RFF | COMP. drg

1.0 GENERAL:

This specification deals with the quality requirements of air / oven drying Chemical resistant Epoxy Based Priming Paint pigmented with Red Oxide Zinc Phosphate (two pack system).

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.
It should be suitable for vapour phase drying operation of Transformer in Solvent Shellsol – H at 130^0 C for 72 hours and oven drying at 90 ± 10^0 C.

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.
ii) IS: 12744 - 1989 : Alkyd base red oxide zinc phosphate primer paint

4.0 COMPOSITION:

The paint consists of two components i.e. base and accelerator. The base contains epoxy binder suitably pigmented with red oxide and zinc phosphate and extenders. The accelerator is polyamide and solvent to cure the base of the paint system.

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".

6.0 COLOUR: Red oxide.

7.0 FINISH: Smooth and matt.

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 bittyness, floating of pigments, surface haze, orange peeling, colour fading, wrinkles etc. when dried in oven at 90 ± 10^0 C for 1 hour and subjected to vapour phase operation at 130^0 C in Shellsol – H solvent for 72 hour.
The paint shall confirm to the requirements of ISO 14001 and shall be free from lead/ lead components.

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:
13.5 kg per 10 litres, minimum

10.2 Consistency:
40 ± 10 Sec in FC4 at 27 ± 2^0 C. Paint shall be mixed so that it produces a smooth and uniform paint suitable for brush application.

10.3 Drying time (Hard dry):
16 hours, maximum at ambient temp.
1 hours, maximum in oven at 90 ± 10^0 C.

10.4 Volatile matter, percent by mass:
30.0 maximum.

10.5 Pigment content, percent by mass:
45.0 minimum.

10.6 Volume solids, percent:
40.0, minimum.

10.7 Dry film thickness:
30.0 microns, minimum.

10.8 Flash point:
20^0 C, minimum..

10.9 Pot life at ambient temperature:
4.0 hours, minimum.

10.10 Zinc phosphate, percent by mass on pigment:
16 percent by mass, minimum.

10.11 Scratch Hardness (IS: 101, Part 5/Sec. 1):
After the film is cured for 7 days and tested under of 2000 ± 200 gm, no such scratch as to show the bare metal shall be produced.

10.12 Flexibility and Adhesion (IS:101, Part 5 /Sec. 2):
The film shall not show sign of damage detachment or cracking when tested after 4 days of curing.

10.13 Salt spray test for 96 hours (IS:101, Part 6 /Sec. 1):
The test panel prepared from this material shall show no signs of corrosion after continuous exposure for 96 hours in salt spray cabinet

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.

PROCEDURE:

Preparation of painted panels generally as per IS: 101.
Apply one coat of epoxy zinc phosphate primer (two packs) at minimum 30 microns dry film thickness by spraying and allow to dry in oven at 90 ± 10^0 C for 1 hours. Dry rub with emery paper No.400 and wipe clean with a dry soft cloth.

Note: For immersion tests prepare and paint both sides of the panels and protect the edges of the panels by sealing with chlorinated rubber 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.

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 130^0 C for 72 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 epoxide red oxide zinc phosphate priming paint
Manufacturers/suppliers Name:
Trade name/mark, if any:
Batch/Lot No :
Quantity supplied:
Date manufacture & expiry:
Test results of clause 9, 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 epoxide red oxide zinc phosphate priming paint
BHEL Order No.:
Manufacturers/ Supplier's name:
Trade name / Mark, if any:
Batch/Lot No.:
Mixing ratio:
Quantity supplied:
Date of manufacture & expiry:

15.0 REFRRED STANDARDS (Latest Publications Including Amendments):

1) IS:101 2) IS: 14506 3) IS:12744 4) AA56105