

Draft Indian Standard**READY MIXED PAINT, AIR DRYING, RED OXIDE — ZINC CHROME, PRIMING —
SPECIFICATION**
(Fourth Revision)

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Standard)

ICS 87.040

Paints, Varnishes, and related Products
Sectional Committee, CHD 20

Last date of comments: 11 May 2022

Paints, Varnishes and Related Products Sectional Committee, CHD 20

FOREWORD

(Formal clause to be added later).

This standard was first published in 1962 amalgamating IS 107 : 1952 'Ready mixed paint, brushing, red oxide-zinc chrome, priming' and IS 108 : 1952 'Ready mixed paint, spraying, red oxide-zinc chrome, priming'. In the first revision in 1979 requirements for chromic anhydride and zinc oxide content in the zinc chrome content had been included. The optional requirements for spreading capacity and spreading time had been dropped. In the second revision in 1992 it was completely aligned with Defence Specification J-347-13, Paint, RFU, Priming, Red oxide of iron, zinc chromate, universal, synthetic, brushing/spraying, issued by Ministry of Defence, by quantifying the values of wet opacity, gloss, weight per 10 litre, etc.

The third revision in 2015 was taken up with a view to incorporate the limit of lead restriction in the standard. The Committee responsible for the formulation of this standard observed that some paints such as the paint prescribed in this standard are 'in practice' used for household/decorative coatings as also for industrial and commercial applications. Taking cognizance of the fact that exposure of human being to lead, particularly children, has adverse impact on human health and safety, the Committee, therefore, felt the need to introduce lead restriction in all such paint standards. The Committee observed that this primer paint is extensively used for protection of grills, gates, window frames (metal), etc, in houses and buildings. It means this paint has dual applications, namely usage for household/decorative purposes and usage for industrial/commercial applications. Accordingly, during the third revision, the Committee had split this standard into two parts that is, IS 2074 (Part 1) to deal with ready mixed paint, air drying, red oxide-zinc chrome, priming for domestic and decorative applications and IS 2074 (Part 2) for industrial purposes. IS 2074 (Part 1) was published in October 2015. Subsequently, the issue of splitting the standard into two parts was reviewed by the Committee and it was felt that such splitting of the standard into two parts may create confusion in the minds of the consumers. Therefore, the Committee had decided not to proceed further with progress of IS 2074 (Part 2) and issued amendment to IS 2074 (Part 1), which was proposing deletion of Part 1 from the title of the Standard.

The Committee also observed that technologically it is feasible to formulate this product with a very low lead content. Therefore, the lead restriction up to a maximum permissible limit of 90 ppm was prescribed, so as to prevent lead exposure of children and adults and consequent adverse impact on human health and

safety and also in view of further scope for exposure of children to the dried paint surfaces. Further, majority of consumers are not aware of the consequence of lead toxicity and its long-term implications to human health. Therefore, along with lead restriction requirement, a suitable cautionary notice was included in the marking clause.

This revision is now being taken up to incorporate the amendments in the Standard to remove the ambiguity in the title of the Standard. Further, the additional parameters of ICF/MD/SPEC-052 Research Design and Standards Organization (RDSO), Lucknow specification have been incorporated in the optional requirements Table 2 in order to have a unified standard and achieve the goal of “ONE NATION ONE STANDARD” policy of Govt. of India. Also, references of Indian standards have been updated wherever required.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 ‘Rules for rounding off numerical values (*revised*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

IS 2074: XXXX
DOC No. : CHD 20 (19072)C

Draft Indian Standard

READY MIXED PAINT, AIR DRYING, RED OXIDE-ZINC CHROME PRIMING — SPECIFICATION (Fourth Revision)

1 SCOPE

1.1 This standard prescribes requirements methods of sampling and test for the material commercially known as ready mixed paint, air drying, red oxide-zinc chrome priming.

1.1.1 The material is used as a primer in the painting system normally followed for enamels for metal surfaces. It is used for the protection of steelwork for household and decorative purposes and also both under marine and inland outdoor conditions.

1.1.2 This paint is not recommended to be used on household articles such as grills, shutters, metal furniture, LPG cylinder, etc, due to toxicity of chrome primer. It is recommended that proper precaution to be taken during application.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1303 shall apply.

