

*Penlac Co. Ltd*

# Technical Details

(Technical Information about Penlac's Products)

**MANUFACTURERS OF PENLAC PAINTS AND PRODUCTS**

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# **PENLITH SEALER WHITE**

## **DESCRIPTION**

Single pack solvent borne Acrylic Sealer for concrete and plaster renderings.

## **FEATURES**

- Not affected by alkalis
- Resilient, flexible film
- Outstanding adhesion on concrete.

**USES:** Sealer for concrete and plaster

## **PHYSICAL PROPERTIES:**

Colour:	Semi-clear white
Flash point:	25 °C
Package:	Single
Specific gravity:	0.97
Volume Solids:	33%
Weight Solids:	40%

## **STORAGE:**

Store inside, in a cleaned, dry room zoned for flammable paint products. Temperature 10 – 30 °C. Use ground clamps and avoid sparks or electrical discharge.

## **SHELF LIFE:**

Unopened sealed containers, 12 months from date of manufacture.

## **SOLVENT AND DILUENTS:**

Thinning:	Testbenzin
Clean-up:	Xylol

## **SEALING CONCRETE AND PLASTER**

One coat applied at 8 – 10 m<sup>2</sup>/lt to give 30 microns DFT.

## **SURFACE PREPARATION**

### Surface preparation of new concrete and plaster surfaces:-

- Allow mortar to cure for at least 28 days before painting.
- Correct surface defects such as voids and cracks with exterior polyfiller.
- Remove bulges and mortar spatter by grinding or by manual or mechanical sanding.
- Wash with ample clean water from a pressure hose while brushing with a stiff bristle fibre brush to remove salts and loose materials.

### **FOR NEW CONCRETE ONLY:**

- Etch surface with Penlac Etch solution and rinse off the residue with ample water. Test with pH paper and continue rinsing until a pH of 7 or more is obtained. This step must be ignored in the case of plaster surfaces.
- Examine surface uniformity and texture, correct where necessary. The surface should have a uniform feel of medium sandpaper and should be free of surface glaze, laitances, salts and loosely adhering material. The surface should be dry before.

### Surface preparation of previously painted concrete and plaster surfaces:

Careful examination of the old coating and its substrate is necessary in order to determine the condition of the surface.

#### Surface Examination

- Shave the old coating in various places with a knife to ascertain its present
- adhesion to the substrate as well as the flexibility of the dry film.
- Inspect the substrate for firmness.
- If the old coating and or its substrate have a tendency to powder or shatter easily under the knife or disbonds freely from the substrate, it would indicate that total removal is advisable.
- If the old coating and its substrate are sound in all aspect, it would indicate that total removal is not necessary.

Total removal of old coating:

- Remove by mechanical means or by stripping with paint stripper.
- Proceed as per specification for preparation of new surfaces .....  
EXCEPT, add Penlac Fungicidal Treatment to the wash water.

The old coating wil not be removed:

- Proceed as per specification of new surfaces .....EXCEPT add Penlac Fungicidal Wash to the wash water and perform an additional step by rinsing with ample water to which Penlac Fungicidal Treatment is added.

Application methods

- Brush, roller, or airless spray.

Application parameters

- Environment: 20.35°C, 50-85% R.H
- Recommended Coverage: 8-10 m<sup>2</sup>/ lt per coat, 30 microns DFT

Dry time: Surface dry: 2 hours at 25°C  
75 microns wet film thickness  
Recoat interval: 5 hours minimum at 25°C

***Safety precautions: Refer to material safety data sheet.***

## **PENTEX**

### Description:

Decorative paints designed to give texture and protection to ceilings and walls.

### Where to apply:

On ceiling, interior or exterior walls.

### Physical characteristics:

Finish:	Matt
Colour:	White
Solid condition:	47%
Coverage:	0.47 m <sup>2</sup> /Lt at 1 mm thickness on smooth surfaces.
Reflectance:	-
Specific gravity:	1.48 25°C
Drying time:	24 hours

Application methods: Rollers, trowels and stiplers

Thinner:

Cleaning purposes: Water

### Surface preparation and painting procedures:

Any new concrete surface should be allowed to dry for at least 1 month.

### Powdery Surface:

- Should be washed and scrubbed thoroughly then allow to dry.
- Apply one coat of Penlac's Chlorinated Rubber Sealer, allow to dry for six hours.
- Never apply *Pentex* on hot surfaces, as too rapid drying will cause the coating to detach itself from the substrate.
- On new surfaces first apply one coat to Penlac's Chlorinated Rubber Sealer, allow to dry for six hours then overcoat with either Pencryl or Pentop Emulsion White.

***N.B: For more information please do not hesitate to contact our technical department.***

## **FUNGICIDAL WASH**

Penlac fungicidal wash is a specially formulated solution for the treatment of surfaces attacked by fungus and algal growth. It is used in conjunction with Penlac Treatment.

Use: Wash and scrub with Penlac fungicidal wash. Allow to dry overnight.

N.B: Avoid direct skin contact with the above mentioned products. Rubber gloves and goggles must be worn. In case of accident, wash thoroughly with water and seek medical advice.

The surfaces can then be painted the following ways:

Apply one coat of Clear Emulsion Binder followed by 2 or 3 coats of Pencryl Interior/Exterior. Allow to dry 3 hours between each coat.

*N.B: Specification subject to change without notice. For further information, please contact our technical department.*

## **FUNGICIDAL TREATMENT**

**Description:** Penlac Fungicidal Treatment is a low toxicity bactericide, fungicidal and algicide with spectrum activity.

