Intertherm® 228

Epoxy Phenolic

PRODUCT DESCRIPTION

A highly crosslinked, two component, high build Epoxy Phenolic coating which combines properties of corrosion and chemical resistance when used in high temperature service.

INTENDED USES

Intertherm 228 has been specifically designed to provide a corrosion resistant barrier when used to protect steelwork beneath thermal insulation in areas subjected to wet and dry cycling.

Suitable for exposure in a wide range of highly corrosive environments, including insulated and uninsulated steel, and on the exterior or pipework, process vessels etc., operating at temperatures up to 230°C (446°F).

Intertherm 228 has excellent resistance to "thermal shock" experienced during rapid temperature cycling.

PRACTICAL INFORMATION FOR INTERTHERM 228

Colour	Limited range
Gloss Level	Eggshell
Volume Solids	67%
Typical Thickness	100 microns (4 mils) dry equivalent to 149 microns (6 mils) wet
Theoretical Coverage	6.70 m²/litre at 100 microns d.f.t and stated volume solids 269 sq.ft/US gallon at 4 mils d.f.t and stated volume solids
Practical Coverage	Allow appropriate loss factors
Method of Application	Airless Spray, Air Spray, Brush, Roller

Drying Time

			Overcoating Interval with recommended topcoats	
Temperature	**Touch Dry**	**Hard Dry**	*Minimum*	*Maximum*
10°C (50°F)	8 hours	16 hours	36 hours	5 days
15°C (59°F)	7 hours	12 hours	24 hours	4 days
25°C (77°F)	5 hours	8 hours	16 hours	3 days
40°C (104°F)	3 hours	6 hours	16 hours	2 days

REGULATORY DATA

Flash Point	Part A 26°C (79°F); Part B 48°C (118°F); Mixed 24°C (75°F)	
Product Weight	1.86 kg/l (15.5 lb/gal)	
VOC	2.83 lb/gal (340 g/lt) 199 g/kg	EPA Method 24 EU Solvent Emissions Directive (Council Directive 1999/13/EC)

See Product Characteristics section for further details

SURFACE PREPARATION

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

Where necessary, remove weld spatter and smooth weld seams and sharp edges.

Oil or grease should be removed in accordance with SSPC-SP1 solvent cleaning.

Abrasive Blast Cleaning

This product must only be applied to surfaces prepared by abrasive blast cleaning to a minimum Sa2½ (ISO 8501-1:2007) or SSPC-SP6. A sharp, angular surface profile of 50-75 microns (2-3 mils) is recommended.

Intertherm 228 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.

Surfaces may be primed with Intertherm 228 (thinned 10% GTA220) to 40 microns (1.5 mils) dry film thickness before oxidation occurs.

Power Tool Cleaning (Small Areas Only)

Intertherm 228 is suitable for application over power tool cleaned surfaces prepared to a minimum of SSPC-SP11.

Note, all scale must be removed and all areas which cannot be prepared adequately should be spot blasted to a minimum standard of Sa2 (ISO 8501-1:2007) or SSPC-SP6.

APPLICATION

Mixing

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.

(1) Agitate Base (Part A) with a power agitator.
(2) Agitate Curing Agent (Part B) with a power agitator.
(3) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.

Mix Ratio

5 part(s) : 1 part(s) by volume

Working Pot Life

10°C (50°F)	15°C (59°F)	25°C (77°F)	40°C (104°F)
5 hours	4 hours	2 hours	1 hour

Airless Spray	Recommended	Tip Range 0.43-0.53 mm (17-21 thou) Total output fluid pressure at spray tip not less than 176 kg/cm² (2503 p.s.i.)
Air Spray (Pressure Pot)	Recommended	Gun DeVilbiss MBC or JGA Air Cap 704 or 765 Fluid Tip E
Brush	Suitable - small areas only	Typically 50-75 microns (2.0-3.0 mils) can be achieved
Roller	Suitable - small areas only	Typically 50-75 microns (2.0-3.0 mils) can be achieved
Thinner	International GTA220 (International GTA415)	Do not thin more than allowed by local environmental legislation
Cleaner	International GTA822 or International GTA220 (or International GTA415)	
Work Stoppages	Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA822. 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 International GTA822. 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 approrpriate regional regulations/legislation.	

