Thermo-Sorb® HB

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	A patented high-solids, elastomeric, solvent-based hybrid intumescent fire-resistive material for the fire protection of interior and exterior structural steel.
Description	Thermo-Sorb HB is a high-build, thin-film intumescent fire-resistive material that provides up to 3.5 hours of fire protection for steelwork. With superior flexibility and excellent weather resistance, it's ideal for demanding field applications.
Features	• UL/ULC Listed (ANSI/UL 263, CAN/ULC-S101): Fire-rated designs for a wide range of steel sections—up to 3.5 hours for interior and exterior use. • Contains Optifire®+ unique traceability identifier. • Most rating thicknesses in a single coat. • Early moisture resistance. • Cold temperature resistance. • Decorative finish – provides a slightly textured, decorative finish. • Easy to apply through standard easily available spray equipment. • Developed for both on-site and off-site or shop application conditions. • VOC compliant (to SCAQMD Rule 1113). • Contributes to LEED credits. • Suitable for clean room applications. • Environmental Product Declaration - The International EPD System - registration number S-P-13792.
Color	Off White
Finish	Matte Smooth to slight orange peel
Primer	Apply over approved primer when specified. For pre-primed steel or primer compatibility, consult Carboline Technical Service. Not for use over single-pack primers.
Service Temperature	-40-+176°F (-40-+80°C)
Recommended Thickness	Thickness varies based on required fire rating per listing. Limit each coat to 200 mils (5.08 mm) for best aesthetic results, however higher thicknesses are possible.
Solids Content	By Volume 85% +/- 3%
Practical Yield	6.7 ft² at 200 mil (0.64 m² at 5.08 mm) Allow for loss in mixing and application.
VOC Value(s)	Per EPA Method: 1.19 lb/gal (143 g/L) Check local regulations regarding product usage.
Limitations	Moisture sensitive. Ensure hoses and pumps are dry before use.
Topcoats	Product must be applied to the specified DFT and be dry before applying a topcoat. Thermo-Sorb HB is not suitable for use with single pack or epoxy topcoats. 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 the product to the substrate. Surface preparation must meet the requirements of the primer being used. The general requirement for interior steel is SSPC-SP2 or SP3. For exterior steel the minimum requirement is SSPC-SP6. Contact Carboline Technical Service for recommendations and specific primer requirements.

Painted/Primed Structural Steel

Existing primers must attain a minimum 3A rating in accordance with ASTM D3359 Method A, X cut adhesion test. If below 3A, the coating must be removed and areas re-primed with a compatible primer. If an existing compatible primer is beyond the recoat window, clean and lightly abrade in accordance with SSPC-SP2 or SP3 to roughen and de-gloss the surface. 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 695 Compressive Load/Compressive Stress	120 lb/500 psi
ASTM D2240 Hardness (Type A)	82
ASTM D2240 Hardness (Type DO)	67
ASTM D2794 Impact Resistance (4lb weight)	>160 in-lbs.
ASTM D4060 Tabor Abrasion (CS-17 wheels, 1000g load)	0.881g/1000 cycles
ASTM D638 Tensile Strength/Elongation at Yield/Modulus of Elasticity (-25°C/-13°F)	290 psi/9%/5300psi
ASTM D638 Tensile Strength/Elongation at Yield/Modulus of Elasticity (ambient)	240 psi/12%/3575 psi
ASTM D790-17 Flexural Stress/ Flexural Load/Modulus (-25°C/-13°F)	520 psi/1.4 lb/26100 psi
ASTM D790-17 Flexural Stress/Flexural Load/Modulus (ambient)	300 psi/0.9 lb/8300psi
ASTM E84/UL723 Surface Burning Characteristics	Class A

MIXING & THINNING

Mixing

Always mix complete kits to ensure proper ratio. Pre-mix Part A using a 1/2" (12.7 mm) electric or air driven drill with a slotted paddle or Jiffy mixer blade (300 RPM under load). Shake Part B container thoroughly, then add to Part A. Mix for a minimum of 2 minutes until a uniform color is obtained.

Thinning

This product is designed to be applied without thinning. If necessary, this product may be thinned up to 2% with Thinner 10 or Xylene. Excessive thinning may lead to longer drying times, potential solvent entrapment or soft coatings, and may lead to defects such as blisters, sagging, or runs. Any thinner that contains water will cause the mixed material to react much more quickly, resulting in a reduced pot life.