For sterilization of mineral substances prior to painting.

**Surface Preparation:** New surfaces should be sound and clean, wash with fresh water to remove any salts and contaminants. Surfaces which have been soiled by fungi, algae should be thoroughly washed with Penlac Fungicidal wash and cleaned to remove all traces of contamination. Allow to dry before applying Penlac Fungicidal Treatment.

**Application Method:** Apply generously with a stiff brush ensuring maximum penetration onto the surface.

**Drying Time:** Allow to dry for 24 hours. Treatment should be repeated if the product has been washed away by rain.

**Thinning:** Thinning is not recommended.

**Cleaning of Tools:** Fresh water.

**Safety:** Avoid contact with skin, eye and inhalation of solvent vapours or paint mist. Wear protective clothing, goggles, gloves, shoes and respiratory equipment. In confined spaces provide adequate ventilation during application and drying.

## **PENCRYL INT/EXT**

Decorative, exterior/interior, high quality paints for concrete surfaces with built-in fungus resistance particularly suitable for sub-humid and dry regions.

Binder:	P.V.A/Acrylic copolymer
Colour:	As per Penlac colour card
Thinner:	Thinner
Application:	Brush, roller, airless spray
Coverage:	30-40m <sup>2</sup> 4lts per coat
Finish:	Matt

### **Surface Preparation and Printing Procedures**

#### Old powdery surfaces:

Wash off dust and loose paint. Allow to dry 24 hours. Apply one coat of "Penlac Clear Emulsion Binder". Allow to dry at least six hours.

Apply 3 coats of Pencryl Int/Ext.

#### Surface attacked by fungus and algal growth:

Wash and scrub with Fungicidal Wash, allow to dry 6 hours. Apply Fungicidal Treatment. Allow to dry overnight.

If surface is powdery apply " Penlac Clear Emulsion Binder" followed by three coats of Pencryl Int/Ext. Allow 3 hours between coats. If surface is sound, just apply three coats of Pencryl Int/Ext.

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **V.I.P SATIN EMULSION WHITE**

### Washable

- Decorative Satin Emulsion paint *for interior/exterior* walls and ceilings.
- Can be applied on concrete surfaces and wood.

### Composition

Resin: Vinyl Acrylic Resin  
Pigment: Titanium Dioxide  
Extenders: Minerals  
Solvent: Water

### Technical Specifications

Specific gravity at 28°C - 1.3  
Solid content by weight - 53%  
Drying time - Touch dry 45 minutes  
- Overcoating period 3 hours  
Wet covering power (100 microns) 10 m<sup>2</sup>/litre

### Application for new surfaces

The surface must be clean, grease and dust free.  
Apply one coat V.I.P Satin Emulsion diluted with 10 - 15% water.  
After three hours apply second and third coat.

### Application for old surfaces

Wash thoroughly all powdery particles, loose or flaking paints. If attacked with fungus, treat surface with Penlac Fungicidal Wash, allow to dry for three hours, apply one coat of Penlac Fungicidal Treatment, and allow to dry for six hours. Then proceed with V.I.P Satin Emulsion as on a new surface.

If surface is powdery apply one coat of Penlac Chlorinated Rubber Sealer, allow to dry for three hours, then proceed with V.I.P Emulsion, as on a new surface.

### Precautions

When using Penlac Fungicidal Wash and Penlac Fungicidal Treatment avoid contact with skin. Wear protective gloves and goggles.

## **PENTOP (in accordance with Seychelles Standard SS26)**

Top quality super tough Acrylic Emulsion paint with excellent resistance to weathering, fungus, abrasion and staining.

Colours available: Black and white and as per Penlac colour chart.

Thinner: Water

Touch dry: Less than 20 minutes in dry weather

Application: Brush, roller, airless spray

Coverage: 35 - 45 m<sup>2</sup>/ 4lt/ coat

Finish: Very smooth or slight sheen.

### **Suggestion for superior paint work**

#### New Concrete:

Wash with water to remove dirt and excess alkali. Allow surface to dry and then apply one coat of Pentop diluted 5:1 with water. Allow to dry half an hour then apply two final coats of Pentop diluted 10:1 if necessary. Allow half an hour to one hour between the two final coats.

#### Old Concrete:

If the paint work is in good condition, lightly clean the surface with a moist cloth and apply two necessary coats of Pentop as per above.

If the surface is highly contaminated with fungus, wash and scrub with Penlac Fungicidal Wash, (which will bleach the surface). Allow to dry, then apply (by brush), Penlac Fungicidal Treatment, and allow to dry before painting as for new concrete.

If the surface is powdery (chalking) wash and scrub with water and allow to dry. Then apply one coat of Penlac Penlith or Penlac Chlorinated Sealer. Allow the sealer coat to dry thoroughly 2 - 3 hours and then proceed as for new concrete.

#### General

Painting should be done in dry weather. Pentop has been specially formulated and tested to provide a top class and long-lasting paint job on concrete. However, if there is need for a top quality matt finish, it can also be applied on properly primed metal, wood, plywood, hardboard and particle board surfaces.

## **ZINC PHOSPHATE PRIMER/ALKYD PRIMER**

Traditionally highly effective “black steel” primer.

