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IS 2524-2 (1968): Code of practice for painting of non-ferrous metals in buildings, Part 2: Painting [CED 13: Building Construction Practices including Painting, Varnishing and Allied Finishing]

"ज्ञान से एक नये भारत का निर्माण"
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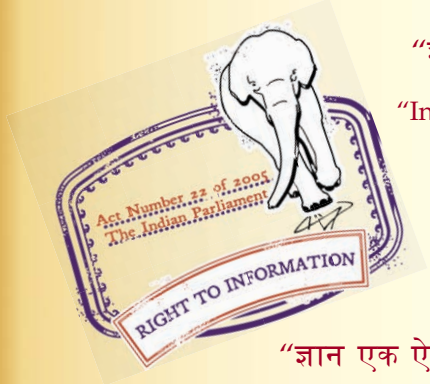

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS : 2524 (Part II) - 1968
(Reaffirmed 2000)

Indian Standard

CODE OF PRACTICE FOR PAINTING OF NON-FERROUS METALS IN BUILDINGS

PART II PAINTING

(First Reprint JULY 1983)

UDC 698.12:667.636.224

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2

December 1968

Indian Standard

CODE OF PRACTICE FOR PAINTING OF NON-FERROUS METALS IN BUILDINGS

PART II PAINTING

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Indian Standard

CODE OF PRACTICE FOR PAINTING OF NON-FERROUS METALS IN BUILDINGS

PART II PAINTING

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 16 October 1968, after the draft finalized by the Painting, Varnishing and Allied Finishes Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 This standard is the second part of the Indian Standard code of practice for painting of non-ferrous metals in buildings, and deals with the painting schedules. The first part of this standard covers the pretreatment. Both the parts together are intended to provide guidance with regard to the painting of non-ferrous metals in buildings.

0.3 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by referring to BSCP 231 : 1966 ' Painting of buildings ' published by the British Standards Institution.

0.4 This standard is one of a series of Indian Standards on painting in buildings. Other standards published so far in the series are given in Appendix A.

0.5 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*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard (Part II) lays down schedules for painting of non-ferrous metals used in buildings.

*Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.1 For the purpose of this standard the definition of terms relating to painting shall be as given in IS : 1303-1963*.

3. NECESSARY INFORMATION

3.1 Required information for the efficient painting of non-ferrous metals as given in **3** of IS : 2524 (Part I)-1968† shall be taken into account.

4. MATERIALS

4.1 General — It is the feature of certain non-ferrous metals, for example, aluminium, zinc, cadmium, copper, lead and tin, that under rural atmospheric conditions, they are capable of resisting corrosion without painting. Anodized aluminium may be especially resisting. Metal-to-metal joints need careful treatment, especially if they are likely to be exposed to damp conditions and the metals are dissimilar. A jointing compound (*see* **4.1.1**) or a preformed bandage or strip, should be used to insulate magnesium and aluminium from one another, but bitumen paints or rubber-based compounds may be used for joints involving other metals. In all cases the joint should be made while the jointing compound is still wet, the metal having been previously prepared and primed.

4.1.1 *Jointing Compound* — These are usually paste-like materials used for coating surfaces which are to be brought together and which will be inaccessible. Sometimes several coats of the paint used elsewhere on the structure are used for jointing, when it is usual to bring the surfaces together before the last applied coat is dry. Where dissimilar metals are used in conjunction in a structure, an isolating jointing compound is essential, and those containing chromates are preferred where aluminium or magnesium is one of the metals. A typical compound for this purpose consists of equal parts by weight of barium chromate and kaolin in an oil varnish medium, the content being between 50 and 60 percent by weight and free from water soluble sulphates and chlorides. Bitumen or bituminous pastes and rubber-based jointing compounds are used for other metals.

4.1.2 The surface should be prepared as specified in **6** of IS : 2524 (Part I)-1968†. Even where this includes using an etch primer it is still necessary to apply a priming paint appropriate to the individual metal except in the case of lead and terne coating. Some etch primers are softened by water. For situations where exposure of the etch-primed surface to moisture may be expected special types of water-resistant etch primer should be used, or they should be quickly overcoated with primer. Where the metals concerned come into contact with alkaline materials, for example, concrete,

*Glossary of terms relating to paints (*revised*).

†Code of practice for painting of non-ferrous metals in buildings: Part I Pretreatment.

lime mortar and brickwork, they should be given one or two coats of bituminous paint and, where the conditions are persistently damp, even thicker films are desirable. Aluminium, lead, terne plate and tin must be treated fully in this way, zinc, cadmium, tin and magnesium need only be treated in this way if conditions are adverse, while copper is unlikely to need protection. Where non-ferrous metals are brought into permanent contact with hard-woods, such as oak and chest-nut, for example, when used for flashings for oak frames and sills, two coats of bituminous paint should be applied to both contact surfaces.

4.2 Aluminium — Whether the preparation has included pretreatment with an etch primer or not a zinc chrome or a modified zinc chrome paint should be used. For subsequent coats, normal types of oil, oleoresinous or synthetic resinous paints may be used provided that they are compatible with the priming paint. Bituminous paints are also permissible.

