

Epoxy Novolac

PRODUCT DESCRIPTION

A solvent free, two component polyclamine cured lining system utilising advanced epoxy novolac technology with flake and fibre reinforcement.

INTENDED USES

To provide corrosion protection for the internals of steel storage tanks, vessels, spools and pipes for use with a range of products, including (but not limited to); crude oil up to 93°C (200°F), refined oil products (including unleaded gasoline blends and solvents) and biofuels.

Enviroline 376F-60 is also suitable as an external coating for buried pipes.

PRACTICAL INFORMATION FOR ENVIROLINE 376F-60

Colour	Limited colour range available
Gloss Level	Not applicable
Volume Solids	100%
Typical Thickness	500-2000 microns (20-80 mils) dry equivalent to 500-2000 microns (20-80 mils) wet
Theoretical Coverage	0.61 m ² /litre at 1650 microns d.f.t and stated volume solids 24 sq.ft/US gallon at 66 mils d.f.t and stated volume solids
Practical Coverage	Allow appropriate loss factors. Refer to Enviroline Application Guidelines for advice on film thickness determination
Method of Application	Plural Component Airless Spray, Airless Spray
Drying Time	

Overcoating interval with self

Temperature	Touch Dry	Hard Dry	Minimum	Maximum
15°C (59°F)	7 hours	12 hours ¹	12 hours	28 days ²
25°C (77°F)	2 hours	4 hours ¹	2.5 hours	28 days ²
35°C (95°F)	1 hour	2 hours ¹	2 hours	28 days ²

¹ Sufficient coating film strength has developed to permit the handling and movement of coated steelwork. A Shore D hardness reading of 75-80 is a recommended guideline to indicate suitability for return to service.

² If the maximum overcoating interval is exceeded it will be necessary to thoroughly abrade the surface of the lining with coarse emery paper. Maximum overcoating interval varies depending on end use, please refer to Page 3 for further information.

REGULATORY DATA

Flash Point (Typical)	Part A 82°C; Part B 63°C		
Product Weight	1.58 kg/l (13.2 lb/gal)		
VOC	0.10 lb/gal (13 g/l) 35 g/kg	EPA Method 24 EU Solvent Emissions Directive (Council Directive 2010/75/EU)	

See Product Characteristics section for further details

Epoxy Novolac

SURFACE PREPARATION

All surfaces to be coated should be clean, dry 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.

Steel Substrates

Best performance will always be achieved when Enviroline 376F-60 is applied to surfaces prepared by abrasive blast cleaning to Sa3 (ISO 8501-1:2007) or SSPC-SP5. Where Enviroline 376F-60 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. A sharp, angular surface profile of 75-125 microns (3-5 mils) is recommended. Contact International Protective Coatings for further information.

Enviroline 376F-60 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. Alternatively, an approved holding primer may be used.

Concrete Substrates

Concrete should be well cured prior to application of the flooring, lining or coating system. Refer to the Concrete Surface Preparation Guidelines for more information.

APPLICATION

Mixing	Material is supplied in two containers as a unit. Complete units should be stored, mixed and applied in accordance with the Enviroline Application Guidelines.	
Mix Ratio	2 part(s) : 1 part(s) by volume	
Working Pot Life	40°C (104°F) 10 minutes	
Plural Component Airless Spray	Recommended	Refer to Enviroline Application Guidelines for more details.
Airless Spray	Suitable	Refer to Enviroline Application Guidelines for more details.
Air Spray (Pressure Pot)	Not suitable	
Brush	Suitable	Can be used for the touch-up of small areas or for stripe coating of welds and edges.
Thinner	Not normally required	Refer to Enviroline Application Guidelines for specific advice.
Cleaner	Enviroline 71C (or International GTA203)	
Work Stoppages	Do not allow material to remain in hoses, guns 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	
Clean Up	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 of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays. All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.	

Epoxy Novolac

PRODUCT CHARACTERISTICS

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

This datasheet provides general guidance on the use of Enviroline 376F-60. 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 376F-60 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.