It is a general purpose, high opacity, economic primer with excellent adhesion to black steel. The primer can be applied directly over the dry, clean steel or over the surface treated with rust converter. The primer is overcoated as follows:

- Universal Undercoat
- Super Gloss Enamel or
- Gloss paint aluminium

Binder:	Long oil penta alkyd
Pigment:	Synthetic Red Iron Oxide/ Zinc phosphate
Solid by volume:	52%
Solid by mass:	75%
Thinner:	Testbenzin
Application:	Brush, roller or spray
Coverage:	35m <sup>2</sup> / 4lts per coat on flat surface
Touch dry:	4-8 hours (depends on ambient conditions)

### Surface preparation and product utilization

Remove loose rust manually or mechanically (rotating with brush or grinder). It is good practice to heat the surface to above 100°C with a blow lamp. This will remove organic contaminants and (more important) remove surface moisture (essential for rust formation). Apply the primer while the surface is still hot 50-60°C. In this case a second primer coat should be applied as soon as possible, so as to form an impervious moisture barrier to condensing moisture when the surface cools below dew point.

When heating the surface is not possible, treat the metal with rust converter. Allow the surface to react at least 48 hours (the colour of the product changes from dark brown to very dark blue) brush off any loose product and apply Penlac Zinc Phosphate Primer. It is best to apply the primer coat with a stiff brush or airless spray to allow intimate contact of the primer with the surface. Always stir the product well before use.

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **UNIVERSAL UNDERCOAT**

A top quality alkyd based undercoat with high hiding power, good flow and durability. Suitable for wood and most certainly not for concrete applications.

Colour:	White
Binder:	Medium/long oil pentaerythritol alkyd
Pigmentation:	Rutile titanium dioxide
Thinner:	White spirit
P.V.C:	55-60
Volume solid:	60-65
Touch dry:	4-6 hours
Application:	Conventional spray, brush or roller
Supply viscosity:	160 secs. at 27°C (Ford cup No.4)

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **SUPER GLOSS ENAMEL**

Quick drying, high gloss marine plant, for general decoration and protection of metal or wood surfaces.

Colour:	White/Coloured
Binder:	Medium/oil pentaerythritolakyd
Pigmentation:	Rutile titanium dioxide/coloured pigments
Thinner:	Testbenzin
P.V.C:	17%
Volume solids:	45%
Solid by mass:	64-68%
Touch dry:	4-6 hours
Application:	Conventional sprays, brush or roller
Supply viscosity:	90 secs at 27°C (Ford cup No.4)

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **BRILLIANT LEAFING ALUMINIUM**

One pack aluminium topcoat for corrosion protection of metallic surfaces to obtain maximum brilliance.

Binder:	Long oil pena alkyd
Pigment:	Aluminium flakes
P.V.C:	20%
Volume solids:	35%
Solids by mass:	60-65%
Thinner:	Testbenzin
Touch dry:	$\pm$ 8 hours (depends on ambient conditions)
Coverage:	35m <sup>2</sup> /4lts/ coat (flat clean surface)

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **BITUMINOUS ALUMINIUM PAINT**

### Description

One component bitumen based, evaporation drying aluminium finish for protection and decoration of correctly prepared and primed metal surfaces. Can also be used to coat asphalt used for waterproofing concrete slabs.

### Solid % by mass:

±40% (as supplied)

### Viscosity:

Ford cup No.4 ±70 secs at 28°C as supplied

### Specific gravity:

±0.96 (as supplied)

### Thinner:

Testbenzin

### Drying time:

Coated objects can be handled after 24 hours drying in dry conditions.

### Overcoating interval:

3-4 hours in dry conditions

### Application:

Brush, roller or spray. Adjust viscosity as necessary with testbenzin to suit application method.

### Coverage:

35-45m<sup>2</sup> per 4lts per coat when applied on flat cool smooth and non-absorbent substrate. Coverage will be less in hot conditions due to faster evaporation of solvent.

### Shelf life:

The product can be stored for at least one year when kept in cool conditions and away from direct sunlight. If only part of the paint has been utilised no will be formed if the remainder is kept in a closed can.

Priming:

Penlac's bituminous aluminium paint can be applied on the following products:-

1. Red Oxide
2. Zinc Phosphate Primer
3. Universal Undercoat

Overcoating:

Penlac's bituminous Aluminium paint should be overcoated with same.

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **CLEAR VARNISH**

This clear varnish recommended for interior and furniture coatings is available in gloss, satin and matt finishes.

Binder:	Long oil alkyd resin 75% solid + Polyurethane resin 68% solid.
Thinner:	Testbenzin
Application:	Brush, spray
Coverage:	8m <sup>2</sup> /lt
Touch dry:	3-4 hours
Supplied viscosity:	90 seconds at 28 centigrade (Ford cup No.4)

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **CHLORINATED RUBBER BASED PRODUCTS**

These are non-convertible coatings. That is they dry by solvent evaporation and not by change in structure (from chemical reaction) of the polymer molecule. Thus the dry coating remains soluble in its original solvent.

### **Advantages of these products**

1. Quick drying - touch dry in 15-30 minutes.
2. Can be applied on properly prepared wood, metal or concrete.
3. They are single pack products, which do not require the addition of a hardener to dry.
4. Excellent resistance to dilute acids, alkalis, salts, mineral oil and greases.
5. Good resistance to petrol, diesel, kerosene, industrial methylated spirits.
6. Excellent intercoat adhesion since a freshly applied coat tends to dissolve (and thus bites well into) the underlying coat of chlorinated rubber based paint. It is in fact very difficult to separate successive coats of chlorinated rubber.
7. Very low water vapour permeability.
8. Good flow properties (do not leave brush marks).
9. Excellent adhesion of the primers on well-prepared mild steel, galvanised steel and aluminium.
10. Complete colour range.
11. Will not support mould growth and bacterial attack.
12. Fully washable.
13. Long storage stability and no skin formation even if half used tins are kept.
14. Due to the high chlorine content of the polymer these paints tend to burn with difficulty.