Pot Life

60 minutes at 68°F (20°C)

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 minimum 1.35 gal. (5.1 L) per minute electric airless (minimum) to provide an operating pressure of 3,000 psi (204 bar). Remove rock catcher from siphon tube.
Spray Gun	WIWA W500 PFP/Graco XHF PFP application gun (3/8 inch in-let) (with filters removed) or equivalent.
Spray Tips	0.023-0.027" (Use Graco heavy duty RAC non diffuser tips and housing)
Hose Length	Maximum 100' (30 m) Smaller pumps may require shorter hoses to achieve desired spray pattern
Material Hose	1/2" (12.7mm) I.D.
Whip Hose	3/8" (9.5 mm) I.D.

APPLICATION PROCEDURES

General	Spray application is recommended for the optimum production, coverage and finish. Brush, roller or spatula may be used for small areas such as touch up or repairs, 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.

APPLICATION CONDITIONS

Condition	Ambient	Humidity
Minimum	5°F (-15°C)	15%
Maximum	125°F (52°C)	95%

Refer to Thermo-Sorb HB Application Manual for details. 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

Surface Temp.	Dry to Handle	Dry to Recoat	Dry to Touch
70°F (21°C)	24 Hours	4 Hours	60 Minutes

Dry times above are for 50% RH. Drying time will vary with temperature and humidity conditions. This product reacts with moisture in the air to cure. Air movement and thinner coats will assist drying. Higher film thicknesses will require longer drying times for topcoating.
Thermo-Sorb HB can be topcoated 24 hours after application at relative humidities of 20-95% regardless of temperature when applied at ≤120 mils (3mm) WFT, and 48 hours after application when applied >120 mils (3mm) WFT.
Consult Carboline Technical Service for specific details.

TESTING / CERTIFICATION / LISTING

Underwriters Laboratories, Inc.	Thermo-Sorb HB has been tested in accordance with ASTM E-119 (UL 263) and CAN/ULC-S101 at Underwriter's Laboratories, Inc. Thermo-Sorb HB is listed by UL and ULC for the following designs: **Wide Flange Columns:** Y677 **Tube Columns:** Y678 **Pipe Columns:** Y678 **Restrained and Unrestrained Beams:** N663 The product should be applied in accordance with the appropriate design.

CLEANUP & SAFETY

Cleanup	Cleaning process is different to conventional intumescent coatings, consult Application Manual for details. Uncured paint can be removed using Thinner 10 or Xylene. Dried on paint may be removed using a paint scraper. Spray equipment must only be cleaned using Thinner 10 or xylene, or solvents with minimum 80% xylene, and water or alcohol content must be <0.2%. Higher water contents will lead to gelling in the equipment. Cleaning of all spray equipment should be done on the same level.
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 product. The coating shall then be built back to the original thickness, allowed to dry, then over-coated with the specified topcoat or system.

PACKAGING, HANDLING & STORAGE

Packaging	Full Kits: 4.7 gallons (17.8 L) Part A: 3.98 gallons (15.1 L) Part B: 0.73 gallons (2.7 L)
Shelf Life	12 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)	Part A: 51 lbs Part B: 6 lbs

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 to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. Carboline warrants our products to be free of manufacturing defects in accord with applicable Carboline quality control procedures. THIS WARRANTY IS NOT VALID WHEN THE PRODUCT IS NOT: (1) APPLIED IN ACCORDANCE WITH CARBOLINE'S SPECIFICATIONS, AND/OR (2) PROPERLY STORED, CURED, AND USED UNDER NORMAL OPERATING CONDITIONS. Carboline assumes no responsibility for coverage, performance, injuries, or damages resulting from use of the product. If this product is found not to perform as specified upon inspection by a Carboline representative during the warranty period, Carboline's sole obligation, if any, is to replace the Carboline product(s) proven to be defective or refund the purchase price thereof, at Carboline's sole option. Carboline shall not be liable for any other losses or damages. This warranty excludes (1) labor and costs of labor for the application or removal of any product, and (2) any incidental or consequential damages, whether based on breach of express or implied warranty, negligence, strict liability or any other legal theory. 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. The whole text of this Product Data Sheet, as well as the documents derived from it, have been written in English, and for legal purposes the English version shall prevail.