PRODUCT CHARACTERISTICS

Intertherm 228 is typically applied as a two coat system at 100 microns (4 mils) per coat to give a total coating system dry film thickness of 200 microns (8 mils).

Maximum film build in one coat is best attained by airless spray. When applying by methods other than airless spray, the required film build is unlikely to be achieved. Application by air spray may require a multiple cross spray pattern to attain optimum film build. The use of other methods, e.g. brush or roller, may require more than one coat and are suggested only for small areas and initial stripe coating.

When applying Intertherm 228 by brush or roller, it may be necessary to apply multiple coats to achieve the total specified system dry film thickness.

If Intertherm 228 is to be applied by brush to coat small areas for maintenance purposes, it is recommended that Intertherm 228 is applied as a three coat system at 65 microns (2.5 mils) per coat to give a total coating system dry film thickness of 195 microns (7.5 mils).

Surface temperature must always be a minimum of 3°C above dew point.

Application at temperatures below 10°C (50°F) will result in extended drying times.

The relative humidity during application and curing should not exceed 80%.

Good ventilation throughout application and cure, and firm control of film thickness, are essential to ensure full removal of retained solvent and optimum performance of cured film. Care should be taken to avoid over-application. The total coating system film thickness applied must not exceed 300 microns (12 mils) in order to avoid cracking during high temperature service.

When applying Intertherm 228 in confined spaces ensure adequate ventilation.

After the last coat has cured hard, the coating system dry film thickness should be measured using a suitable non-destructive magnetic gauge to verify the average total 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 curing times will vary depending upon dry film thickness and conditions that exist during application and throughout curing periods.

Maximum performance is not attained until the film has completely cured. Cure is a function of temperature, humidity and film thickness. Normally Intertherm 228 coating systems at 200 microns (8 mils) dry film thickness will exhibit full and complete cure for optimal temperature resistance in 7-10 days at 25°C (77°F). Curing times are proportionately shorter at elevated temperatures and longer at lower temperatures.

In common with all epoxies Intertherm 228 will chalk and "yellow" on exterior exposure. Intertherm 228 will also show a marked colour change when exposed to higher temperatures. This colour change is more noticeable in lighter shades and at temperatures in excess of 150°C (302°F). However, these phenomena are not detrimental to anti-corrosive performance provided recommended temperature limits are not exceeded.

Intertherm 228 is suitable for protection of insulated steelwork, which may cycle between wet and dry conditions, and is operating at continuous in-service temperatures ranging from ambient up to 200°C (392°F), with intermittent surges up to 230°C (446°F).

Intertherm 228 is an immersion grade epoxy phenolic coating, and is suitable for use in situations of continuous intimate contact with wet insulation. However, Intertherm 228 is not intended for use as an internal tanklining.

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

This system is self-priming and is not suitable for application over other primers.

Intertherm 228 is normally topcoated with itself, for other suitable topcoats please consult International Protective Coatings.

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

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 in accordance with the advice given on this sheet, the Material Safety Data Sheet and the container(s), and should not be used without reference to the Material Safety Data Sheet (MSDS) which International Protective Coatings has provided to its customers.

All work involving the application and use of this product should be performed in compliance with all relevant national, Health, Safety & Environmental standards and regulations.

In the event 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.

If in doubt regarding the suitability of use of this product, consult International Protective Coatings for further advice.

PACK SIZE	Unit Size	Part A		Part B	
		Vol	Pack	Vol	Pack
	20 litre	16.67 litre	20 litre	3.33 litre	5 litre
	5 US gal	4.17 US gal	5 US gal	0.83 US gal	1 US gal

SHIPPING WEIGHT	Unit Size	Part A	Part B
	20 litre	35.7 kg	3.96 kg
	5 US gal	73 lb	8 lb

STORAGE		
	Shelf Life	6 months minimum at 25°C (77°F). Subject to re-inspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition.

Important Note

www.international-pc.com