

## Epoxy Novolac

### PRODUCT DESCRIPTION

An ultra-high solids, two component polycyclamine cured lining system utilising advanced epoxy novolac technology with glass fibre and flake reinforcement.

### INTENDED USES

To provide corrosion protection for the internals of steel storage tanks, vessels, spools and pipes for a range of products, including but not limited to:

- Crude oil up to 300°F (150°C)
- Refined oil products (including unleaded gasoline blends and solvents)
- Produced water up to 300°F (150°C).

Enviroline 405HTR is also suitable as an external coating for buried pipes.

### PRACTICAL INFORMATION FOR ENVIROLINE 405HTR

<b>Color</b>	Tan			
<b>Gloss Level</b>	Not applicable			
<b>Volume Solids</b>	98% ±2% (ISO 3233:1998)			
<b>Typical Thickness</b>	20-60 mils (500-1500 microns) dry equivalent to 20.4-61.2 mils (510-1531 microns) wet			
<b>Theoretical Coverage</b>	52 sq.ft/US gallon at 30 mils d.f.t and stated volume solids 1.30 m <sup>2</sup> /liter at 750 microns d.f.t and stated volume solids			
<b>Practical Coverage</b>	Allow appropriate loss factors			
<b>Method of Application</b>	Airless Spray, Plural Component Airless Spray			
<b>Drying Time</b>	Overcoating interval with self			
<b>Temperature</b>	<b>Touch Dry</b>	<b>Hard Dry</b>	<i>Minimum</i>	<i>Maximum</i>
50°F (10°C)	16 hours	23 hours	23 hours	30 hours
59°F (15°C)	10 hours	16 hours	16 hours	21 hours
77°F (25°C)	2.5 hours	6.5 hours	6.5 hours	10 hours
104°F (40°C)	1.5 hours	2.5 hours	3 hours	6 hours

The values quoted relate to use within an enclosed tank or vessel environment.

### REGULATORY DATA

<b>Flash Point (Typical)</b>	Part A 151°F; Part B 151°F; Mixed 151°F		
<b>Product Weight</b>	13.1 lb/gal (1.57 kg/l)		
<b>VOC</b>	0.20 lb/gal (24 g/l)	EPA Method 24	
	51 g/kg	EU Solvent Emissions Directive (Council Directive 1999/13/EC)	

See Product Characteristics section for further details

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### SURFACE PREPARATION

All surfaces to be coated should be clean and free from contamination. Prior to application all surfaces should be assessed and treated in accordance with ISO 8504:2000.

Where necessary, remove weld spatter and where required smooth weld seams and sharp edges. Oil or grease should be removed in accordance with SSPC-SP1 solvent cleaning.

#### Abrasive Blast Cleaning

Best performance will always be achieved when Enviroline 405HTR is applied to surfaces prepared by abrasive blast cleaning to Sa3 (ISO 8501-1:2007) or SSPC-SP5. Where Enviroline 405HTR is not to be used in high heat and/or aggressive service, preparation to Sa2½ (ISO 8501-1:2007) or SSPC-SP10 may be acceptable. Contact International Protective Coatings for further information.

A sharp, angular surface profile of a minimum 3 mils (75 microns) is recommended.

Enviroline 405HTR must be applied before oxidation of the steel occurs. If oxidation does occur the entire oxidised area should be reblasted to the standard specified above.

Surface defects revealed by the blast cleaning process should be ground, filled or treated in the appropriate manner.

The preferred method of holding the blast standard is by dehumidification.

### APPLICATION

<b>Mixing</b>	The detailed Enviroline 405HTR Application Guidelines should be consulted prior to use. Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed, it must be used within the working pot life specified.	
<b>Mix Ratio</b>	2 part(s) : 1 part(s) by volume	
<b>Working Pot Life</b>	77°F (25°C)	104°F (40°C)
	50 minutes	30 minutes
<b>Plural component airless spray</b>	Recommended	Tip Range 21-27 thou (0.53-0.68 mm) Total output fluid pressure at spray tip not less than 3000 psi (211 kg/cm <sup>2</sup> )
<b>Airless Spray</b>	Suitable	
<b>Brush</b>	Suitable	Small areas only
<b>Thinner</b>	Not normally required	Refer to Enviroline Application Guidelines for specific advice.
<b>Cleaner</b>	Enviroline 71C / International GTA203	
<b>Work Stoppages</b>	Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with Enviroline 71C or International GTA203. Once units of paint have been mixed, they should not be resealed and it is advised that after prolonged stoppages, work recommences with freshly mixed units.	
<b>Clean Up</b>	Clean all equipment immediately after use with Enviroline 71C or International GTA203. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency should depend upon amount sprayed, temperature and elapsed time, including any delays.	
	All surplus material and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.	

# Enviroline® 405HTR

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### PRODUCT

The detailed Enviroline 405HTR Application Guidelines should be consulted prior to use.

### CHARACTERISTICS

This datasheet provides general guidance on the use of Enviroline 405HTR. Specific project requirements will be dependent upon the service end use and operating conditions of the tank or vessel. Always consult International Protective Coatings to confirm that Enviroline 405HTR is suitable for contact with the product to be stored.

The detailed project coating specification provided by International Protective Coatings must be followed at all times.

Apply by plural component airless spray or standard airless spray (with in-line heater). Application by other methods, e.g. brush or roller, may require more than one coat and is suggested for small areas only or initial stripe coating. Stripe coating is an essential part of good working practice and as such should form part of any lining specification. For heavily pitted or porous steel, spray apply approximately 50% of the required film thickness and follow immediately with a short nap roller or squeegee to work material into the bottom of pitted areas.

For plural component airless spray application, best results will be achieved when the product is heated prior to application; Part A (Resin) to a maximum of 140°F (60°C) and Part B (Hardener) to a maximum of 115°F (46°C).

Surface temperature must always be a minimum of 5°F (3°C) above dew point. Do not apply at steel temperatures below 50°F (10°C).

The climatic conditions within the tank must be controlled as recommended in the Enviroline 405HTR Application Guidelines. The relative humidity within the confines of the tank should be controlled using dehumidification equipment. Where such equipment is not available, a single coat application technique should be employed to avoid intercoat adhesion problems.

After the coating system has cured hard, the dry film thickness should be measured using a suitable non-destructive magnetic gauge to verify the minimum applied system thickness. The coating system should be free of all pinholes or other holidays. The cured film should be essentially free of runs, sags, drips, inclusions or other defects. All deficiencies and defects should be corrected. The repaired areas shall be retested and allowed to cure as specified before placing the finished lining into service.

### Return to Service

The following minimum cure times are recommended for Enviroline 405HTR to achieve its full chemical resistance properties.

<u>Temperature</u>	<u>Cure Schedule</u>
50°F (10°C)	5 days
77°F (25°C)	14 hours
104°F (40°C)	12 hours

Cure schedule refers to the minimum time at the specified substrate temperature prior to immersion in all chemicals as per the chemical resistance list. This does not take into consideration any specific curing requirements for third party approvals.

Note: VOC values are typical and are provided for guidance purpose only. These may be subject to variation depending on factors such as differences in color and normal manufacturing tolerances.

### SYSTEMS COMPATIBILITY

Enviroline 405HTR should always be applied to correctly prepared substrates. A primer is not available for the system.

Enviroline 405HTR is designed as a single coat system. It must only be overcoated with itself should re-coats or touch-up be required.