### **PRECAUTIONS**

1. These paints are not resistant to animal fats and strong solvents such as ketones, aromatics, esters, glycol ethers and others.
2. These paints contain inflammable aromatic solvents, which are also toxic by inhalation and ingestion. No smoking should be allowed when they are used. They should not be applied in confined spaces, without proper safety precautions.

### **WHERE TO APPLY**

1. Chemical plants, refineries, sugar factories, bridges, stores etc..., for protection of steel structures and mild steel sheets, or galvanised steel sheets.
2. Road marking paints.

3. Concrete surfaces such as exterior walls of building in areas of high fungus incidence and interior walls where a fully washable coating is required. Eg. Bathrooms, hospitals, w.c.
4. Ships for the protection of hull, decks, cabin areas and cargo holes, cranes and gantries.

## **SURFACE PREPARATION**

### **Black Steel**

If sand blasting is performed, it should be followed by the application of a zinc chromate primer containing either an epoxy resin or a chlorinated rubber resin as binder.

This primer can then be overcoated by a chlorinated rubber undercoat and be topcoated by one or a few coats of a chlorinated rubber enamel, or super gloss enamel paints.

If no sand blasting is performed any rust present can be removed mechanically with a grinder, rotating metallic brush or chipping.

These can be coupled with a chemical inactivation of the rust converter.

The rust converter should be allowed to react for 48 hours, any excess brushed or wiped off and the dry surface coated with chlorinated zinc chromate primer. The primer should then be overcoated with the chlorinated rubber enamel to achieve the required film thickness.

### **Galvanised steel (new and weathered)**

Etch the surface with Penlac galvanised iron cleaner. Allow to react for 5-10 minutes. Wash with water. Prime the dry surface with chlorinated zinc chromate primer followed by chlorinated rubber enamel.

If, utmost adhesion to properly etched galvanised steel is required, prime with two pack etch primer. After a minimum of 3 hours drying time apply the chlorinated rubber enamel system.

### **Aluminium**

Degreased with a detergent and allow to dry. Prime the dry surface with chlorinated zinc chromate primer followed by the required number of coats of chlorinated rubber enamel.

### **Concrete (new)**

Apply three coats of chlorinated rubber enamel. The first coat may be diluted with slow aromatic thinner to give better penetration into the surface.

### **Old (Powdery surface)**

Wash the surface with water hand brush.

Allow to dry thoroughly and apply one coat of chlorinated rubber sealer followed by two or three coats of chlorinated rubber enamel.

### **Concrete with fungus**

Wash and brush with fungicidal wash and water. Allow to dry and apply one coat of fungicidal treatment. Allow to dry and on the dry surface apply either 3 coats of chlorinated rubber enamel on one coat of chlorinated rubber sealer clear followed by two coats of chlorinated rubber enamel.

### **Wood and allied products**

On the dry clean surface apply one coat of chlorinated rubber undercoat white, followed by two coats of chlorinated rubber enamel.

***N.B: For further information on individual products consult the individual data sheets or contact our technical department.***

## **CHLORINATED RUBBER ENAMEL WHITE**

Binder:	Chlorinated Polymer
Pigment:	Rutile Titanium dioxide
Colour:	White
Volume solid:	35%
Supply viscosity:	90s for cup no. 4 at 25°C
Thinner:	Slow Aromatic solvent
Touch dry:	15-30 minutes
Overcoating Interval:	1-2 hours
Coverage:	(minimum) 30m <sup>2</sup> /4 lt/coat
Applications:	Brush, roller, airless spray

### **Precautions:**

These paints contain toxic and inflammable aromatic hydrocarbon solvent and they should only be applied in well-ventilated conditions. No smoking should be allowed when using these paints in confined spaces.

***N.B:** Specification subject to change without notice. For further information, please contact our technical department.*

## **PENLAC CHLORINATED RUBBER ZINC PHOSPHATE OXIDE PRIMER**

One pack drying high coverage primer with utmost adhesion on correctly prepared galvanised steel or mild steel. It is recommended to be used in conjunction with Penlac two pack etch primer and to be overcoated by a chlorinated rubber based top coat.

Binder:	Chlorinated Polymer
Pigment:	Zinc phosphate and others
Colour:	Reddish brown
Volume solids:	37%
Solid by mass:	58%
Supply viscosity:	90 secs. (Ford cup No.4) at 25°C
Thinner:	Penlac slow aromatic solvent
Touch dry time:	15-30 minutes
Overcoating interval:	2-4 hours (depending on ambient conditions)
Coverage:	(Min) 30m <sup>2</sup> /4 lts
Application:	Brush, roller, airless spray

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **PENLAC RUBBERISED ROAD MARKING PAINT**

Binder:	Modified quick drying Alkyd.
Pigment:	Rutile titanium dioxide and extenders for white. Adequate weatherfast pigments for other colours.
Volume Solids:	(For white) 50%±
Viscosity (as supplied):	(± 90secs at 28°C Ford cup No.4)
Thinner:	Chlorinated rubber thinner/ automotive thinner
Touch dry:	± 15 mins for 50m (microns) wet film at 28°C
Minimum overcoating interval:	1 hours (in dry warm weather)
Hiding power:	Complete obliteration of black and white background 175 micron wet paint.
Reflectance:	Greater than 75%
Application:	Brush or airless spray
Coverage:	25m <sup>2</sup> / 4 lts/ coat (on average substrate)

### **Precautions:**

These paints contain toxic (narcotic) and inflammable aromatic hydrocarbon solvents. They should be applied in well-ventilated conditions. No smoking should be allowed when using these paints.

