# ChemShield 1185

Flexible Advanced Hybrid Lining
Technical Data Sheet (TDS)

**Please consult your technical representative before using this product to ensure proper application and performance**.

## PRODUCT DESCRIPTION

ChemShield 1185 is a thick-film, 100% solids reinforced, proprietary formulated epoxy-based internal lining designed for corrosion control, restoration, and leak prevention of petroleum storage tanks, including tank bottoms where flexibility is needed. ChemShield 1185 is spray-applied from 15-125 mils DFT depending on the extent of corrosion, and is flexibilized to reduce coating stress resulting from mechanical and physical forces. ChemShield 1185 may also be used as a flexible base coat for chemical storage tank bottoms and for concrete containment areas. ChemShield 1185 is a two-component system; Resin and Hardener.

## PRODUCT VARIATIONS

| The 3-digit suffix at the end of each product signifies the maximum sag resistence per coat in mils when applied on vertical surfaces. | |
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| **ChemShield 1185-012** (Can be applied with a brush or roller) | **ChemShield 1185-030 *** |
| **ChemShield 1185-060 *** | **ChemShield 1185-125 *** |

* ChemShield 1185-030, 1185-060, 1185-125 should be spray applied for the best finish. Applying ChemShield 1185-030, 1185-060, 1185-125 with a trowel, roller, or brush is also possible, but will require extra effort.

## APPLICATION INFORMATION

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| **Method:** Single or Plural Component Airless Spray System (min. 45:1 compression ratio with 1/2 inch hoses). For smaller areas and repairs, a trowel may be used. Brush and roll version available. | |
| **Minimum Temperature of Application (Air):** 45 °F, otherwise force curing is required. | |
| **Thinning:** | Not recommended or desired. |
| **Pre-heating:** | Heat each component to 100-130 °F prior to mixing. |

## APPLICATION INFORMATION (CONTINUED)

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| **Handling:** Store at moderate temperatures (65-85°F) prior to product application for ease of handling and mixing. Additional heating may be required and is recommended for spray application. |
| **Mixing:** Mechanically pre-mix each component; add the hardener into the resin and then mix the combined compound at 400-600 rpm for 3 to 4 minutes. |
| **Surface Preparation:** All surfaces shall be clean and dry, free of dust, dirt, oil or any other foreign matter. Steel surfaces shall be abrasive blasted to SSPC SP-5, or NACE #1 "white metal" finish with a minimum 3.5 mil surface profile. Concrete surfaces shall be abrasive blasted to remove all laitance and other surface contaminants. For additional information regarding surface preparation specifications and techniques, please contact our technical services department. |

## TECHNICAL DATA

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| Weight, lbs/gal | 12.4 +/- 0.5 |
| Recommended Thickness, Mils DFT | 15 - 125 |
| Theoretical Coverage, mils sq.ft./ gal | 1600 |
| VOC Content (mixed), g/l | <100 |
| Flash Point (mixed), °F | >200 (Setaflash) |
| Color(s) | Mayan Blue (BU2A) (ASTM D2244) (other colors available) |
| Pot Life (minutes) | 40 - 60 @ 77 °F / 50% RH |

| Theoretical Coverage to Achieve Dry Film Thickness, sq.ft./gal. Does not account for waste | |
|---|---|
| Mils | SqFt / Gal |
| 30 Mils: | 53.5 |
| 60 Mils: | 26.7 |
| 125 Mils: | 12.8 |
| For Immersion Service: | 24-36 hours @ 77 °F / 50% RH |
| Force curing is required for low temperature applications to expedite curing process. | |

## TECHNICAL DATA (CONTINUED)

**The following technical data is based on the ChemShield 1185-030 formulation. All tests conducted @ 77 °F / 50% RH.**

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| Density | Resin | 12.95 |
| | Hardener | 11.59 |
| Mix Ratio (R:H) | Volume | 2:1 |
| | Weight | 2.24:1 |
| Resin Viscosity (@ 10 rpm) (ASTM D2196) | 110000 - 140000 CPS | |
| Hardener Viscosity (@ 10 rpm) (ASTM D2196) | 20000 - 25000 CPS | |
| Mixed Viscosity (@ 10 rpm) (ASTM D2196) | 25000 - 30000 CPS | |

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|---|---|---|
| Gel Time (minutes) | 84 minutes | |
| Ambient Dry Time (hours) @ 77 °F / 50% RH (ASTM D5895) | A | 1 |
| | B (tack-free) | 4.5 |
| | C | 5.75 |
| | D (through) | 8.5 |
| Hardness | Shore D (24 hrs) | 55 |
| Sag Resistance (mils) | 35 | |
| Average Pull-of Adhesion (psi) | 925.6 | |
| Taber Abrasion (mg) 1000g per arm/1000 cycles | 169.85 | |
| Elongation | >56% | |
| Gloss (GU) | 51.7 | |
| Impact (direct) (in./lbs) | BLOT | |
| Impact (indirect) (in./lbs) | 4 | |

## EXPLAINING THE TESTS AND THEIR RELEVANCE

**ASTM D2240** Hardness describes the ability of a material to resist indentation. Hardness is measured using a Durometer which employs a needle that is impressed into the coating. The farther the needle impregnates the coating the lower the measured hardness. Many people mistakenly associate hardness with abrasion (or wear) resistance. While hardness can increase wear resistance of some materials it can also decrease it when a coating is so hard that it becomes brittle (like glass, a very hard but brittle material).