4 CLASSES

The material shall be supplied in brushing consistency but shall be suitable for application by spraying after thinning with petroleum hydrocarbon solvent, 145/205, low aromatic grade conforming to IS 1745. The smell of the material shall not be objectionable during application.

5 REQUIREMENTS

5.1 Composition

The material shall consist of the ingredients mixed in the proportions, by mass, as specified below:

- a) Pigment (in accordance with **5.1.1**), percent by mass: 50 ± 5
- b) *Driers* - Remainder, in suitable proportions to produce a paint satisfying the requirements of this standard.

NOTE — For defence supplies, the material shall meet an additional requirement of non-volatile vehicle, minimum 20 percent by mass when tested as per IS 101(Part 8/Sec 2).

5.1.1 The pigment used in the manufacture of the material shall consist of ingredients mixed in the proportions by mass, specified below. Zinc chromate content shall be determined as prescribed in Annex B.

- a) Zinc chrome, percent by mass, *Min* (conforming to Type 1 of IS 51) 16.0
which shall correspond to chromic anhydride contents of minimum 6.88 percent by mass and 5.84 percent by mass of zinc oxide
- b) Synthetic red oxides of iron (conforming to Grade 2 of IS 44) or 50.0
Natural red oxides of iron (conforming to Grade 3 of IS 44); or
A mixture of both which shall correspond to red oxide (as Fe₂O₃), percent by mass, *Min*; when tested as prescribed in 6 of IS 6947 (Part 2)
- c) Suitable extenders Remainder

5.1.2 The volatile vehicle shall be of such composition so as to satisfy the requirements of this specification.

5.2 The material shall be suitable for use with oleoresinous synthetic and nitrocellulose based undercoats, surfacers, fillers and putties.

5.3 Compatibility with Thinner

The material shall be suitable for thinning with thinners used for synthetic paints (*see* IS 1872).

5.4 Freedom from Objectionable Impurities — Thinner containing chlorinated compounds or other substances which are injurious to operators during or after application shall not be used.

5.5 Lead Restriction

The material shall not contain lead or compounds of lead or mixtures of both, as metallic lead more than 90 ppm, when tested for restriction from lead in accordance with IS 101(Part 8/Sec 5).

5.6 The material shall also comply with the requirements given in Table 1.

Table 1 Requirements for Ready Mixed Paint, Air Drying, Red Oxide-Zinc Chrome Priming
(Clause 5.6 and 8)

SI No.	Characteristics	Requirements	Methods of Test, Ref to	
			IS 101	Annex
(1)	(2)	(3)	(4)	(5)
i)	a) Consistency	Smooth, uniform and suitable for brushing without appreciable drag on the brush	—	C
	b) Viscosity by ford cup No. 4 at $27 \pm 2^\circ\text{C}$	80 – 120 s	(Part 1/Sec 5)	—
ii)	Mass, in kg/10 l, <i>Min</i>	13.5	(Part 1/Sec 7)	—
iii)	Drying time, h, <i>Max</i> :		(Part 3/Sec 1)	—
	a) Surface dry	2		
	b) Hard dry	12		
iv)	a) Finish	Smooth and matt to egg shell gloss	(Part 3/Sec 4)	—

b) Gloss 60°, Max-	40	(Part 4/Sec 4)	—
v) Fineness of grind, microns, <i>Max</i>	50	(Part 3/Sec 5)	—
vi) Colour	That of red oxide	(Part 4/Sec 2)	—
vii) Flexibility and adhesion:			
a) Bend test (with 6.25 mm dia mandrel and in type 1 apparatus)	No visible damage or detachment or cracking	(Part 5/Sec 2)	—
b) Scratch hardness (load 1 000g)	No such scratch as to show the bare metal	(Part 5/Sec 2)	—
viii) Flash point	Not below 30°C	(Part 1/Sec 6)	—
ix) Volume solids, percent	45 ± 5	(Part 8/Sec 6)	—
x) Resistance to humidity under condition of condensation:			
a) Resistance to humidity	To pass the test	(Part 6/Sec 1)	—
b) Resistance to sea water (applicable for marine paints only)	To pass the test	—	D
c) Resistance to salt spray	To pass the test	—	E
xi) Accelerated storage stability test	Shall pass the test	—	F
xii) Keeping properties	Not less than one year from date of manufacturing	(Part 6/Sec 2)	—

5.7 Optional Requirements

Material may be tested for optional requirements given in Table 2 whenever required by purchaser.

