	CORPORATE PURCHASING SPECIFICATION	AA56149
		Rev No. 01
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HEAT RESISTANT ALUMINIUM PAINT-Gr. 1 (TEMPERATURE UPTO 600°C)

1 GENERAL

This specification governs the quality requirements of Heat Resistant Aluminium Paint, which shall be capable to withstand temperature upto 600°C.

2 APPLICATION

The paint shall be used as primer and finishing paint on steam turbine components like HP casing, IP casing, ESV & CV casing etc., and on other components where temperature is likely to go upto 600°C. The paint shall be capable of being brushed or air sprayed on the components.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall conform to the requirements of following national standard and also shall meet other requirements of this specification.

IS 13183 : 1991, Gr. 1: Aluminium Paint, Heat Resistant specification

4 COLOR

That of metallic Aluminium

5 FINISH

The dried coating shall be bright, smooth and lustrous.

6 FREEDOM FROM DEFECTS

The paint shall remain free from defects like hard settling of pigments, skinning when kept in a closed container and livering (excessive viscosity build up) during its rated shelf life.

The dried paint film shall be free from defects like bittyness, floating of pigments, surface haze, orange peel, colour fading, wrinkles etc.

7 CHEMICAL COMPOSITION

The paint shall be based on special grade of silicone binder of required thermal stability of 600°C, pigmented with aluminium paste and extenders in suitable proportions so as to meet the requirements of the specification. The supplier should provide IR-Spectrograph in support of above composition.

8 PROPERTIES

The material when tested in accordance with relevant parts and clauses of IS 101 shall show the following properties.

8.1 DRYING TIME

Surface Dry : 1 hour, max.

Tack free : 3 hours, max.

Hard Dry : 18 hours, max.

8.2 NON VOLATILE MATTER

30% by mass, min.

8.3 CONSISTENCY

20 secs. min. at 27±2°C

8.4 SCRATCH HARDNESS

To pass the test at 6H pencil hardness, when tested on the paint film dried for 48 hours at room temperature.

8.5 VOLUME SOLIDS

20%, min.

8.6 FLASH POINTS

Not below 27° C

8.7 MASS PER TEN LITRES

10.3±0.5 kg

8.8 *SALT SPRAY RESISTANCE

The film of the paint shall pass the salt spray test when the panel is exposed for 96 hours in salt spray cabinet. The test panel shall be of cold rolled steel and the paint film is dried in air for 30 minutes followed by heating at 250°C for one hour and cooled to room temperature before loading for the test.

8.9 *WATER RESISTANCE

The film of the paint shall show no more than slight whitening or dulling in comparison to the fresh sample, when immersed the test panel in water for 24 hours at 27±2°C.

8.10 RESISTANCE TO HEAT

To pass the test when tested as per Annexure.

8.11 *FLEXIBILITY AND ADHESION

To pass the test when the paint panel is dried for 48 hours at room temperature and then subjected to bend test.

8.12 PROTECTION AGAINST CORROSION UNDER CONDITIONS OF CONDENSATION

To pass the test when the test panel is dried for 48 hours at RT and then subjected to an exposure in temperature humidity chamber for a period of 7 days.

Note: * Test shall be conducted after the paint is fully cured.

9 TYPE APPROVAL

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

10 TEST CERTIFICATES

Unless otherwise stated, three copies of test certificates shall be supplied giving the following information. In addition, the supplier shall ensure to send one copy of the Test certificate along with despatch documents for quick clearance of material.

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BHEL Order No and Date.

Manufacture's/Supplier's Name and Trade mark, if any.

Batch/Lot No.

Date of manufacture and Expiry

Test Results of clauses 7 and 8

Quantity of the lot.

T.C. No and Date.

11 KEEPING PROPERTY

When stored in a covered dry place in the original sealed container 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 placing the order.

12 PACKING AND MARKING

The paint shall be supplied in sealed and leak proof metal containers preferably in 4 litres size and each container shall bear the following information:

AA56149: HEAT RESISTANT ALUMINIUM PAINT-Gr. 1 (TEMPERATURE UPTO 600°C)

BHEL Order No.

Batch / Lot No.

Supplier's/ Manufacturer's Name and Trade mark, if any

Date of manufacture and expiry

Quantity supplied

13 ENVIRONMENTAL REQUIREMENTS

The supplier shall furnish Material Safety Data Sheet (MSDS) covering all information relating to human safety and environmental impacts of the hazardous materials particularly during their transportation, storage, handling and disposal along with each supply.

Each container shall be marked with corresponding symbol and minimum worded cautionary notice for flammable / corrosive / toxic / harmful / irritant and oxidizing etc. as applicable.

14 REFERRED STANDARDS (Latest Publications Including Amendments)

1) IS 101

Annexure (Cl 8.10)

TESTING OF HEAT RESISTANCE

A.1 COLD ROLLED STEEL

Prepare and clean the test panels made from cold rolled steel. Apply the paint uniformly on the test panels. Air dry the panels for 30 minutes and bake subsequently at 250°C for 1 hour. Cool the test panels for room temperature. Place the panels in the furnace at 600 ± 5°C for a period of 24 hours. Remove the panels from the furnace cool and examine the surface for any cracking, blistering, flaking or peeling. In absence of above surface defects, the material is deemed to have passed the heat resistance test.

A.2 HOT ROOLED STEEL

Take test panels of low carbon steel, clean them thoroughly using hydrocarbon solvent. Coat these test panels with paint under test so as to get a coating thickness of 25-30 microns. Dry them in air for 24 hours. Keep these test panels in the furnace and are subjected to following heating schedule.

Expose the test panels for 8 hours at 400°C followed by further heating for 8 hours at 500°C and finally for 8 hours at 600°C. The panels shall be removed from the furnace for short interval for physical examination.

In absence of above surface defects, the material is deemed to have passed the heat resistance test.