Selection & Specification Data

- **Generic Type**: A single package, solvent based intumescent coating designed for the fire protection of interior structural steel.
- **Description**: A decorative thin film intumescent coating designed for the fire protection of steelwork for up to a 3 hour fire rating, depending on the design. The recommended use for this product is fireproofing of interior steel beams, columns, tubes, and pipes.
- **Features**: - UL/ULC listed – designs for many types of steel sections. Up to 3 hour fire ratings for both interior general purpose and interior conditioned space applications.
  - Decorative finish – provides a slightly textured, decorative finish.
  - Durable finish – provides a hard dust free surface resistant to normal wear.
  - VOC compliant
  - LEED compliant
- **Color**: Light Grey
- **Finish**: Slightly Textured
- **Primer**: Product must be applied over a compatible primer. If the steel has already been coated with an existing primer, refer to Carboline Technical Service for advice before applying. Contact Carboline Technical Service for a complete list of approved primers.

Fireproofing Wet Film Thickness

45 mils (1.14 mm) per coat

During the drying process, the coating will shrink due to the evaporation of solvent.

Fireproofing Dry Film Thickness

35 mils (0.89 mm) per coat

Must be applied to the specified DFT and be dry before applying a topcoat. The dry film thickness shall be checked using an electronic or magnetic thickness gauge.

Practical Yield

1,259 ft² at 1 mil (116.9 m² at 25 microns)

Practical yield based on ASTM D2697 (utilizing Linseed Oil). Testing performed after a 72 hour drying period of the sample. Allow for loss in mixing and application.

VOC Values

As Supplied: 1.18 lbs/gal (142 g/L)

Product contains VOC-exempt dimethyl carbonate. Check local regulations regarding product usage.

Mesh

Use High Temp Mesh for 3 hour hollow section ratings.

Contact Carboline Technical Service for specific design details.

Limitations

Not for use in exterior environments or for interior steelwork that will be exposed to freeze/thaw cycling or long-term surface temperatures over 140 °F (60 °C) in normal use.

Topcoats

For interior conditioned space, topcoats are optional. For interior general purpose, Carboline approved topcoats are required. Product must be applied to the specified DFT and be dry before applying a topcoat. The choice of topcoat will depend on project requirements. Contact Carboline Technical Service for a complete list of approved topcoats.

Note: Epoxy topcoats will discolor when used over Thermo-Sorb VOC and are not recommended.

Substrates & Surface Preparation

- **General**: All surfaces must be primed with compatible primer and be clean, dry and free of oil, grease, loose mill scale, dirt, dust or other materials which would impair the bond of the product to the substrate. Surface preparation must meet the requirements of the primer being used.

Performance Data

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM D2240 Hardness</td>
<td>Shore D - 70 (fully cured)</td>
</tr>
<tr>
<td>ASTM D2794 Impact</td>
<td>0.16 ft²/lb/in</td>
</tr>
<tr>
<td>ASTM D4541 Bond Strength</td>
<td>200 psi (1.3 MPa) minimum</td>
</tr>
<tr>
<td>ASTM D695 Compressive Strength</td>
<td>1,187 psi (8.1 MPa)</td>
</tr>
<tr>
<td>ASTM E84 Surface Burning</td>
<td>Class A</td>
</tr>
<tr>
<td>Density</td>
<td>79pcf (1.26 g/cm³)</td>
</tr>
</tbody>
</table>

*All values derived under controlled laboratory conditions.

Mixing & Thinning

- **Mixing**: Product must be mixed using a 1/2" (12.7 mm) electric or air driven drill with a slotted paddle or Jiffy mixer blade (300 rpm under load). Mix material for a minimum of 5 minutes to achieve the necessary texture required before spraying.

- **Thinning**: Thinning is not required. For optimum aesthetics, product may be thinned up to 5% with Thinner 242E maximum 32 oz (0.95 L) per 5 gallons (18.9 L). Thinning will affect the film build properties and extend the cure time of the coating.

Application Equipment Guidelines

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

- **Airless Spray**: Use 1.35 gal. (5.1 L) per minute electric airless (minimum) to provide an operating pressure of 3,000 psi (204 bar). Must have 30 mesh inline filter installed. Remove rock catcher from siphon tube.