Table 2 Optional Requirements for Ready Mixed Paint, Air Drying, Red Oxide-Zinc Chrome Priming
(Clause 5.7)

SI No	Characteristics (2)	Requirements (3)	Methods of Test, Ref to IS 101 (4)	Annex (5)
i)	Consistency	shall be suitable for brushing and air/airless spray	-	C
ii)	Hard dry, h, <i>Max</i>	8	(Part 3/Sec 1)	-
iii)	Non- volatile vehicle, percent, <i>Min</i>	20	(Part 8/Sec 2)	-
iv)	Wet opacity, m ² /10 l, <i>Min</i>	220	(Part 4/ Sec 1)	-

6 PACKING AND MARKING

6.1 Packing

Unless otherwise agreed between the purchaser and the supplier, the enamel shall be packed in suitable metal containers (*see* IS 1407 and IS 2552). The packing is subject to the provisions of the law in force in the country at that time.

6.2 Marking

6.2.1 Each container shall be marked with the following:

- a) Name of the material and indication whether undercoating or finishing;
- b) Indication of the source of manufacture;
- c) Lead content (Maximum);
- d) Volume of the material;
- e) Batch number or Lot number in code or otherwise;
- f) Month and year of manufacture; and
- g) A cautionary note as below:
 - 1) Keep out of reach of children.
 - 2) Dried film of this paint may be harmful, if eaten or chewed.
 - 3) This product may be harmful, if swallowed or inhaled.

6.2.2 *BIS Certification Marking*

The container may also be marked with the Standard Mark.

6.2.2.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act, 2016* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers maybe obtained from the Bureau of Indian Standards.

7 SAMPLING

7.1 Representative samples of the material shall be drawn as prescribed in IS 101(Part 1/Sec 1).

7.2 Preparation of Test Samples

7.2.1 *For Drying Time*

Prepare mild steel panel of sizes 150 mm × 100 mm × 1.25 mm as prescribed in **2** of IS 101 (Part 1/Sec 3). Apply one coat of the paint uniformly on each side of the panel by brushing to give a dry film mass commensurate with the mass per 10 litre as specified in Table 1 of IS 101(Part 3/Sec 4).

7.2.2.1 *For drying time*

The prepared test panel then subjected to the test as specified in IS 101(Part 3/Sec 1) as soon as possible.

7.2.2.2 *For resistance to salt spray test*

The panel then be placed in a well ventilated chamber, free from draughts and dust for 24 h at room temperature. During this period the film shall be exposed to diffused daylight for at least 6 h and care should be taken to protect it from direct sunlight. Allow the panel to dry for 24 h and then at a temperature of 60°C to 65°C for 1 h. Cool the panel to room temperature. Prepared test panels then subjected to the test as prescribed in Annex D.

7.2.2 *For Flexibility and Adhesion Test*

For both bend test and scratch hardness test prepare separate burnished tin plate panels, rectangular, of sizes 100 mm × 50 mm 0.3 mm as prescribed in **3** of IS 101 (Part 1/Sec 3). Apply one coat of material uniformly by brushing on the panels as to give a dry film mass commensurate with the mass per 10 l as specified in Table 1 of IS 101(Part 3/Sec 4). The coated test panels shall be dried for 48 h for both the tests and then shall be conditioned at a temperature of $27 \pm 2^\circ\text{C}$ and relative humidity of 65 ± 5 percent for a minimum time of 16 h. Prepared test panels then subjected to the test as prescribed in **2** and **3** of IS 101(Part 5/Sec 2) for bend test and scratch hardness test respectively.

7.2.3 *For Resistance to sea water and salt spray Test*

Prepare mild steel panel of sizes 150 mm × 100 mm × 1.25 mm as prescribed in **2** of IS 101 (Part 1/Sec 3). Apply the paint uniformly on each side of the panel by brushing to give a dry film mass

commensurate with the mass per 10 l as specified in Table 1 of IS 101(Part 3/Sec 4). Then follow the procedure as prescribed in Annex D and Annex E.

7.3 Criteria for Conformity

A lot shall be declared as conforming to the requirements of this standard, if the test results of composite sample satisfy the requirements prescribed under 5.