***N.B:*** *Specification subject to change without notice.*

## **TWO PACK ETCH PRIMER**

### Purpose:

To promote adhesion of subsequent paint coatings onto mild steel or galvanised iron and aluminium.

This primer does not provide on its own long term corrosion protection of ferrous substrates.

### Binder:

Blend of Polyvinyl Butyral and acid hardening phenolic resin.

### Pigment:

Zinc Chromate

### Product Presentation:

- Base: Bright yellow liquid: supply viscosity (ford cup No.4 at 25°C) 60-70 S S.g 0.85-0.95.
- Catalyst: Free flowing watery liquid packed in polyethylene bottles.
- Storage: Base and catalyst must be kept in their original closed containers hence they will keep for at least three months.
- Mixing ratio: Base:- 3 kgs          Catalyst:- 0.75 kgs
- Pot Life: The mixture is ready for use after maturing for about half an hour. The mix only keeps for about eight hours after which the properties gradually change.

After 24 hours the mixture will have very poor adhesion when applies on metal.

### Surface Preparation

- Mild steel: Sandblasting - followed by degreasing with methlene chloride or acetone.
- Galvanised Steel: Etch for 5-10 minutes with Penlac Etch solution, wash with water. Allow to dry.
- Application: Brush, roller or air spray.
- Thinner: Penlac Etch Primer thinner.

- Recommended dry film thickness: 10 microns
- Overcoating interval: 30 minutes. Only one coat of Two Pack Etch Primer required. Further coats should consist of an anticorrosive primer such as Penlac yellow chromate primer followed by the usual Undercoat/Gloss or Alkyd based micacious Iron Oxide, the primer can also be safely overcoated by Penlac chlorinated rubber, polyurethane, epoxy and automotive paints after two or three hours drying time.

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **TWO PACK ACRYLIC VARNISH**

### General Characteristics:

Two pack acrylic, with outstanding resistance to salts, dilute acid and alkalis, usual solvents, greases and oils and ultra-violet radiation. It also passes outstanding abrasion resistance and is thus recommended for parquet flooring. The varnish produces a practically impermeable high gloss film, which is non-yellowing. It is highly suitable for marine use. It can be combined with inateinte light fast dyes for interior/exterior decoration. It is highly suitable for furniture submitted to heavy wear.

### Pot Life:

Use mix before 4 hours.

### Overcoating:

A second coat can be applied on still tacky first coat or on a sanded fully cured first coat.

### Drying time:

Touch dry 3-8 hours, depends on environmental conditions. Curing time around 7 days.

The painted surface should not be wetted until the paint is at least touch dry.

### Dilution:

Use only two-pack acrylic thinner.

### Shelf Life:

Hardener is sensitive to atmospheric humidity and must be kept tightly closed.

### Base:

Can keep for at least one year in original closed container.

### Application:

Brush or air spray.

## **EPOXY COATING FOR NEW CONCRETE**

### **Recommendation for surface preparation of new concrete for application of an Epoxy coating.**

A new concrete surface should be allowed to cure for at least twenty-eight days and all surface laitance removed before any epoxy coating is applied.

#### Mechanical Cleaning

Surface laitance can be removed by sanding with a rotary type sander with a coarse disc or with a drum type floor sander. Mechanical wire brushing will only remove light laitance and is less effective than sanding. Grit blasting or scarifying with mechanical failers are not recommended since they tend to produce rough surfaces which are unsatisfactory for epoxy application. As mechanical methods of cleaning generate a lot of dust, good ventilation and face protections with suitable facemasks are necessary.

#### Acid Etching

Although acid etching effectively removes laitance and provides a satisfactory lightly profiled surface, this method has a number of practical difficulties and is therefore not recommended. Adequate drainage is required to carry away the washing water which must be applied after etching, to wash to neutral (Ph7). The floor must be thoroughly dried before applying the topping. If the concrete contains metal reinforcement this may be attacked by acid penetrating through cracks, acid fumes can also damage unprotected metal, e.g equipment, which may be present. Operatives carrying out etching operation should be well protected from acid burns - protective clothing, boots, gloves and goggles should be worn.

If, however, it is decided to carry out acid etching, commercial muriatic acid ie. Concentration hydrochloric acid normally supplied at 30% solution, should be diluted to about 10-15% concentration and applied at a spreading rate of 0.5 lt/m<sup>2</sup>. The acid should be seen to react by uniform bubbling over the surface.

#### Other Contaminants

New concrete may be contaminated by residues such as roofing tar, paint, plaster, oils, waxes, etc...., resulting from building operations. These should be removed by mechanical cleaning.

#### Epoxy coating application

After completing the appropriate surface preparation and ensuring that the concrete surface is completely dry, the first coat of epoxy enamel can be applied. For better penetration and surface adhesion, it is recommended that the first coat be diluted up to 15% with epoxy thinner. Two additional full coats, diluted up to 10% with epoxy

thinner, can subsequently be applied within intervals of 6 to 12 hours. To achieve good intercoat adhesion, it is important that overcoating is done before 12 hours. A curing period of 7 days is recommended for epoxy coatings.