4.3 Zinc and Zinc-Coated Metals — As many items constructed from zinc and zinc-coated metal, such as ducting, cladding and casing units arrive on site untreated, particular care should be taken for pretreatment and preparation of zinc surfaces. For subsequent coatings, normal types of paint, as described in **4.2**, may be used provided that they are compatible with the priming paint and will adhere well to it.

4.4 Copper Lead — The first coating or primer may be an unpigmented resin varnish or an etching primer. If a light-coloured finish is required, a coat of aluminium paint over the resin varnish will need to be applied; its leafing properties help to prevent the discoloration of superimposed coats of paint by green compounds should they be formed by inter-action between the copper and the medium. The finishing coats may be those indicated for zinc.

4.5 Magnesium — The medium throughout the paint system to be applied to magnesium and its alloys should be highly resistant to water and alkali, for example, a stoving or air-drying medium, such as that based on tung oil/phenolic resin varnish. The primer should not contain graphite, lead pigments or metallic lead, bronze or aluminium; it should, however, contain zinc chromate in a proportion appropriate to the severity of the conditions of exposure. For normal exposure, the zinc chromate should constitute about 20 percent by weight of the dry paint film.

5. SCHEDULE FOR PAINTING

5.1 General—The surface shall be prepared and pretreated as specified in **6** of IS : 2524 (Part I)-1968*. After treatment the surface of the metals shall be handled as little as possible before painting and shall be primed without delay.

*Code of practice for painting of non-ferrous metals in buildings: Part I Pretreatment.

5.1.1 The painting system may comprise primer, primer surfacer or filler, putty and finish coats in full or in suitable combination, such as primer/finish or surfacer/finish as may be found necessary depending on the condition of substrate and its end use. Finish coats alone may be applied where adequate. Dry, mineral oil or water sanding using suitable grades of abrasive paper may be carried out at appropriate stages to obtain a smooth finish. Each successive coat may be applied only when the preceding coat is thoroughly dry. After applying the top coat further processing, such as to produce any decorative design for pleasing appearance, varnishing or polishing with suitable polishing compounds may be followed.

5.1.2 The types of primer, primer surfacer, etc, may be of any type compatible to each other and suitable for application over the substrate.

5.1.3 Application may be by any satisfactory method and air drying, force drying or stoving may be carried out.

5.2 Factory Painting — A variety of paint systems applied by ordinary or sophisticated methods of application like roller coat, electrostatic spraying, etc, and air drying, force drying or stoving all or part of the components in the painting system are possible.

5.3 On-Site Painting — Surfaces untreated or protected with a temporary protective shall be pretreated as specified in **6** of IS : 2524 (Part I)-1968* and then painted in a suitable system as mentioned in **5.1**.

5.3.1 Surfaces already factory pretreated and primed or finished shall be cleaned of foreign matter like oil, grease, dust, etc; damaged areas, if any, shall be appropriately feather-edged and touched up with suitable primer and brought forward as necessary with primer, primer surfacer, putty, finish coats, etc. The entire surface may then be flatted, if necessary, before applying finish coats. Generally only an air-drying system may be possible for on-site painting and applications may be linked to brushing and spraying.

6. MAINTENANCE

6.1 General — Since the prime object of painting is to protect the metal from corrosion, the paint film should not be allowed to deteriorate to a serious extent before recoating. If the paint film is allowed to crack or peel from the surface, corrosion may start and spread under the paint completely in order to prepare the surface properly for repainting.

6.2 Removal of the Old Paint — In removing the old paint, care should be taken to avoid, as far as possible, damaging any anodized or other chemical conversion coating which may have been applied to protect the metal. For this reason, an organic solvent-type paint remover should be employed, so that only a minimum of scraping and mechanical abrasion will be needed.

*Code of practice for painting of non-ferrous metals in buildings: Part I Pretreatment.

6.3 Where flaking of the paint has occurred on a limited area and the adhesion of the rest appears to be sound, it may be sufficient to remove loose paint and the corrosion products.

6.4 Priming — After the removal of the loose paints and corrosion products priming on patches or on the overall surface, as the case may be, shall be carried out at once.

6.5 Finishing — Subsequent process for finishing should be followed as described in **5.**

APPENDIX A

(*Clause* 0.4)

LIST OF STANDARDS ON PAINTING

IS : 1477 (Part I)-1959 Code of practice for finishing of ferrous metals in buildings : Painting and allied finishes : Part I Operations and workmanship

IS : 1477 (Part II)-1963 Code of practice for finishing of ferrous metals in buildings : Painting and allied finishes : Part II Schedules and equipment

IS : 1650-1960 Colours for building and decorative finishes

IS : 2338 (Part I)-1967 Code of practice for finishing of wood and wood based materials : Part I Operations and workmanship

IS : 2338 (Part II)-1967 Code of practice for finishing of wood and wood based materials : Part II Schedules

IS : 2395 (Part I)-1966 Code of practice for painting concrete, masonry and plaster surfaces : Part I Operations and workmanship

IS : 2395 (Part II)-1967 Code of practice for painting concrete, masonry and plaster surfaces : Part II Schedules.

IS : 3140-1965 Code of practice for painting asbestos cement building products

IS : 4597-1968 Code of practice for finishing of wood and wood based materials with nitrocellulose and cold catalysed materials

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Conversion*
Force	newton	N	1 N = 1 kg.1 m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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