8 TEST METHODS

8.1 Tests shall be conducted as prescribed in 5.1 to 5.5 and the test methods referred in col 4 and col 5 of Table 1.

8.2 Quality of Reagents

Unless specified otherwise 'pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>
44 : 1991	Iron oxide pigments for paints (<i>second revision</i>)
51 : 1979	Zinc chrome for paints (<i>third revision</i>)
101 (Part 1)	Methods of sampling and test for paints, varnish and related products: Test on liquid paints (general and physical)
Sec 1 : 1986	Sampling (<i>third revision</i>)
Sec 2 : 1987	Preliminary examination and preparation of samples for testing (<i>third revision</i>)
Sec 3 : 1986	Preparation of panels (<i>third revision</i>)
Sec 5 : 1989	Consistency (<i>third revision</i>)
Sec 6 : 1987	Flash point (<i>third revision</i>)
Sec 7 : 1987	Mass per 10 litre (<i>third revision</i>)
(Part 3)	Tests on paint film formation
Sec 1 : 1986	Drying time (<i>third revision</i>)
Sec 4 : 1987	Finish (<i>third revision</i>)
Sec 5 : 1987	Fineness of grind (<i>third revision</i>)
(Part 4)	Optical tests on paint films
Sec 2 : 1989	Colour (<i>third revision</i>)
Sec 4 : 1988	Gloss (<i>third revision</i>)
(Part 5)	Mechanical tests on paint films
Sec 2 : 1988	Flexibility and adhesion (<i>third revision</i>)
(Part 6)	Durability tests on paint films
Sec 1 : 1988	Resistance to humidity under conditions of condensation (<i>third revision</i>)
Sec 2 : 1989	Keeping properties (<i>third revision</i>)
(Part 8)	Tests for pigments and other solids
Sec 2 : 1990	Pigments and non-volatile matter (<i>third revision</i>)
Sec 5 : 1993	Lead Restriction test (<i>third revision</i>)
266 : 1993	Sulphuric acid (<i>third revision</i>)
376 : 1986	Sodium hydroxide, analytical reagent (<i>third revision</i>)
1070 : 1992	Reagent grade water (<i>third revision</i>)
1303 : 1983	Glossary of terms relating to paints (<i>second revision</i>)
1407 : 1980	Round paint tins (<i>second revision</i>)
1745 : 1978	Petroleum hydrocarbon solvents (<i>second revision</i>)
1872 : 1961	Thinner for synthetic paints and varnishes for aircrafts
2316 : 1990	Methods of preparation of standard solutions for colorimetric and volumetric analysis (<i>second revision</i>)

2552 : 1989	Steel drums (galvanized and ungalvanized) (<i>first revision</i>)
6947(Part 2) : 1975	Methods of estimation of composite pigments in oil pastes, ready mixed paints and enamels : Part 2 Estimation of zinc chromes, ferric oxide and aluminium
7163 : 1989	Potassium iodide, pure and analytical reagent (<i>third revision</i>)
13119 : 1991	Ammonium bifluoride

ANNEX B
(Clause 5.1.1)

DETERMINATION OF CHROMIC ANHYDRIDE AND ZINC OXIDE

B-0 OUTLINE OF THE METHOD

Chromic anhydride is determined by titrating the iodine liberated from potassium iodide with standard sodium thiosulphate solution. Zinc oxide is determined in the same solution by titrating the iodine subsequently liberated on addition of potassium ferricyanide, with standard sodium thiosulphate solution.

B-1 REAGENTS

B-1.1 Dilute Sulphuric Acid — Approximately 7 N (*see* IS 266).

B-1.2 Potassium Iodide Solution — Freshly prepared, 10 percent (*see* IS 7163).

B-1.3 Standard Sodium Thiosulphate — 0.1 N (*see* of IS 2316).

B-1.4 Starch Solution — 0.5 percent.

B-1.5 Potassium Ferricyanide Solution — M/10, prepared in cold water, filtered rapidly and kept in a dark bottle. The solution can be suitably used for seven days, if kept in dark when not in use.

B-1.6 Ammonium Bifluoride (NH₄) HF₂ — Solid (*see* IS 13119).

B-1.7 Sodium Hydroxide Solution — 10 percent (approx) (*see* IS 376).

