INTERPLANT STANDARD — STEEL INDUSTRY

IP SS

SPECIFICATION FOR HEAT RESISTANT ANTI-CORROSIVE PAINT

IPSS : 1-07-030-85

CORRESPONDING INDIAN STANDARD DOES NOT EXIST

0. Foreword

0.1 Interplant standardization activity in steel industry has been initiated under the aegis of the Indian Standards Institution (ISI) and the Steel Authority of India Limited (SAIL). This Interplant Standard prepared by the Standards Committee on Portable Maintenance Equipment, IPSS 1 : 7, with the active participation of the representatives of all the steel plants and established manufacturers of heat resistant anti-corrosive paint was adopted by the Approval Committee on Consumable Stores and General Equipment, IPSS 1, on 30 March 1985.

0.2 Interplant Standards for steel industry primarily aim at achieving rationalization and unification of parts and sub-assemblies used in plant equipment and accessories, and provide guidance in indenting stores or equipment for existing or new installations by individual steel plants. For exercising effective control on the inventories, it is advisable to select a fewer number of sizes (or types) from among those mentioned in this standard for the purpose of company standards of individual steel plants. It is not desirable to make deviations in technical requirements.

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1. Scope — This Interplant Standard prescribes the requirements and the methods of test for heat resistant anti-corrosive paint.

Note 1 — The surface coating material is used for the protection of apparatus, equipment, machines, etc. which are subjected to rapid changes of temperature and corrosion.

Note 2 — This Interplant Standard is intended chiefly to cover the technical provisions relating to the purchase of the material, but it does not include all the necessary provisions of a contract.

2. Terminology

2.1 *Heat Resistance* — A term used in a comparative sense as far as paints are concerned but is of little value unless it is referred to some standard of performance under specified conditions.

2.2 *Anti-Corrosive* — A general term used to describe material used for preventing corrosion.

3. Requirements

3.1 The material shall be of such a composition that it can withstand a temperature up to 150°C and can withstand the corrosive conditions without any sign of deterioration.

3.2 Gypsum and calcium sulphate shall not be used.

3.3 The material shall also conform to the requirements given in Table 1.

4. Test for Resistance to Heat

4.1 *Outline of the Method* — The painted panel, after specified drying period, is heated for two hours at the test temperature and examined for any sign of cracking, blistering or change in colour in comparison with the approved sample.

4.2 *Procedure* — A coat of material shall be applied either by brushing or spraying, as specified in the material specification, to a 150 × 100 × 1·25 mm mild steel plate panel to give a dry film, weight commensurate with the weight per litre of the material. The panel is allowed either to air-dry for 48 hours or to stove for specific period as specified, in a horizontal position. The panel is gradually heated to the temperature of 150°C and maintained there for 2 hours and then kept at room temperature for 1 hour and finally examined.

Amendments Issued (*to be filled up by the user department*) :

No.	Date of Issue	No.	Date of Issue
1		3	
2		4	

UDC 667·637·232·2:667·637·27

TABLE 1 REQUIREMENTS FOR HEAT RESISTANT ANTI-CORROSIVE PAINT

(Clauses 3.3 and 6.1)

Sl No.	Characteristic	Requirement	Reference to Clause of IS : 101-1964
(1)	(2)	(3)	(4)
i)	Consistency	Smooth and uniform	7.4
ii)	Drying time : Hard dry	Not more than 8 hours	2.6, 7.1 & 7.2
iii)	Finish	Smooth and matt	7.5
iv)	Spreading capacity	Not less than 90 percent of the approved sample	8
v)	Spreading time	Not inferior to the approved sample by more than 10 percent	9
vi)	Wet opacity	Not less than 90 percent of the approved sample	10
vii)	Colour	Close match to the specified IS colour or to the approved sample where IS colour is not specified	11
viii)	Fastness to light	Not inferior to the approved sample	12
ix)	Residue on sieve	Not more than 0·3 percent	13
x)	Water content	Not more than 0·5 percent	14
xi)	Scratch hardness	No such scratch as to show the bare metal	15.1
xii)	Flexibility and adhesion	No visible damage or detachment of film	16
xiii)	Stripping test	Scratches free from jagged edges	17
xiv)	Protection against corrosion under conditions of condensation	No signs of breakdown or corrosion	18
xv)	Resistance to lubricating oil	No permanent injury to the film	19
xvi)	Resistance to petroleum hydro-carbon solvent	No permanent injury to the film	20
xvii)	Resistance to heat	Not inferior to the approved sample when tested at 150°C	22
xviii)	Weight in kg/10 litres	Within 3 percent of the approved sample	25
xix)	Keeping properties	Not less than one year from the date of manufacture	31
xx)	Marking and delivery	As agreed with the purchaser	32
xxi)	Flash point*	Not below 35°C	24

*The requirement specified in IS : 101 is 30°C.

4.3 Results — The film shall remain firmly adherent and shall not show signs of cracking, blistering or change of colour more than those shown by the approved sample.

5. Test for Resistance to Corrosion

5.1 *Outline of the Method* — This test is carried out by suspending the painted panel after specified period of drying in a corrosion cabinet maintained at 100 percent relative humidity and a temperature cycle of 42 to 48°C for seven days and examining it for any signs of deterioration and corrosion of metal surface.

5.2 *Procedure* — The mild steel plate panel shall be prepared and painted as described in **4.2**. It is allowed either to air-dry for 24 hours, and kept at a temperature of 60 to 65°C for one hour or above for specified period. The panel is cooled to room temperature and suspended vertically in the corrosion cabinet [**18.1** of IS : 101-1964 'Methods of test for ready mixed paints and enamels (*second revision*)']. After exposure in the cabinet for seven days, the panel is removed and the paint film examined for signs of deterioration. The 25 mm strip of the film shall be removed from the centre of the panel carefully, with a suitable paint remover and the exposed metal examined for signs of corrosion.

5.3 *Results* — The metal surface shall show no sign of corrosion; changes in appearance and condition of the paint film shall not be taken into consideration in deciding about acceptability.

6. Tests for Other Normal Requirements

6.1 Unless specified otherwise, tests for normal requirements of paints shall be conducted as prescribed in IS : 101-1964. References to the relevant clauses of that standard are given in column 4 of Table 1.

6.2 Matching shall be done against IS : 5-1978 'Colours for ready mixed paints and enamels (*third revision*)'.

7. Sample

7.1 *Tender Sample* — The supplier shall submit a tender sample packed in three different containers, each containing not less than 500 g of the material.

7.2 *Sampling*

a) Precautions shall be taken to protect the samples from adventitious contamination and accordingly shall not be left exposed.

b) The contents of each container selected for sampling shall be mixed thoroughly by shaking or stirring or both and then placed in clean, dry and air-tight metal or opaque glass containers, on which the material has no action. The sample containers shall be almost completely filled, sealed air-tight and marked with full details of sampling with date, month and year of manufacture of the material.

7.3 *Approved Sample* — The sample accepted by the indentor shall be the basis for supply. When sample is tested and approved by the purchaser, the result of such tests, as permits, the supplier to meet the limits imposed by the specification for deliveries, along with one suitably sealed container of the approved sample, shall be made available to the supplier.

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