacceptably rough surface, pockets and other voids with Steel-Seam FT910. Primer required. Follow the standard methods listed below when applicable:

**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 3-5.

**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 3-5.

**Surface Preparation Standards**

<table>
<thead>
<tr>
<th>Condition of Surface</th>
<th>ISO 8501-1 BS7079:1</th>
<th>SSPC NACE</th>
<th>Swedish Std. SI 505900</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Metal</td>
<td>Sa 3</td>
<td>SP 5</td>
<td>Sa 3</td>
</tr>
<tr>
<td>Near White Metal</td>
<td>Sa 2.5</td>
<td>SP 10</td>
<td>Sa 2.5</td>
</tr>
<tr>
<td>Commercial Blast</td>
<td>Sa 2</td>
<td>SP 6</td>
<td>Sa 2</td>
</tr>
<tr>
<td>Brush-Off Blast</td>
<td>Sa 1</td>
<td>SP 7</td>
<td>Sa 1</td>
</tr>
<tr>
<td>Hand Tool Cleaning</td>
<td>C St 2</td>
<td>-</td>
<td>C St 2</td>
</tr>
<tr>
<td>Pitted &amp; Rusted</td>
<td>D St 1</td>
<td>-</td>
<td>D St 1</td>
</tr>
<tr>
<td>Power Tool Cleaning</td>
<td>C St 3</td>
<td>-</td>
<td>C St 3</td>
</tr>
<tr>
<td>Pitted &amp; Rusted</td>
<td>D St 3</td>
<td>-</td>
<td>D St 3</td>
</tr>
</tbody>
</table>

**Application Conditions**

- **Temperature:** 60°F (16°C) minimum, 90°F (32°C) maximum
- **Relative humidity:** 85% maximum
- **(air, surface, material)**
- **At least 5°F (2.8°C) above dew point**

**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

**Catalyst Injection Spray:**
- Pump: Catalyst injection (external mixing)
- Pump Ratio: 30:1 with catalyst pump
- Gun: Polycraft or equivalent
- Fluid Hose: 3/8" - 1/2" I.D.
- Tip Orifice: 0.025" - 0.029"
- Fan Width: 40 degrees
- Fluid Pressure: 2000 - 3000 psi
- Filter Screen: 30 mesh

**Brush:** Natural bristle for applications in small areas

**Roller:** 3/8" nap for coatings
- Ribbed roller: For mortar laminate applications
- Use 1/4" mohair for satinat coat with laminates.

**Trowel:**
- Notched trowel: For self-leveling applications
- Flat trowel: For mortar applications

**Squeegee:**
- Notched squeegee: For self-leveling applications
- Flat squeegee: For coating applications

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:
Store in a temperature controlled environment, 50°F (10°C) to 80°F (26°C), and out of direct sunlight. Keep resins, catalysts, and solvents separated from each other and away from sources of ignition.

Use CHP catalyst at the rate of 2.0 - 4.0 fluid oz. per gallon of Part A, depending on environmental conditions. Mix with low speed drill and Jiffy Blade model ES mixer for three minutes and until uniform.

For self-levelling applications:
Mix catalyst and Part A as instructed above. Slowly add Type S aggregate at 19 pounds per gallon of mixed resin in a mortar mixer. Blend materials until no lumps remain and the aggregate is uniformly mixed with the resin. Apply via notched trowel and/or squeegee to desired thickness. Apply topcoats as indicated, following application procedures of the products listed in recommended systems.

For self-levelling broadcast applications:
Mix catalyst and Part A as instructed above. Slowly add Type S aggregate at 19 pounds per gallon of mixed resin in a mortar mixer. Blend materials until no lumps remain and the aggregate is uniformly mixed with the resin. Apply via notched trowel and/or squeegee to desired thickness. Broadcast 40-60 mesh silica sand to rejection. Apply topcoats as indicated, following application procedures of the products listed in recommended systems.

For mortar laminate applications:
Mix catalyst and Part A as instructed above. Slowly add Type M aggregate at 20 pounds per gallon to the mixed resin in a mortar mixer. Blend materials until no lumps remain and the aggregate is uniformly mixed with the resin. Apply via hand trowel to desired thickness. Apply topcoats as indicated, following application procedures of the products listed in recommended systems. Always trowel from the bottom upwards.

For resin coat and fiberglass saturant applications:
Mix catalyst and Part A as instructed above. Apply at the recommended film thickness and spreading rate as indicated under the Recommended systems. Use ribbed roller to remove folds and air pockets and to firmly embed the fiberglass into the base coat.

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.

APPLICATION GUIDELINES

Recommended Spreading Rate per coat*:
*Varies with system and application. See recommended systems. Not to be used as a stand alone coating.

Drying Schedule @ 20.0 mils wet (500 microns):

| Temperature | Time
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>@ 60°F/16°C</td>
<td>12 hours</td>
</tr>
<tr>
<td>@ 73°F/23°C</td>
<td>3 hours</td>
</tr>
<tr>
<td>@ 90°F/32°C</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

Sweat-in-Time: None required

APPLICATION GUIDELINES

For concrete, always perform Calcium Chloride test as per ASTM F1869. Do not proceed with MVE >3 lbs.

For steel, stripe coat all chine, welds, bolted connections, and sharp angles to prevent early failure in these areas.

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

Do not apply material beyond recommended pot life.

Do not mix previously catalyzed material with new.

Consult your Sherwin-Williams representative for specific application and performance recommendations.

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

SAFETY PRECAUTIONS

Refer to the SDS 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.

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