



**TITLE: - TWO COMPONENT, HIGH BUILD,
RAPID RECOAT EPOXY WITH LAMELLAR
MIO PIGMENT**

TRE/167

6 पृष्ठों में

PAGE 1 OF 6

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1.0 GENERAL

This specification deals with the requirement of high build two pack epoxy based rapid re coatable air / oven drying intermediate coat pigmented with lamellar micaceous iron oxide. The paint should provide excellent chemical, water, heat and abrasion resistance and good durability in industrial and humid atmosphere.

2.0 APPLICATION

The paint shall be used as an intermediate on epoxy or zinc rich primed surface.

Suitable for applications by brushing or spraying and force drying at 90 ± 10^0 C for 1 Hrs after flash off time of min. 30 minutes.

Suitable for vapour phase drying operation of Transformer in solvent Shellsol – H at 130^0 C FOR 96 Hrs on composite paint system.

3.0 COMPOSITION

The Paint consist of two component i.e. base and hardener / accelerator. The base contains epoxy binder suitably pigmented with lamellar micaceous iron oxide and extenders. The hardener is Polyamide solution.

4.0 MIXING RATIO

As recommended in the product data sheet supplied by the manufacturer of the paint.

5.0 COLOUR & GLOSS

Brown/ Gray & Smooth

6.0 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 close 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.

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Parameter for product performance added

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7.0 SAMPLING: As per IS: 101.

8.0 TECHNICAL REQUIREMENTS:

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

16 kg per 10 litres, minimum

8.2 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)

Air Spray : 5-25 %

Air less Spray : 5-10%

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

Surface Dry : 90 Minutes (Max)

Hard Dry : 16 Hr (Max)

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

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

80 % ± 3%

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

60 % ± 5%

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

60 % ± 3%

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

75-125 micron / coat

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

Not below 25⁰C

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

5 Hour (Min.)

8.10 Cured Epoxy on Paint: (To be determined by taking the difference of NVM and pigmentation on paint)

20 % ± 3%

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

Min. 2000 gm when applied at 125 micron DFT on burnished MS panel and tested after 7 days air drying.

8.12 Adhesion by pull off using UTM adhesion tester (ISO 4624)

Minimum 8 MPA when applied at 125 micron DFT on Epoxy Primed Surface applied on 2 mm blasted dolly.

8.13 Abrasion (ASTM D4060)

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

8.14 Adhesion Cross Cut (ISO 2409)

It should pass with classification 0 when applied over Epoxy Primed surface.

8.15 Impact (ASTM D2794)

Direct Impact resistance should pass minimum 4 Joules when applied at 125 micron DFT on Sa 2.5 Blasted MS Panel and tested after 7 days air drying

8.16 Pencil Hardness (ASTM D3359)

It should pass minimum 3H @ 125 Micron DFT on Sa 2.5 blasted surface and tested after 7 days air drying.

8.17 Flexibility (ASTM D522)

It should pass minimum 12% elongation @ 125 micron on burnished MS panel and tested after 48 hours air drying. The film shall not show sign of damage detachment or cracking.

8.18 Salt spray resistance (ASTM B117)

It should pass minimum 2000 hours at 125 micron DFT without any film defect and < 2 mm scribe line corrosion when applied on 75 micron DFT Epoxy Primed Surface.

8.19 Over Coating Interval

Minimum : 3-4 hour by spray application.

Maximum : Unlimited, provided the surface is dry and clean from all contaminants.

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

It should pass minimum 2000 hours at 125 micron DFT without any film defect when applied on 75 micron DFT Epoxy Primed Surface (Substrate : Sa 2.5 blasted MS panel)

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

It should pass minimum 2000 hours at 125 micron DFT without any film defect and < 5 mm scribe line corrosion when applied on Epoxy Primed Surface. (Substrate : Sa 2.5 blasted MS panel)

8.22 Self Life (IS: 101, Part 6/Sec. 8)

Minimum 12 Month

8.23 Chemical and Thermal Resistance Test (Appendix -I) Type Test

Panels prepared and tested in accordance with Appendix-1 to this specification, when kept in the SHELLSOL-H (or equivalents)vapour at 130^o C for 96 hours, shall not show any sign of deterioration.

9.0 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/167: Two Component, High Build, Rapid Recoat Epoxy with Lamellar MIO
Pigment

Manufacturers/suppliers Name :

Trade name/mark, if any :

Batch/Lot No.:

Quantity supplied :

Date of manufacture & expiry :

Test results :

Mixing ratio :

10.0 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 12 months after the date of manufacture, which shall be subsequent to the date of placement of BHEL order.

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11.0 INSPECTION AT SUPPLIER'S WORKS:

Whenever specified, tests and inspections are to be conducted in the presence of BHEL's representative. The supplier shall offer BHEL's representative all reasonable facilities, without charge to satisfy the later that the material is being furnished in accordance with this specification. The supplier shall prepare and provide necessary test specimens for testing to be carried out at his premises.

If facilities are not available at his works, the supplier shall make necessary arrangements for carrying out the prescribed tests else- where. The supplier shall notify BHEL in advance about the readiness of the material for inspection and testing. BHEL reserves the right to test the material at BHEL's works and the final acceptance of the material shall be based on these test results.

12.0 PACKING AND MARKING:

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

TRE/167: Two component, high build, rapid recoat epoxy with lamellar MIO pigment
BHEL Order No.

Manufacturer's/Supplier's Name.

Trade Mark, if any.

Batch No.

Date of Manufacture and Expiry

13.0 REJECTION AND REPLACEMENT:

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling the entire commercial terms and conditions.

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APPENDIX -I

CHEMICAL AND THERMAL RESISTANCE TESTS (Clause 8.23)

Take a panel of 150 x 150 mm mild Steel, emery and degrease with xylol to remove dirt, oil and grease, if any. Apply a coat of Epoxy Primer of 75 micron DFT and allow to oven dry at $90 \pm 10^{\circ}\text{C}$. Apply a second coat of MIO intermediate paint to get uniform coating and allow to oven dry at $90 \pm 10^{\circ}\text{C}$ and finally provide the PU Top coat as per TRE 165 and allow to oven dry at $90 \pm 10^{\circ}\text{C}$. Weight the painted panel and expose the panel in the chamber of SHELLSOL-H vapours at 130 deg.C under vacuum for 96 hrs. At the end of 96 hrs takeout the panel from the chamber and observe for any deterioration in paint film i.e. blisters, paint film softening and colour change etc. and weight the panel again.

The paint passes the test if no discolouration, softening, blistering in paint film takes place and weight loss is not more than 50 mg.

APPENDIX- II

DETERMINATION OF POT LIFE (Clause 8.9)

About 100 ml of the mixed paint prepared by mixing the base and accelerator in the recommended proportions is taken in a beaker. The paint shall be such that it should be usable by brush under a specified pot life of 5 hours at room temperature. In order to see if the paint has gelled or not, a small quantity of the mixed paint is dissolved in the recommended thinner. It should not dissolve if the paint has gelled and vice-versa.

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