BHEL	CORPORATE PURCHASING SPECIFICATION	AA56105 167 Rev No.07 PREFACE SHEET

CHEMICAL RESISTANT EPOXIDE RED OXIDE ZINC PHOSPHATE PRIMING PAINT

FOR INTERNAL USE ONLY
REMOVE THIS PREFACE BEFORE ISSUE TO SUPPLIERS

Equivalent/Comparable Standards:

INDIAN IS 14506–1998

User Plants and Replaced Plant Specifications/References:

1) HEEP, HARIDWAR
2) HPBP, TRICHY

Revisions: As per clause 44.5.a) of MOM of MRC-CPO+NM			APPROVED: INTERPLANT MATERIAL RATIONALISATION COMMITTEE – MRC(CPO+NM)		
Rev No.07	Amd No.	Reaffirmed	Prepared HPBP, Trichy	Issued Corp.R&D	Dt. of 1st Issue 02-06-1980
Dt:01-02-2005	Dt:	Year:2015			

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CHEMICAL RESISTANT EPOXIDE RED OXIDE ZINC PHOSPHATE PRIMING PAINT

1 GENERAL

This specification deals with the quality requirements of two pack Chemical resistant Epoxy Based Priming Paint pigmented with Red Oxide Zinc Phosphate.

2 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.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply, in general, with the following national standards and also meet the requirements of this specification

IS 14506-1998 : Epoxy red oxide zinc phosphate weldable primer, two component

4 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 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 COLOUR

Red oxide.

7 FINISH

Smooth and matt

8 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.

9 SAMPLING

As per IS 101.

Revisions:
As per clause 44.5.a) of MOM of MRC-CPO+NM

APPROVED:
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10 TECHNICAL REQUIREMENTS

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

10.1 Mass per 10 litres

12.0 kg, minimum

10.2 Consistency

Paint shall be mixed so that it produces a smooth and uniform paint suitable for application.

40 - 60 secs by FC No.4 at 27± 2℃.

10.3 Drying time

a) Soft dry : 4 hours, maximum

b) Hard dry : 16 hours, maximum

10.4 Volatile matter, percent by mass

30.0, maximum

10.5 Pigment content, percent by mass

40.0, minimum.

10.6 Volume solids, percent

35.0, minimum.

10.7 Dry film thickness per coat

25.0 microns, minimum.

10.8 Flash point

20℃, minimum.

10.9 Pot life at ambient temperature (Annexure-A)

4.0 hours, minimum.

10.10 Zinc phosphate, percent by mass on pigment (Annexure-B)

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 2000gm, 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 Type Test

Salt spray test for 300 hours (IS 101, Part 6 /Sec. 1):

The test panel prepared from this material shall show no signs of corrosion after continuous exposure for 300 hours in salt spray cabinet.

11 TYPE APPROVAL

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.

12 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

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Manufacturer's/supplier's Name:

Trade name/mark, if any:

Batch/Lot No.;

Quantity supplied:

Date of manufacture & expiry:

Test results of clause 10

Mixing ratio

13 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 12 months after the date of manufacture which shall be subsequent to the date of placement of BHEL order.

14 PACKING AND MARKING

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

AA56105: CHEMICAL RESISTANT EPOXIDE RED OXIDE ZINC PHOSPHATE PRIMING PAINT

BHEL Order No.

Manufacturer's/ Supplier's name:

Trade name / mark, if any:

Batch/Lot No.:

Name of components:

Mixing ratio:

Quantity supplied:

Date of manufacture & expiry:

15 REFRRED STANDARDS (Latest Publications Including Amendments)

1) IS 101

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ANNEXURE - A (Cl 10.9)

PROCEDURE FOR TESTING OF POT LIFE

If the mixed paint, as recommended by the supplier, could be still thinned, the end of the working life (pot life) has not been reached. The end of the working life is reached when the test material (paint) gels, becomes stringy or cannot be thinned for application. The time interval between the mixing time and time of gelling shall be reported as pot life of the mixed paint.

ANNEXURE - B (Cl 10.10)

PROCEDURE FOR TESTING OF ZINC PHOSPHATE CONTENT

A.1 General

The pigment is extracted from the paint and pigment is taken for the determination of Zinc phosphate content.

A.2 Reagents required

A.2.1 Quinoline solution

50ml of quinoline is dissolved in 60ml of hydrochloric acid and 30ml of water with constant stirring. The solution is cooled and filtered. This is diluted to 1000ml and stored in a polythene bottle.

A.2.2 Citric molybdic acid reagent

54gm of pure molybdic acid and 12gm of sodium hydroxide are dissolved in 400ml of hot water. 60gm of citric acid and 140ml of hydrochloric acid are added to 200ml of water. Now molybdic acid solution is added with citric acid solution and is made upto1000ml. (The solution may be green or blue colour on its exposure to light). If necessary 0.5 percent potassium bromate solution is added until the green colour becomes pale. This solution is kept in a polyethylene bottle and stored in a dark place.

A.3 Procedure

1.0gm of the sample is weighed into a 250ml beaker and 30ml of 1:1 nitric acid and 5mlof 1:1 hydrochloric acid is added. The content is boiled well and filtered and made up to 200ml. 50ml of aliquot is pipetted out into a 500ml conical flask and this is diluted to 100ml. 30ml of citric molybdic acid solution is added and boiled gently. 10ml of quinoline solution is added from burette with continuous swirling. (Add 3 to 4 ml drop wise and balance in steady stream).

The precipitate is filtered into a weighed Gooch crucible provided with glass fibre or filter paper previously dried at 250℃. The precipitate is washed with water and dried at 250℃. The dried precipitate (quinoline phosphomolybdate is weighed and calculated for its weight by difference.

A blank determination is carried out in the same way as the determination but omitting the test solution.

Calculation

$$\%\ \text{Zinc phosphate, by mass} = \frac{(M1 - M0) \times 0.3816}{\text{Mass of sample in gm.}} \times 100$$

Where

M1 = mass of precipitate in gm obtained in sample

M0 = mass of precipitate in gm obtained in blank