

## SELECTION & SPECIFICATION DATA

<b>Generic Type</b>	A single package, solvent based intumescent coating designed for the fire protection of interior structural steel.
<b>Description</b>	Thermo-Sorb® is 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.
<b>Features</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Decorative finish – provides a slightly textured, decorative finish. Compatible topcoats available in a wide range of colors.</li> <li>• Durable finish – provides a hard dust free surface resistant to normal wear.</li> <li>• Thin film coating – offers an economical solution to alternative fireproofing.</li> </ul>
<b>Color</b>	Light Grey
<b>Finish</b>	Slightly Textured
<b>Primer</b>	Thermo-Sorb® 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 Thermo-Sorb®. Contact Carboline Technical Service for a complete list of approved primers.
<b>Wet Film Thickness</b>	45.0 mils (1,143 microns) per coat  During the drying process, the coating will shrink due to the evaporation of solvent. In order to calculate the wet film thickness required, the following formula can be used: <b>WFT=(DFT/Volume Solids)x100</b>
<b>Dry Film Thickness</b>	30 mils (0.8 mm) per coat  Thermo-Sorb® 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.
<b>Practical Yield</b>	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.
<b>VOC Values</b>	<b>As Supplied</b> : 2.79 lbs/gal (334 g/l)
<b>Mesh</b>	Use High Temp Mesh for 3 hour hollow section ratings.  Contact Carboline Technical Service for specific design details.
<b>Limitations</b>	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.
<b>Topcoats</b>	For interior conditioned space, topcoats are optional. For interior general purpose, Carboline approved topcoats are required. Thermo-Sorb® must be applied to the specified DFT and be dry before applying a topcoat. Shore DO readings are to be taken to verify level of cure. Press the Shore DO gauge firmly to the surface and hold for a minimum of 10 seconds. When the Shore DO value is 80 and the drop off is less than 5 points, the material is considered dry and ready for top coat application. The choice of topcoat will depend on project requirements. Epoxy topcoats will discolor when used over Thermo-Sorb and are not recommended. Contact Carboline Technical Service for a complete list of approved topcoats.

## 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 Thermo-Sorb® to the substrate. The general requirement for interior steel is SSPC-SP2 or SP3. Contact Carboline Technical Service for recommendations and specific primer requirements.

**Painted/Primed Structural Steel** | Existing coatings must attain a minimum 3A rating in accordance with ASTM D3359 Method A, X cut adhesion test. If acceptable, clean and lightly abrade in accordance with SSPC-SP2 or SP3 to roughen and de-gloss the surface. If not acceptable, the coating must be removed and areas re-primed with a compatible primer. If primer coating has acceptable adhesion, but is not compatible or compatibility is unknown, a tie-coat primer can be applied as a bonding or barrier coating. Contact Carboline Technical Service for a list of approved tie-coat primers and specific primer requirements.

Primer recoat intervals may vary from the published product datasheet when using under intumescent fireproofing products. Consult Carboline Technical Service for recommended cure times before applying Carboline intumescent products.

## PERFORMANCE DATA

**All test data was generated under laboratory conditions. Field testing results may vary.**

Test Method	Results
ASTM D2240 Hardness	Shore DO - 85+ (fully dried) Shore DO - 80 (for topcoating)*
ASTM D256 Impact	0.16 ft. lb./in.
ASTM D4541 Bond Strength	200 psi (1.3 MPa) minimum
ASTM D695 Compressive Strength	1,187 psi (8.1 MPa)
ASTM E84 Surface Burning	Class A
Density	79 pcf (1.26 g/cm <sup>3</sup> )

All values derived under controlled laboratory conditions.

\*Shore DO readings are to be taken to verify the level of cure. Press the Shore DO gauge firmly to the surface and hold for a minimum of 10 seconds. When the Shore DO value is 80 and the drop off is less than 5 points, the material is considered dry and ready for top coat application.

## MIXING & THINNING

**Mixer** | Use 1/2" (12.7 mm) electric or air driven drill with a slotted paddle mixer (300 rpm under load).

**Mixing** | Thermo-Sorb® must be mixed using a 1/2" (12.7 mm) electric or air driven drill with a slotted paddle or Jiffy mixer blade. 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 5% with Methyl Acetate, Plasite Thinner #19, or 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.

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<b>Spray Gun</b>	Silver Gun with gun swivel, Contractor Gun (with filter removed) or equivalent
<b>Spray Tips</b>	0.021-0.027" (Use Graco heavy duty RAC non diffuser tips and housing)
<b>Fan Size</b>	6-10" (152-254 mm) depending on section being sprayed
<b>Hose Length</b>	150' (45 m)
<b>Material Hose</b>	3/8" (9.5 mm) I.D. minimum
<b>Whip Hose</b>	1/4" (6.3 mm) I.D. minimum (optional)

## APPLICATION PROCEDURES

<b>General</b>	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.
<b>Airless Spray</b>	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.
<b>Application Rates</b>	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
<b>Wet Film Thickness</b>	Frequent thickness measurements with a wet film gauge are recommended during the application process to ensure uniform thickness.
<b>Dry Film Thickness</b>	Final thickness must be measured using an electronic dry film thickness gauge. For method of thickness determination and tolerances refer to: AWCI Technical Manual 12-B (Standard Practice for the Testing and Inspection of Field Applied Thin Film Intumescent Fire Resistive Materials).

## APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	70°F (21°C)	41°F (5°C)	41°F (5°C)	0%
Maximum	100°F (38°C)	125°F (52°C)	110°F (43°C)	85%

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 Thermo-Sorb® can cause surface patterning if the material has not formed a skin.

## CURING SCHEDULE

Surface Temp.	Recoat
77°F (25°C)	4 Hours

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. Shore DO readings are to be taken to verify the level of cure. Press the Shore DO gauge firmly to the surface for a minimum of 10 seconds. When the Shore DO value is 80 and the drop off is less than 5 points, the material is considered dry and ready for top coat application. 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.

## TESTING / CERTIFICATION / LISTING

**Underwriters Laboratories, Inc.** | Thermo-Sorb® has been tested in accordance with ASTM E-119 (UL 263) at Underwriter's Laboratories, Inc. Thermo-Sorb® 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

**City of New York** | Thermo-Sorb® has been found acceptable for use in Class I and Class II buildings in accordance with report number: MEA 299-07-M

**City of Los Angeles** | Report: RR25484

## CLEANUP & 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.

**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 Thermo-Sorb®. The coating shall then be built back to the original thickness, allowed to dry, then overcoated with the specified topcoat or system.

## PACKAGING, HANDLING & STORAGE

**Packaging** | 5 gallons (18.9 L)

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

**Storage** | Store indoors in a dry environment between 32-100 °F (0-38 °C). Excursions down to 0°F (-18°C) are acceptable during material transportation.

**Shipping Weight  
(Approximate)** | 11 lbs. (4.9 kg) per gallon (3.7 L)

**Flash Point (Setaflash)** | 23 °F (-5 °C)

## WARRANTY

To the best of our knowledge the technical data contained herein is true and accurate on the date of publication and is subject to change without prior notice. User must contact Carboline Company to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. We guarantee our products to conform to Carboline quality control. We assume no responsibility for coverage, performance, injuries or damages resulting from use. Carbolines sole obligation, if any, is to replace or refund the purchase price of the Carboline product(s) proven to be defective, at Carbolines option. Carboline shall not be liable for any loss or damage. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY CARBOLINE, EXPRESS OR IMPLIED, STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. All of the trademarks referenced above are the property of Carboline International Corporation unless otherwise indicated.