### Safety

The epoxy system contains volatile, narcotic and inflammable solvents and they should be used in well ventilated areas with no source of flame or spark. No smoking should be allowed.

The epoxy base and or the polyaminoamide hardener can cause allergic reactions with certain sensitive individuals, such as skin rashes or asthma. Should such symptoms develop remove the individual from contact with the products and contact a physician.

The information in this data sheet is not a guarantee of the performance of the product.

**Should additional information be required for specific cases, please contact our technical service department.**

## **EPOXY ZINC PHOSPHATE OXIDE PRIMER**

Two components primer for mild steel for galvanised steel or aluminium. It is advisable to use the primer in conjunction with tow pack etch primer to achieve best adhesion.

Binder:	
Base:	Epoxy resin
Hardener:	Polyaminoamide
Active Pigment:	Zinc chromate
Colour & appearance of cured film:	Reddish brown with high opacity & slight sheen
Solid by volume:	55-60%
Solid by mass:	75%
Touch dry:	4-8 hours
Minimum overcoating interval:	when the primer is touch dry
Maximum overcoating interval:	

It is advisable to achieve best adhesion to overcoat the primer within 24 hours. To overcoat fully cured primer it is recommended to sand the primer with grade 300 emeri paper to improve intercoat adhesion. In cases, where the primer has remained exposed for extended periods and has become soiled and contaminated, it is necessary to clean the surface with detergent, roughen it with sandpaper and then overcoat the clean and dry prime surface.

### Overcoating

The cured primer can be overcoated by any of the following systems:-

- Epoxy based products
- Polyurethane based products
- Chlorinated based products
- Alkyd based products

### Coverage:

35m<sup>2</sup>/ 4 lts (of base/hardener mix) coat on clean, dry and smooth and flat surface.

Thinner: Epoxy thinner

Application: Brush, roller, airless spray

Mixing ratio:

PACKING	BASE (KGS)	HARDENER (KGS)
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By weight:	4 lts	5.00	0.60
	2 lts	2.50	0.30
	1 lts	1.25	0.15

By volume:	BASE	HARDENER
	5 lts	1 lts

Pot life:

Use base/hardener mix before 3 hours, thinning with thinner tends to lengthen pot life. Do not keep unused base/hardener mix overnight it will solidify and become useless.

Surface preparation (mild steel)

Sand blasting is the best. The primer can also be applied on surfaces treated with Penlac rust converter after the rust converter has been allowed to react for 48 hours.

Shelf life:

At least one year for original factory sealed containers.

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **EPOXY UNDERCOAT**

Two pack economical undercoat with high opacity and enough in built structure to prevent dripping and allow good coverage of sharp edges. Supplied in white slightly tinted (pastel shades). This undercoat should be used in conjunction with Epoxy Zinc Chromate.

Binder:

Base: Epoxy Resin

Hardener: Polyaminoamide

Colour & appearance: White & Pastel shades, with high opacity & slight sheen

Solid by volume: 60%\*

Solid by mass: 75%\*

\*These apply for unthinned base/hardener mix.

Mixing ratio (both components unthinned)

	BASE	HARDENER
By mass:	5.000 kg	0.750 kg
By volume:	4.0 lt	1.00 lt

Pot life of mix:- 6 hours for 1 kg of undiluted base/hardener mix. Thinning with epoxy thinner and low ambient temperature will lengthen pot life. Base /hardener mix should not be kept overnight. They will react to a solid useless mass.

Application:- Brush, roller or airless spray. Adjust viscosity with epoxy thinner to suit mode of application.

Dilution:- Epoxy thinner. This can also be used as equipment cleaner.

Touch dry:- 4 to 8 hours, depends on ambient conditions.

Coverage:- 35m<sup>2</sup>/ 4lt/ coat of undiluted base/hardener mix.

Minimum overcoating:- When the film is touch dry.

Maximum overcoating:- Fully cured epoxy undercoat should be roughened with grade 300 emeri paper wiped free of dust and then overcoated. If the undercoat is soiled, it should be wiped clean and decreased with detergent solution before sanded. The dry and clean undercoat surface should then be overcoated.

## EPOXY ENAMEL

Two pack paint with high gloss and gloss retention, non-yellowing with excellent chemical and physical resistance. This coating exhibits excellent adhesion when applied on wall prepared epoxy zinc rich primer, epoxy zinc chromate primer or epoxy undercoat (see individual product specification).

Binder:

Base: Epoxy resin

Hardener: Polyaminoamide

Pigment: Rutile titanium dioxide

Thinner: Epoxy thinner

Solids by weight: 75-80%)

Solids by volume: 65-70%) These apply for undiluted base/hardener mix.

Mixing ratio: (Both components unthinned)

	BASE	HARDENER
By mass:	1 kg	0.25 kgs
By volume:	3 kgs	1

Pot life (of mix):- 6 hours for 1 kg of undiluted base/hardener mix. Thinning with epoxy thinner and low ambient temperature will lengthen pot life.

Base/hardener mix should not be kept overnight. They will react to a solid useless mass.

Shelf life:- Unmixed base and hardener can be kept for one year in their original factory sealed containers.

Application:- Brush, roller or airless spray. Adjust viscosity with epoxy thinner to suit mode of application.