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 60°C (140°F) and Part B (Hardener) to a maximum of 40°C (105°F). For airless spray application, best results will be achieved when each component of the product is heated prior to application to 35-37°C (95-100°F).

Surface temperature must always be a minimum of 3°C (5°F) above dew point.

Maximum overcoating intervals based on end use:

Temperature	Aqueous	'Black oils' (eg. Crude oil, Fuel oil etc)	'White oils' (eg Gasoline, Kerosene, naphtha, alcohols etc)
15°C (59°F)	28 Days	28 Days	3 Days
25°C (77°F)	28 Days	28 Days	7 Days
35°C (95°F)	28 Days	28 Days	14 Days

Use the following chart for preferred temperature conditions. These conditions plus adequate ventilation must be maintained throughout the curing cycle.

	Substrate Temperature	Air Temperature
Preferred	21-49°C (70-120°F)	21-38°C (70-100°F)
Minimum	13°C (55°F)	13°C (55°F)

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.

Post-curing is not necessary for most applications, but Enviroline 376F-60 may be post-cured to expedite curing or increase chemical resistance for extremely aggressive environments. Post-cure for a minimum of 2 hours at 121°C (250°F) or 6-8 hours at 66°C (150°F) for maximum resistance.

Maximum continuous dry temperature resistance for Enviroline 376F-60 is 177°C (350°F).

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 colour and normal manufacturing tolerances.

Low molecular weight reactive additives, which will form part of the film during normal ambient cure conditions, will also affect VOC values determined using EPA Method 24.

SYSTEMS COMPATIBILITY

Enviroline 376F-60 should always be applied to correctly prepared substrates. When a primer is required as part of the coating specification, consult International Protective Coatings for specific advice.

Enviroline 376F-60 is designed as a single coat system. It must only be overcoated with itself should re-coats or touch-up be required.

Epoxy Novolac

ADDITIONAL INFORMATION

Further information regarding industry standards, terms and abbreviations used in this data sheet can be found in the following documents available at www.international-pc.com:

- Definitions & Abbreviations
- Surface Preparation
- Paint Application
- Theoretical & Practical Coverage
- Enviroline Application Guidelines

Individual copies of these information sections are available upon request.

SAFETY PRECAUTIONS

This product is intended for use only by professional applicators in industrial situations. All work involving the application and use of this product should be performed in compliance with all relevant national Health, Safety and Environmental standards, regulations and legislation.

Proper ventilation must be provided during application and afterwards during curing (refer to product datasheets for typical curing times) to ensure safe limits and prevent fires and explosions. Forced extraction will be required in confined spaces. Ventilation and/or respiratory personal protective equipment (airfed hoods or appropriate cartridge masks) must be provided during application and curing. Take precautions to avoid skin and eye contact (overalls, gloves, goggles, masks, barrier cream, etc).

Before use, obtain, read and then follow the advice given on the Material Safety Data Sheets (Parts A and B if two-pack) and the Health and Safety section of the Coatings Applications Procedures for this product.

In the event that welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation.

The detailed safety measures are dependent on application methods and the work environment. If you do not fully understand these warnings and instructions or if you cannot strictly comply with them, do not use the product and consult International Protective Coatings.

Warning: This product contains liquid epoxies and modified polyamines and may cause skin sensitisation if not used correctly.

PACK SIZE	Unit Size	Part A		Part B	
		Vol	Pack	Vol	Pack
	4 US gal	2.67 US gal	5 US gal	1.33 US gal	2 US gal
	18 litre	12 litre	20 litre	6 litre	10 litre

For availability of other pack sizes, contact AkzoNobel.

SHIPPING WEIGHT (TYPICAL)	Unit Size	Part A	Part B
	18 litre	18.36 kg	10.14 kg
	4 US gal	36.5 lb	19.5 lb

STORAGE	Shelf Life
	12 months minimum at 25°C (77°F) in original, unopened containers. Subject to re-inspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition.

Important Note

The information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

This Technical Data Sheet is available on our website at www.international-marine.com or www.international-pc.com, and should be the same as this document. Should there be any discrepancies between this document and the version of the Technical Data Sheet that appears on the website, then the version on the website will take precedence.

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