B-2 PROCEDURE

B-2.1 Weigh accurately about 1 g of the pigment in a 250 ml beaker and add about 100 ml of sodium hydroxide solution. Stir well by rubbing with a glass rod and boil slowly for 5 min over a wire gauze. Place the beaker, covered with a clock-glass on a water-bath for about 30 min. Filter over filter paper (Whatman No. 42) in a 500 ml conical flask. Wash well with hot water until the residue is free from chromate. Cool the filtrate in ice water and neutralize it with dilute sulphuric acid. Add 30 ml of dilute sulphuric acid after neutralization and cool. Then estimate chromic anhydride and zinc oxide content as given in **B-2.2**, **B-2.3** and **B-2.4**.

B-2.2 Transfer the solution to a 500 ml iodine flask containing 100 ml of water and 20 ml of dilute sulphuric acid. Add 30 ml of potassium iodide solution and allow to stand for 5 min. Titrate the liberated iodine with standard sodium thiosulphate solution after adding 5 ml of starch solution as indicator. Note the volume of sodium thiosulphate solution used in the titration V_1 .

B-2.3 After the titration for chromic anhydride, add ammonia solution drop wise until the litmus test paper first turns blue. (An excess of ammonia solution, more than 3 to 4 drops, should not be added as it is essential that the blue litmus should turn red with ammonium bifluoride to be added subsequently). Cool and add 2 to 3 g of ammonium bifluoride and sufficient water to make volume approximately 250 ml. (Sometime traces of iodine liberated during neutralization can be cleared by one or two drops of sodium thiosulphate solution). Add $V_1/3$ ml of potassium ferricyanide solution. Stir and allow to stand for about 2 min. Titrate the liberated iodine with standard thiosulphate solution. After the end point, the colour of the test solution will be bright pale greenish-yellow. Note the volume of sodium thiosulphate solution used in the second titration (V_2). If V_2 is less than 6 ml, the titration is to be repeated with the addition of ($V_2 - 2$) ml of potassium ferricyanide solution in place of $V_1/3$ ml.

B-2.4 If V_2 is less than 2 ml, the titration is to be repeated, starting from the extracted pigment, with the addition of 5 ml of potassium ferricyanide solution.

B-3 CALCULATION

$$\text{B-3.1 Chromic anhydride (CrO}_3 \text{), percent by mass} = \frac{3.334 \times V_1 \times N}{M}$$

where

V_1 = volume of sodium thiosulphate solution used in the first titration, in ml;

N = normality of sodium thiosulphate solution used; and

M = mass of the material taken for the titration, in g.

$$\text{B-3.2 Zinc oxide (ZnO), percent by mass} = \frac{12.45 \times V_2 \times N}{M}$$

where

V_2 = volume of sodium thiosulphate solution used in the second titration, in ml;

and N and M have the same legend as **B-3.1**.

ANNEX C

[Table 1, Sl No. (i) (a)]

CONSISTENCY

C-1 APPARATUS

C-1.1 Palette Knife or Metal Rod

C-1.2 Glass Panels

Unless specified otherwise, glass panels of size 150 mm x 50 mm shall be prepared as prescribed in 5 of IS 101 (Part 1/Sec 3).

C-2 PROCEDURE

C-2.1 Insert a clean metal rod or palette knife into the original container and examine the nature of settling.

C-2.2 Observations

The material shall not cake hard inside the container and shall be in such a condition that stirring easily produces a smooth uniform paint suitable for brushing on glass panels. For optional consistency requirement material shall also be suitable for air/airless spray.

ANNEX D

[Table 1, Sl No. (x)(b)]

RESISTANCE TO NATURAL OR ARTIFICIAL SEA WATER

D-0 GENERAL

D-0.1 Outline of the Method

This is the test for determination of resistance of paint films to natural or artificial sea water spray condensation conditions. The painted panel is immersed in natural or artificial sea water for specified period and paint film examined for any deterioration. If natural uncontaminated sea water is not available, then artificial sea water to be prepared for use in the test.

D-1. COMPOSITION OF NATURAL SEA WATER

The natural sea water should be taken for not less than one foot below the surface by a method which does not contaminate from the surface layer. In areas where there is pronounced tidal action, the water should be taken near full flood and shall have a pH of 7.9 to 8.3 and initially have a chlorinity of not less than 17 parts and salinity of 31 parts per 1 000.

NOTE — The chlorinity and consequently salinity of natural sea water on the Indian coast line is subject to variations due to the monsoon. Dilution occurs during this period, lowering these values considerably. This period usually varies from 3 to 4 months during the year. In the other months, salinity is equal to or even higher than the artificial sea water but seldom exceeds 36 to 37 parts. This rise in salinity, however, has not a very significant effect on the test.

