
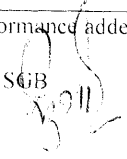
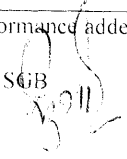
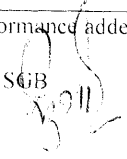


REF COMP. drg		TITLE: - CHEMICAL RESISTANT EPOXY BASED,RAPID RECOATING ZINC PHOSPHATE PRIMER		TRE/166					
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<p>1.0 GENERAL: This specification deals with the quality requirements of two pack Epoxy based rapid re-coatable air drying / oven drying chemical resistant primer pigmented with anticorrosive Zinc Phosphate.</p> <p>2.0 APPLICATION: The paint shall be used as a primer in the painting system for protection of steel work, both under marine and inland outdoor conditions. The paint shall be used as a high performance primer for application by brush / spray on Sa 2.5 prepared steel and suitable for force drying at $90 \pm 10^{\circ}\text{C}$ for 1 Hr after flash off time of min. 30 minutes. It should also be suitable for vapour phase drying operation of Transformer in Solvent Shellsol – H at 130°C for 96 hours.</p> <p>3.0 COMPLIANCE WITH NATIONAL STANDARDS: There is no national standard covering this material. However, assistance has been taken from the following national standards for preparation of this specification: i) IS: 14506 - 1998 : Epoxy red oxide zinc phosphate weldable primer, two component.</p> <p>4.0 COMPOSITION: The paint consists of two components i.e. base and accelerator. The base contains epoxy binder suitably pigmented with zinc phosphate, TiO_2 and extenders. The hardener is polyamide solution to cure the base.</p> <p>5.0 MIXING RATIO: The components of paint are to be mixed as recommended in the product data sheet supplied by the manufacturer of the paint: The type and content of the binding material as determined by infra-red spectroscopy or thin layer chromatography shall be strictly adhered to the "Type approved sample".</p> <p>6.0 COLOUR: Grey / Red oxide.</p> <p>7.0 FINISH: Smooth and matt.</p> <p>8.0 FREEDOM FROM DEFECTS: The base of the paint system shall remain free from defects like hard setting of pigments, skinning and livering when kept in closed container till its shelf life. The dried paint film shall be free from defects like brittleness, floating of pigments, surface haze, orange peeling, colour fading, wrinkles etc. when dried in oven at $90 \pm 10^{\circ}\text{C}$ for 1 hour and subjected to vapour phase operation at 130°C in Shellsol – H solvent for 96 hour after composite paint system. The paint shall confirm to the requirements of ISO 14001 and shall be free from lead/lead components.</p>									
<table border="1"> <tr> <td> Rev 01 </td> <td> Parameter for product performance added  Date : 30.09.09 </td> <td> चे. CHECKED & APPROVED S.G.Bokade चे. क्र. PREPD. Anuraj Deota </td> <td> दिनांक DATE 15.05.09 </td> </tr> </table>						Rev 01	Parameter for product performance added  Date : 30.09.09	चे. CHECKED & APPROVED S.G.Bokade चे. क्र. PREPD. Anuraj Deota	दिनांक DATE 15.05.09
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BASED, RAPID RECOATING ZINC PHOSPHATE
PRIMER**

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9.0 SAMPLING: As per IS: 101.

10.0 TECHNICAL REQUIREMENTS:

Unless otherwise specified, the sample (mixed paint) shall be tested in accordance with IS 101.

10.1 Mass per 10 litres: (IS 101Part 1, Sec 7/87)

14 kg per 10 litres, minimum

10.2 Consistency: (IS 101 Part 1 Sec 5/89)

Smooth & Uniform suitable for brush or spray application by thinner addition

Mix Viscosity : Min 250 gm @30⁰ C by Stormer

Thinner Intake (By Volume)

By Brush : 0-15%

Air Spray : 10-30 %

Air less Spray : 5-20%

10.3 Drying time at 30⁰ C (IS 101Part3, Sec 1/86)

Surface Dry : 3/4 Hr (Max)

Hard Dry : 4 Hr (Max)

1 Hour maximum in oven at 90 ± 10⁰ C after flash off time of 30 minutes at room temp.

10.4 Volatile matter, percent by mass: (IS 101Part 8, Sec 2/90)

25.0 maximum.

10.5 Pigment content, percent by mass: (IS 101Part 8, Sec 2/90)

50 % ± 5%

10.6 Volume solids, percent: (IS 101Part 8, Sec 6/93- SVM & disc to be air dried for 24 hrs)

63 % ± 3%

10.7 Dry film thickness: (IS 101Part 3, Sec 2/89)

40.0-75.0 microns / coat

10.8 Flash point: (IS 101Part 1, Sec 6/87)

Not below 24⁰ C.

10.9 Pot life at 30⁰ C: (IS 13213:91 Ann.E)

4.0 hours, minimum.

10.10 Zinc phosphate, percent by mass on pigment:

16 percent, minimum.

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10.11 Scratch Hardness (IS: 101, Part 5/Sec. 1):

After the film @75 microns DFT is cured for 7 days air drying and tested under load of minimum 2000 gm on MS Panel, no such scratch as to show the bare metal shall be produced

10.12 Adhesion by pull off using portable adhesion tester (ISO 4624)

Min. 8MPA on 2 mm Sa2.5 blasted MS panel when applied at 75 micron DFT after 7 days air drying.