Minimum overcoating:- 6-10 hours (depends on ambient conditions)

Maximum overcoating:- The fully cured enamel can be overcoated if its surface is properly cleaned and degreased and slightly roughened with grade 300 emeri paper.

Coverage:- (undiluted base/hardener mix)  
35m/ 4 lts/ coat on a flat, clean and dry surface.

***N.B: Specification subject to change without notice. Further information, please contact our technical department.***

## **PENLAC EPOXY ENAMEL HARDENER (POLYAMINAMIDE)**

### General Characteristics

Two pack epoxy enamel, non-yellowing, with excellent chemical and physical characteristics. Recommend for marine and industrial use.

### Colour

Black, white and as per Penlac colour chart.

Mixing ratio:	BASE	HARDENER
By mass	4	0.930

This mixing ratio is for both components unthinned.

Dilution:- Use only Penlac Epoxy thinner. This solvent can also be used as equipment cleaner.

Shelf life:- One year for individual components in original containers.

Pot life:- Use mix before 3 hours. thinning and low ambient temperature will lengthen the pot life.

Application:- Spray, brush or roller. Adjust the viscosity with thinner to suit the mode of application.

Volume solids (undiluted): Approximately 65%

Theoretical spreading rate (undiluted)

At 155/ $\mu$ m wet film or a non absorbent substrate = 6m<sup>2</sup>/lt.

## **EPOXY PUTTY**

Two components solvent free epoxy putty cured with an aliphatic amine adduct, for industrial, automotive and marine use.

Advantages:-

1. Excellent adhesion on well prepared wood, metal and concrete.
2. Does not shrink on curing.
3. Does not sag.
4. Quick curing. The putty can be sanded 6 hours after application.
5. Can be polished to a smooth finish.
6. Resistant to a large range of chemicals.
7. When kept separately the hardener and base can be stored for extended periods without impairing their characteristics.
8. Non toxic when fully cured.

Product presentation:

Base:	Greyish paste (colour can be changed on order)	
Hardener:	Clear syrupy liquid with smell of ammonia	
Packing:	Sold by weight. (Usually 1.5kgs pack of base and 220 gms hardener)	
Mixing ratio:	BASE	HARDENER
By mass	1.5 kg	0.220 kgs

Keep the mixing ratio for optimum result and ensure that both components are thoroughly mixed. Mix only small amounts at a time.

Pot life: 15 minutes for 100 gms of mix. The putty should be applied as soon as both components have been thoroughly mixed.

Application method: Use a spatula.

Surface preparation:

**Steel -** Must be dry, clean and rust and paint free.

**Wood -** Must be dry free of dry rot, paint etc ..... weathered.

**Wood -** Should be scraped off.

**Concrete -** Should be dry, free of dirt and surface laitence.

**Cleaning of hands -** Excess putty can be washed off using warm water and soap before the putty has cured.

***N.B: Specification subject to change without notice. For further information, please contact our technical department.***

## **PAINT REMOVER**

Highly effective time and labour saving water washable, solvent based paint and varnish remover, for all types organic paints, primers, putties.

### **Method of use**

Apply remover with paint brush in a fairly thick coat.

Allow to react 5-10 minutes. The paint will crackle and lift off by itself. Scrape off the loosened paint using a scraper or putty knife, metallic brush or metallic wool will help in difficult cases.

Apply a further coat of paint remover if a very thick coating is encountered. Excess paint remover can be washed off the surface with water.

The paint remover can be used on metal and wood surfaces. On plastic and G.R.P (glass reinforced polyester) surfaces care should be taken as the paint remover may also attack the plastic surface and in the case of G.R.P (eg. Fiber glass boats) induce delamination.

Ensure that the surface is free of paint remover, clean and dry before painting or varnishing again.

### **Precautions**

Do not store the closed tin of paint remover in warm environment and do not leave it exposed to direct sunlight. High temperature may cause the tin to burst open.

When not in use close the tin carefully to avoid evaporation of volatile active ingredient.

This paint remover contains inflammable constituents and is moderately toxic by inhalation, ingestion and skin absorption. It may also irritate eyes. In case of contact with eyes or skin wash with excess water. In severe cases consult a doctor. It should be used in well ventilated spaces. When using the product smoking should be forbidden.

Very long storage of partly used paint remover will reduce its efficacy.

This paint remover may attack certain adhesives, plastic pipes, vinyl tiles, and other plastic materials.

## **ACRYLIC PAINT SPRAYING**

Recommended air pressure for spraying acrylic lacquers is low than that recommended to spray **nitrocellulose**.

### **Why?**

1. Because acrylic have a rapid initial surface dry.
2. Acrylic lacquers have a lower application viscosity.
3. A different spraying set up is used.
4. The solid content of acrylic lacquers is higher than **Nitrogen**.

### **The method paint metallic spraying**

#### **Why?:**

It is particularly important to be aware of the air pressure and the pressure differential between the transformer/regulator and the spray gun when spraying metallic finishes.

1. Because these finishes should be applied at a lower viscosity than straight colour.
2. These finishes require a different spray gun "set up".
3. Variation in the atomising air pressure can vary the colour effect of these finishes.
4. These finishes dry faster.