D-2 COMPOSITION OF ARTIFICIAL SEA WATER

D-2.1 The artificial sea water is prepared as described in **4.2** of IS 101(Part 6/Sec 1).

D-3 APPARATUS

D-3.1 The apparatus used is as described in **4.3** of IS 101(Part 6/Sec 1).

D-4 PROCEDURE

D-4.1 Preparation of Test Panels

Prepare a mild steel panel as described in **7.2.3**. Then allow to dry for 24 h at room temperature. After seven days of application determine the thickness in micrometres, of the dry coating, by any appropriate method but using any one of the non-destructive procedures preferably as prescribed in **6.2.2.1** of IS 101(Part 3/Sec 2). Seal the edges of the panel with wax up to a depth of 6 mm by dipping in molten wax.

D-4.2 Immerse the 75 mm of the test panels at room temperature for a period of seven days in natural or artificial sea water separately, which is aerated by a continuous slow stream of air free from oil or grease. Examine the panels at the end of 7 days visually for signs of deterioration of the system. Also carefully remove 25 mm strip of the film from the centre of the panel along the length with a cotton wool swab soaked in suitable paint remover and examine the exposed metal for signs of corrosion, neglecting 25 mm portions of the exposed surface from each edge.

D-5 OBSERVATIONS

The material shall be deemed to have passed the test, if the panel does not show damage, any sign of corrosion, flaking of the paint film or under film corrosion and not more than slight blistering.

ANNEX E

[Table 1, Sl. No. (x) (c)]

RESISTANCE TO SALT SPRAY

E-0 GENERAL

E-0.1 Outline of the Method

The painted panels are subjected to intermittent salt spray for 96 h and paint film examined for any deterioration.

E-1 COMPOSITION OF THE TEST SOLUTION

The test spray solution shall be prepared as described in **3.3** of IS 101(Part 6/Sec 1).

E-2 APPARATUS

The apparatus used is as described in **3.2** of IS 101(Part 6/Sec 1).

E-3 PROCEDURE

E-3.1 Preparation of Test Panels

Prepare a mild steel panel as described in **7.2.3**. Another side of the panel will have a three-coat system. Make a scratch or scribed mark through the coating to the substrate on this three coat. Use the single cutting tool and locate the scratch at least 20 mm from any edge of the test panel.

E-3.2 Then follow the procedure as described in 3.5 of IS 101(Part 6/Sec 1) except for 3.5.2.2 wherein the pH will be between 7.9 and 8.3 and concentration of the collected salt water shall be the same as freshly prepared. At the end of 96 h the panels shall be examined visually for any deterioration of the paint film. Carefully remove 25 mm strip of the film from the centre of the panel along the length carefully with a cotton wool swab soaked in suitable paint remover and examine the exposed metal for signs of corrosion, neglecting 25 mm portions of the exposed surface from each edge.

E-4 OBSERVATIONS

The material shall be deemed to have passed the test, if the painted panel does not show any sign of breakdown and the underlying metal shall be free from corrosion.

ANNEX F

[Table 1, Sl No. (xi)]

ACCELERATED STORAGE STABILITY TEST

F-0 OUTLINE OF THE METHOD

The material is subjected to higher temperature and then tested for drying time, viscosity and gloss value.

F-1 PROCEDURE

F-1.1 Fill 250 ml of the paint sample in a clean, dry 500 ml metal container (*see* IS 1407) leaving usual spillage and seal the lid tightly to avoid leakage of volatile paint thinners. Keep the container at $60 \pm 2^\circ\text{C}$ for 96 h in an electrically heated oven. Take out the sample container and allow it to cool at room temperature for 24 h thereafter. The sample is subsequently examined for the appearance of the material. The material shall then be tested for drying time, viscosity and gloss value.

F-2 OBSERVATIONS

The paint shall be deemed to have passed this test, if it is found to be free from lumps, skins, settling. The paint shall not gel, liver, curdle or increase in viscosity by more than 20 percent, and there shall be no evidence of seeding. The paint shall meet the drying time requirements and shall produce dry film that is uniform in appearance and free from streaking and mottling. Further the change in gloss value shall not be more than 5 units from that of original value.

NOTE — Keep the paint sample in the oven and gradually increase the temperature 60°C .