**ASTM D2244** Color is measured using a Spectrophotometer that mathematically defines a color as a point in a three dimensional space. This is defined using a CIELAB set of values. CIELAB uses three plots representing "L" (lightness/darkness), "a" (redness/greenness), and "b" (yellowness/blueness) values. The difference between two measured colors can be described using ΔE (pronounced delta E) where $\Delta E = \sqrt{\Delta L^2 + \Delta a^2 + \Delta b^2}$.

**ASTM D5895** The drying (cure) time of a coating can be measured by a Drying Time Recorder where a weighted Teflon stylus is dragged through the coating over time. The 4 stages of dry time (A=Set to Touch, B=Tack-Free Time, C= Dry-Hard Time, and D=Dry-Through Time) are then measured using a template that shows those times in hours.

## TYPICAL USES

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| * Large diameter, bulk petroleum tank bottoms |
| * Steel and fiberglass storage tank bottoms |
| * Riveted or bolted steel tanks and vessels |
| * Chemical process floors and concrete containment areas |

## BENEFITS

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| * Resistant to all types of crude oil and refined petroleum products |
| * Flexible to reduce coatings stress caused by “oil canning” effects |
| * High-build, easy to install monolithic application process (12-125 mils DFT) |
| * Excellent adhesion to steel, concrete and fiberglass substrates |
| * Low cured shrinkage |
| * VOC compliant |

## SHIPPING DATA

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|---|---|
| Packaging: | 3 Quart Kits, 3 Gal Kits, 15 Gal Kits, 152.5 Gal Kits |
| DOT Class (resin) - Non regulated<br><br>DOT Class (hardener) - Paint Related Material, 8, DOT Number UN 3066, III | |

## CHEMICAL RESISTANCE

Summarized; for a more comprehensive list of chemical resistance, please refer to our Product Resistance Data Guide. Films cured for seven days at 77°F are unaffected after one year immersion at ambient temperatures. Wolverine Coatings uses a more stringent, modified version of ASTM D 6943 for chemical resistance testing.

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| - Benzene | - Hydraulic Oil |
| - Brine | - Jet Fuel, all grades |
| - Crude Oil, sweet or sour | - Kerosene |
| - Diesel Fuel (includes all Biodiesel, B100, B20, B5, and B2) | - Mineral Oil |
| - Ethanol, All Concentrations | - Naphtha |
| - Fuel Oil | - Skydrol 500B |
| - Gasoline, (Regular, Mid, Premium Unleaded) | - Sodium Chloride |
| - Gasoline, aviation | - Water, Distilled Water, Sea Water |
| - Gasoline, with MTBE, TBA, or Ethanol | - Xylene |
| *For acids, alkalis, solvents, and other aggressive chemicals, a 10-20 mil top coat may be necessary. | |

## GENERAL LIMITATIONS

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| Do not apply over a wet surface. |
| Epoxies have limited ultraviolet resistance which may cause them to chalk, lose gloss, and / or discolor over time. |
| Touchup or repair of an existing coating is never aesthetically perfect. |
| Depending on mix design and curing / drying conditions, minimum age of concrete prior to application is 28 days. |

**SAFETY**
For your safety, all required personal protection equipment should be used when operating machinery or handling chemicals. Concrete dust is a source of silica particles and other hazardous materials that can cause silicosis and other illnesses. Proper safety equipment and methods are the responsibility of the installation company, general contractor, and/or facility owner.

**WARRANTY**
Wolverine Coatings Corporation warrants its products to be free from defects in material and workmanship. Wolverine Coatings Corporation’s sole obligation and Buyer’s exclusive remedy in connection with the products shall be limited, at Wolverine Coatings option, to either replacement of products not conforming to this Warranty or credit to the Buyer’s account in the invoiced amount of the nonconforming products. Any claim under this warranty must be made by the Buyer to Wolverine Coatings in writing within five (5) days of Buyer’s discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the ship date, whichever is earlier. Buyer’s failure to notify Wolverine Coatings of such nonconformance as required herein shall bar Buyer from recovery under this warranty.

Wolverine Coatings makes no other warranties about the product. No other warranties, whether expressed, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply.

Any recommendation or suggestion relating to the use of the products made by Wolverine Coatings, whether in its technical literature, or in response to specific inquiry or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by Buyers having requisite skill and know-how in the industry, and therefore it is for the Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedure of use, or extrapolation of data may cause unsatisfactory results.

**LIMITATION OF LIABILITY**
Wolverine Coatings Corporation’s liability on any claims based upon Wolverine Coatings Corporation’s negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or parts thereof which give rise to the claim. In no event shall Wolverine Coatings Corporation be liable for consequential or incidental damages.

**LITERATURE REVISION - TDS: ChemShield 1185 - Rev. 241212**
Published literature is subject to change without notice. Wolverine Coatings Corporation is constantly engaged in the testing of existing formulations, the development of new innovative technologies, and the evaluation of the latest practices. The latest literature should always be consulted at www.wolverinecoatings.com.

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