

## SELECTION & SPECIFICATION DATA

<b>Generic Type</b>	Modified epoxy-phenolic, amine adduct cured.
<b>Description</b>	Thermaline 440 (formerly Thermaline 400 EU) is a high performance, immersion grade coating system which has excellent resistance to wet/dry cycling conditions at elevated temperatures.  Used to protect steel substrates under thermal insulation.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Temperature resistant up to 204°C</li> <li>• Very good flexibility</li> <li>• Excellent overall chemical resistance</li> <li>• Very good abrasion resistance</li> <li>• Easily applied by spray</li> <li>• Acceptable for use over stainless steels</li> </ul>
<b>Color</b>	Primer red Finish White and grey Coating discolouration can be expected when exposed to elevated temperatures. This discolouration does not affect performance.
<b>Finish</b>	Semi-Gloss
<b>Dry Film Thickness</b>	Th 440 Primer : 125 - 150 µm Th 440 Finish : 125 - 150 µm Dry film thickness above 250 microns per coat is not recommended.
<b>Solid(s) Content</b>	Th 440 Primer : 55 ± 2% Th 440 Finish : 51 ± 2%
<b>Theoretical Coverage Rates</b>	<p><b>Th 440 Primer</b> DFT 125 microns 4,4 sq.m/l DFT 150 microns 3,6 sq.m/l</p> <p><b>Th 440 Finish</b> DFT 125 microns 4,0 sq.m/l DFT 150 microns 3,4 sq.m/l</p> <p>Mixing and application losses will vary and must be taken into consideration when estimating job requirements.</p>
<b>Dry Temp. Resistance</b>	Continuous: 204°C (399°F) Non-Continuous: 232°C (450°F)
<b>Limitations</b>	Not recommended for strong mineral and organic acids.

## SUBSTRATES & SURFACE PREPARATION

<b>General</b>	Surface must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants in accordance with Standard SSPC-SP1.
<b>Steel</b>	Abrasive blast to ISO 8501-1 Sa 2½ to obtain a 35 – 75 µm blast profile. Alternative Ultra High Pressure water jetting (UHPWJ) to the standard of min. CHB2 M, provided existing surface profile (e.g. maintenance projects)
<b>Stainless Steel</b>	Blast cleaning with non-metallic abrasive to obtain 25 – 50 µm profile.

# Thermaline 440

## PRODUCT DATA SHEET



### MIXING & THINNING

<b>Mixing</b>	Power mix separately, then combine and power mix for a minimum of two minutes. <b>DO NOT MIX PARTIAL KITS.</b>
<b>Thinning</b>	May be thinned up to 25% by volume with Thinner #2 or Thinner #33 for spray application. Use of thinners other than those supplied or approved by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.
<b>Ratio</b>	2 : 1 Ratio by volume (A to B)
<b>Pot Life</b>	4 hours at 24°C and less at higher temperatures. Pot life ends when coating loses body and begins to sag.

### 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.

<b>General</b>	Thermaline 440 is a high solid coating and may require adjustments in spray techniques. Wet film thickness is easily and quickly achieved. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.
<b>Conventional Spray</b>	Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, .055 - .070" I.D. fluid tip and appropriate air cap.
<b>Airless Spray</b>	Pump ratio: 30:1 (min.) * GMP Output: 3.0 (min.) Material Hose: 3/8" I.D. (min.) Tip Size: .015 - .019" Output PSI: 2100 - 2300 Filter Size: 60 mesh  * Teflon packings are recommended and available from the pump manufacturer.
<b>Brush &amp; Roller (General)</b>	Recommended for touch-up, striping of weld seams and hard-to-reach areas only. Apply in full strokes, avoid re-brushing or re-rolling. Use a natural bristle brush and short nap mohair roller with phenolic core.

### APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	13°C (55°F)	5°C (41°F)	5°C (41°F)	0%
Maximum	35°C (95°F)	75°C (167°F)	40°C (104°F)	85%

Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques may be required above or below normal application conditions. Do not apply when the surface temperature is less than 3°C above the dew-point.

## CURING SCHEDULE

Surface Temp.	Between Coats	Final Cure Immersion
5°C (41°F)	24 Hours	NR
10°C (50°F)	15 Hours	4 Days
15°C (59°F)	10 Hours	3 Days
25°C (77°F)	6 Hours	2 Days

These times are based on the recommended dry film thickness. Excessive film thickness or inadequate ventilation conditions after application require longer dry times and will cause premature failure in extreme cases. Maximum recoat time is normally 60 days. If exceeded and depending on curing time and exposure, pretreatment may be required prior to overcoating. Contact Carboline for further information.

**EXCESSIVE HUMIDITY OR CONDENSATION ON THE SURFACE DURING CURING MAY RESULT IN SURFACE HAZE OR BLUSH; ANY HAZE OR BLUSH SHOULD BE REMOVED BY WASHING WITH WATER BEFORE RECOATING.**

## CLEANUP & SAFETY

<b>Cleanup</b>	Use Carboline Thinner #2. In case of spillage, absorb and dispose of in accordance with local applicable regulations.
<b>Safety</b>	Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.
<b>Ventilation</b>	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 supplied air respirator.
<b>Caution</b>	This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with applicable regulations. In areas where explosion hazards exist, workmen should be required to use nonferrous tools and wear conductive and nonsparking shoes.

## PACKAGING, HANDLING & STORAGE

<b>Shelf Life</b>	24 months at 24°C
<b>Storage Temperature &amp; Humidity</b>	4° - 43°C 0 - 95% relative humidity
<b>Flash Point (Setaflash)</b>	THERMALINE 400 EU Primer Part A: 18°C THERMALINE 400 EU Finish Part A: 18°C THERMALINE 400 EU Part B: 18°C Thinner #2 : -5°C
<b>Storage</b>	Stores indoors.
<b>Packaging</b>	Part A 13,3 litres Part B 6,7 litres or Part A 6,7 litres * Part B 3,3 litres *  * Not available in all Carboline.

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## PRODUCT DATA SHEET

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### WARRANTY

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