10.13 Abrasion (ASTM D4060)

Max. 200 mg weight loss per 1000 cycle using CS 100 Wheels and 1 Kg loading @75 micron DFT on Sa 2.5 blasted MS panel and tested after 7 days air drying.

10.14 Adhesion Cross Cut (ISO 2409)

It should pass with classification 0 on Sa 2.5 blasted MS panel and tested after 48 hours air drying.

10.15 Impact (ASTM D2794)

Direct Impact resistance should pass min. 7 Joules on Sa 2.5 Blasted MS Panel and tested after 48 hours air drying.

10.16 Pencil Hardness (ASTM D3359)

It should pass minimum 2H @ 75 Micron DFT and tested after 7 days air drying.

10.17 Flexibility (ASTM D522)

It should pass minimum 12% elongation when applied at 75 micron DFT on tin panels and tested after 48 hours air drying.

10.18 Salt spray resistance (ASTM B117)

It should pass minimum 1000 hours without any scribe line corrosion or, film defect when applied at 75 micron DFT on Sa 2.5 blasted steel.

10.19 Over Coating Interval

Min 2 hour by spray & 4 hour by brush. Max. 12 months provided the surface is dry and clean from all contaminants.

10.20 Resistance to Condensation (IS: 101, Part 6/Sec. 8):

It should pass minimum 2000 hours without any defect when applied at 75 micron DFT on Sa 2.5 blasted steel.

10.21 Resistance to modified salt spray or prohesion test (ASTM G85)

It should pass minimum 2000 hours without any defect when applied at 75 micron DFT on Sa 2.5 blasted steel.

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10.22 Resistance to Cyclic Corrosion (ASTM D5894)

It should pass minimum 2000 hours without any defect when applied at 75 micron DFT on Sa 2.5 blasted steel.

10.23 Resistance to Immersion - Deionised & Demineralised Water (ISO 2812, Part1)

It should pass minimum 2500 hours without any defect when applied at 75 micron DFT on Sa 2.5 blasted steel.

10.24 Self Life (IS: 101, Part 6/Sec. 2/89)

Minimum 12 Months

11.0 TYPE APPROVAL:

11.1 Samples:

Samples for type approval testing shall be accepted only from those manufacturers whose manufacturing and testing facilities are considered satisfactory to ensure continuous supply of good product.

11.2 Type test:

11.2.1 Accelerated Tests (IS: 13213):

Tests shall be conducted as per procedure given below for chemical resistance to Sulphuric acid, Caustic potash, Oil & Solvents and the result shall not show any signs of bittyness, floating of pigments, surface haze, orange peeling, colour fading, wrinkles etc. Difference in gloss and colour between immersed and un-immersed area of paint film shall be minimum when tested with composite paint system including PU finish paint.

Resistance to Sulphuric acid:

Immerse 3/4 th of the panel in 30% sulphuric acid for 24 hours. Remove the panel, wash in running fresh water and allow it to dry for an hour.

Resistance to Caustic potash:

Immerse 3/4 th of the panel in 20% solution of potassium hydroxide for 24 hours. Remove the panel, wash in running fresh water and allow it to dry for an hour.

Resistance to Oil:

Immerse 3/4th of the panel in a insulating oil as per IS: 335 for 24 hours. Remove the Panel and wipe the excess oil with cotton, wash it with mineral turpine and allow to dry for 30 minutes.

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Resistance to Solvents:

Tests one panel each for resistance to xylene, ethanol, acetone and Shellsol - H respectively.

1. Take a clean white sterilized cotton and soak it in the solvent and place it on the painted panel without squeezing the cotton. Immediately cover the soaked cotton with a suitable watch glass and leave it for 6 hours. Remove the watch glass and the soaked cotton, wipe the area with clean dry cotton.
2. Keep the painted panel in chamber filled with Shellsol - H solvent at 130⁰ C for 96 hours.

12.0 TEST CERTIFICATES

Unless otherwise stated, three copies of test certificates shall be supplied along with each consignment giving following information: In addition, the supplier shall ensure to send one copy of test certificate along with the dispatch documents to facilitate quick clearance of the materials.

BHEL order No :

TRE/166 : Chemical Resistant Epoxy Based Rapid Recoating Zinc Phosphate Primer

Manufacturers/suppliers Name:

Trade name/mark, if any:

Batch/Lot No :

Quantity supplied:

Date manufacture & expiry:

Test results of clause 10 & 11:

T.C. No & date :

Mixing ratio :

13.0 KEEPING PROPERTY

When stored in covered dry place in the original sealed containers under normal temperature conditions, the material shall retain the properties prescribed in this specification for a period of not less than 12 months after the date of manufacture, which shall not be earlier than one month of the scheduled delivery date mentioned in BHEL order.

14.0 PACKING AND MARKING

Unless otherwise stated, base and hardener shall be packed separately in steel containers of appropriate capacities. Each container shall bear the following information:

TRE/166 : Chemical Resistant Epoxy Based Rapid Recoating Zinc Phosphate Primer

BHEL Order No.:

Manufacturers/ Supplier's name:

Trade name / Mark, if any:

Batch/Lot No.:

Mixing ratio:

Quantity supplied:

Date of manufacture & expiry:

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