- **Spray Gun**: Silver Gun with gun swirl, Contractor Gun (with filter removed) or equivalent

- **Spray Tips**: 0.021-0.027" (Use Graco heavy duty RAC non diffuser tips and housing)

- **Fan Size**: 4-10" (101-254 mm) depending on section being sprayed

- **Hose Length**: 150’ (45 m)

- **Material Hose**: 3/8” (9.5 mm) I.D. minimum

- **Whip Hose**: 1/4” (6.3 mm) I.D. minimum (optional)

August 2017

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Thermo-Sorb® VOC

Application Procedures

General
May be applied by spray, trowel, brush or roller. Spray application is recommended for the optimum production, coverage and finish. When applying by trowel, brush or roller, work from a small container and mix material frequently. The original pail should be kept tightly closed.

Airless Spray
A single coat built up with a number of quick passes allows greater control over quantities, thickness and finish. In most conditions, it is advantageous to apply two thin coats rather than one thick coat.

Application Rates
At an ambient temperature of 70 °F (21 °C), the following application rates are applicable:
- Spray / trowel: 45 mils (1.14 mm) per coat (wet)
- Brush / roll: 10 mils (0.25 mm) per coat (wet)
- 4 hour recoat time between coats

Wet Film Thickness
Frequent thickness measurements with a wet film gauge are recommended during the application process to ensure uniform thickness.

Dry Film Thickness

Application Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Material</th>
<th>Surface</th>
<th>Ambient</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>70 °F (21 °C)</td>
<td>41 °F (5 °C)</td>
<td>41 °F (5 °C)</td>
<td>0%</td>
</tr>
<tr>
<td>Maximum</td>
<td>100 °F (38 °C)</td>
<td>125 °F (52 °C)</td>
<td>110 °F (43 °C)</td>
<td>85%</td>
</tr>
</tbody>
</table>

Steel surface temperature should be a minimum of 5 °F (3 °C) above the dew point. Heavy rain or water running over the surface of recently applied material can cause surface patterning if the material has not formed a skin.

Curing Schedule

<table>
<thead>
<tr>
<th>Surface Temp.</th>
<th>Recoat</th>
</tr>
</thead>
<tbody>
<tr>
<td>77 °F (25 °C)</td>
<td>4 Hours</td>
</tr>
</tbody>
</table>

For optimum curing, it is recommended to apply one coat at 45 mils (1,143 microns) wet per day. Drying Time will vary with temperature and humidity conditions. Material is ready to be topcoated when an average Shore D hardness of 25 is achieved. Air movement and thinner coats will assist drying. Higher film thicknesses will require longer drying times for topcoating. Consult Carboline Technical Service for specific details.

Clean-Up & Safety

Cleanup
Pump, Gun, Tips and Hoses and mixer should be cleaned at least once per day with: Plasite Thinner 19, Thinner 242E, Thinner 2, Toluene, MEK, MIBK or Xylene.

Safety
Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workmanlike safety precautions. Use adequate ventilation. Keep container closed when not in use.

Overspray
All adjacent and finished surfaces shall be protected from damage and overspray.

Cleanup & Safety

Ventilation
When used in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. User should test and monitor exposure levels to insure all personnel are below guidelines. If not sure or if not able to monitor levels, use MSHA/NIOSH approved respirator.

Maintenance

General
If coating becomes damaged, rebuild required thickness by spray or trowel. When dry, smooth and finish with approved topcoat to match. Damaged areas must be abraded back to a firm edge by sanding or scraping. The topcoat should be abraded back by 1” (25.4 mm) from the damaged area. The surface must be clean and dry before re-applying product. The coating shall then be built back to the original thickness, allowed to dry, then over-coated with the specified topcoat or system.

Testing / Certification / Listing

Underwriters Laboratories, Inc.
Thermo-Sorb® VOC has been tested in accordance with ASTM E-119 (UL 263) at Underwriter’s Laboratories, Inc. Thermo-Sorb® VOC is listed by UL and ULC for the following designs:
- Wide Flange Columns: X660
- Tube Columns: X661
- Pipe Columns: X662
- Restrained and Unrestrained Beams: N619
- Beams (Unprotected Deck): D946

The product should be applied in accordance with the appropriate design.

City of Los Angeles
Report: RR 25484

Packaging, Handling & Storage

Shelf Life
18 Months (when kept at recommended storage conditions and in original unopened containers).

Shipping Weight
5 Gallon kit - 59.41 lbs (29.95 kg)

Flash Point (Approximate)
23 °F (-5 °C)

Storage
Store indoors in a dry environment between 32-100 °F (0-38 °C)

Packaging
5 gallons (18.9 L)