## **VINYL TAR ANTI-CORROSIVE, HB**

VA-10

<b>TYPE</b>	Anti-corrosive paint for submerged steel structures based on Vinyl Resin and coal Tar with aluminium pigment.
<b>USES</b>	Anti-corrosive undercoat for ship bottom, boottop and submerged steel structures.
<b>CHARACTERISTICS</b>	<ol style="list-style-type: none"> <li>1. Very fast drying.</li> <li>2. Very good resistance to sea water.</li> <li>3. Tough and flexible.</li> <li>4. Good resistance to cathodic protection.</li> </ol>
<b>APPLICATION METHOD</b>	Airless spray, brush, roller
<b>COLOUR</b>	Silver Brown
<b>FINISH</b>	Flat
<b>FLASH POINT</b>	Above 14°C (57°F)
<b>SPECIFIC GRAVITY</b>	1.35
<b>VISCOSITY (25°C)</b>	75 ~ 90 KU
<b>DRYING TIME (25°C)</b>	Set-to-touch ½ hr Dry hard 2 hrs.
<b>OVERCOATING INTERVALS (25°C)</b>	Min. 3 hrs.
<b>OPTIMUM FILM THICKNESS</b>	Dry 75 microns (3.0 mil) Wet 136 microns (5.5 mil)
<b>VOLUME SOLIDS</b>	55%
<b>THEORETICAL COVERAGE</b>	7.35 m <sup>2</sup> /L 5.4 m <sup>2</sup> /Kg 0.136L/m <sup>2</sup> 184 g/m <sup>2</sup>
<b>THINNER</b>	VF-61 Vinyl Thinner
<b>THINNING RATE</b>	0 ~ 15% (by wt.)
<b>SUBSEQUENT COATS</b>	Chlorinated Rubber RA-11, RA-12, RA-13, RA-14, RA-15, RB-21, RB-22, RA-16, SP-77, SP-88 Hyper Self Polishing A/F

<b>STORAGE SHELF LIFE</b>	Maximum 1 year under normal storage conditions.
<b>FOR AIRLESS SPRAY</b>	Tip Size 0.019” ~ 0.025” Air pressure 4 ~ 5 kg/cm <sup>2</sup> Pump Ratio 23:1 or Greater
<b>NOTE</b>	<ol style="list-style-type: none"><li>1. Application of Vinyl paints should not be done in damp, foggy or rainy weather &amp; the relative humidity should never exceed 85%.</li><li>2. The temperature of the substrate should be minimum 3°C above the dew point of the air.</li><li>3. Before applying Vinyl Tar A/C, steel surfaces must be thoroughly cleaned, to avoid paint film deterioration.</li><li>4. Coat tar in this paint may bleed into subsequent coats.</li><li>5. Beware of its poor resistance to solvents and oils during application.</li></ol>

## **HYPER TIN-FREE SELF-POLISHING A/F (ABLATIVE A/F)** **SP-99**

<b>TYPE</b>	A Tin-free self-polishing, long-life anti-fouling paint based on Hyper-special compounds, Tin-free Self-Polishing Copolymer and Inorganic Toxins.
<b>USES</b>	Long life anti-fouling topcoat for ship bottoms. Paint film can self-polish with the impact of water to a constantly smooth surface. The anti-fouling capacity is directly proportional to paint film thick.
<b>CHARACTERISTICS</b>	<ol style="list-style-type: none"> <li>1. Tin-free TYPE, can prevent seawater pollution.</li> <li>2. Fresh smooth film can be kept by impact of water flow.</li> <li>3. Self-Polishing effect can reduce friction and save fuel consumption.</li> <li>4. Very long life and excellent anti-fouling effects.</li> <li>5. Tough and abrasion resistant.</li> <li>6. Very fast drying.</li> </ol>
<b>APPLICATION METHOD</b>	Airless Spray
<b>COLOUR</b>	Oxide Red, Red, Blue
<b>FINISH</b>	Flat
<b>FLASH POINT</b>	Above 26°C (80°F)
<b>SPECIFIC GRAVITY</b>	1.6 kg/L
<b>VISCOSITY (25°C)</b>	85 ~ 95 KU
<b>DRYING TIME (25°C)</b>	Set-to-touch 1 hr. Dry hard 4 hrs.
<b>OVERCOATING INTERVALS (25°C)</b>	Min. 6 hrs.
<b>OPTIMUM THICKNESS</b>	Wet 150 ~ 300 microns (8 ~ 12 mil) Dry 75 ~ 150 microns (3 ~ 6 mil)

<b>VOLUME SOLIDS</b>	50.0%
<b>THEORETICAL COVERAGE</b>	3.33 ~ 6.66 M <sup>2</sup> /L 0.150 ~ 0.300 L/m <sup>2</sup>
<b>THINNER</b>	RP-71 PCR Thinner
<b>THINNING RATE</b>	0 ~ 3% (by wt.)
<b>PRECEDING COATS</b>	SP-08 Epoxy Non-Zinc Shop Primer EP-05 Epoxy Anti-Corrosive VA-10 Vinyl Tar Anti-Corrosive, HB RA-12 Rainbow Chlor Rubber A/C, HB
<b>STORAGE SHELF LIFE</b>	Maximum 6 months under normal storage conditions.
<b>FOR AIRLESS SPRAY</b>	Tip size 0.021'' ~ 0.035'' Air Pressure 5 ~ 6 kg, cm <sup>2</sup> Pump Ratio 45:1 or Greater
<b>NOTE</b>	<ol style="list-style-type: none"> <li>1. For spray application the necessary health precautions must be observed.</li> <li>2. Apply differently colored A/F for 1<sup>st</sup> &amp; 2<sup>nd</sup> coats for differentiation.</li> </ol>

