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उत्पाद मैनुअल

स्थापत्य और औद्योगिक उपयोग के लिए हवा में सूखने वाला इनेमल पेंट — विशिष्टि
IS 2932: 2025 के अनुसार

**PRODUCT MANUAL FOR
AIR DRYING ENAMEL PAINT FOR ARCHITECTURAL AND INDUSTRIAL
APPLICATION — SPECIFICATION
ACCORDING TO IS 2932: 2025**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.

1.	मानक संख्या IS No.	:	IS 2932 : 2025
	शीर्षक Title	:	AIR DRYING ENAMEL PAINT FOR ARCHITECTURAL AND INDUSTRIAL APPLICATION
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Composition of the material shall comply with the requirements specified in clause 6.1 Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण Sample Quantity	:	4 x 500 ml Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)

d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	1. Type 2. Class 3. Colour and shade 4. Total Non- Volatile Content 5. Applicable optional requirements Note: This section indicates declared values to be specified against a parameter (in Test Requests) to enable testing of sample against the requirement and determine its conformity. Any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची	:	Please refer to Annex – B
4.	निरीक्षण और परीक्षण की स्कीम	:	Please refer to Annex - C
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	6.1 Composition i) General ii) Total Non- Volatile Content 6.2 Condition in Container i) At delivery ii) During Storage 6.3 Freedom from coarse particles 6.4 Skin Formation 6.5 Thinning properties 6.6 Application properties Table 2 Requirements i) a) Consistency b) Viscosity ii) Mass iii) Drying time iv) Finish v) Gloss vi) Fineness of Grind vii) Colour ix) Flash Point x) Volume solids xii) Resistance to Alkali xvi) Lead xvii) Volatile organic compound (VOC) 5. Wet opacity Table 3 Optional Requirements i) Drying time, h, Max: a) Hard dry at 70°C ii) Gloss 60°, Min. iii) Scratch hardness (at load 1.2 kg), iv) Composition: a) Pigment content, percent by mass b) Non-volatile vehicle c) Phthalic anhydride content of non-volatile vehicle		

	Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies(OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.	
	IS 2932: 2025 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है "Licence is granted to use Standard Mark as per IS 2932: 2025 with the following scope:	
	उत्पाद का नाम Name of the product	AIR DRYING ENAMEL PAINT F OR ARCHITECTURAL AND INDUSTRIAL APPLICATION
	Type, Class and optional requirement	1. Type I a) Class A, optional requirements (with/without, All/specific) b) Class B, optional requirements (with/without, All/specific) 2. Type II a) Class A, optional requirements (with/without, All/specific) b) Class B, optional requirements (with/without, All/specific)
	Colour category and shade	As applicable

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ANNEX A
GROUPING GUIDELINES

1. IS 2932: 2025 covers following classification of air drying enamel, paint-
 - (a) Type I and II
 - (b) Class A & B for each Type
 - (c) Colour category and shade as per Table 1
2. In addition, the IS provides for optional requirements as per Table 3
3. Each type, each class and colour category as per Table 1 shall be tested to be covered in the scope of License. If any shade from a colour category is tested, all the shades under the colour category may be included.
4. Optional requirement for each type, class and colour category shall be tested to cover the optional requirement for that type, class and all shades under the colour category
5. It shall however be ensured and recorded that the applicant/licensee has got complete manufacturing as well as testing arrangement for the varieties to be covered as per the Grouping guidelines.
6. During the operation of licence, BOs shall also ensure that all varieties covered in the licence are drawn for independent testing on rotation over a period of time.

ANNEX– B
LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Composition, clause 6.1.2, Total Non-volatile Content	laboratory oven, analytical balance, petridish
2	Condition in Container, At Delivery clause 6.2.1, Condition in Container, clause 6.2.2, During Storage	Stirrer Spatula with square ended blade (45+1 grams), 120 mm in length and 20 mm wide, nylon paint brush 25 mm, test surface- a smooth surfaced paper chart coated with suitable varnish so as to render the surface impervious and resistant to paint materials
3	Freedom from Coarse Particles & Skin Formation, clause 6.3 & 6.4	Stirrer, 150-micron sieve, palette knife/stouter stirrer
4	Thinning Properties, clause 6.5	Petroleum hydrocarbon, thinner, stirrer, brush/sprayer, test surface
5	Application Properties, clause 6.6	Paint brush or sprayer
6	Consistency, Table 2 (i) (a)	Palette knife/metal rod, glass panels (150mmx150mm)
7	Viscosity by Ford Cup No. 4 Table 2 (i) (b)	Thermometer (LC-0.1 degree celsius), stand for holding the cup provided with leveling screws, spirit level, flat glass plate/ straight edge scraper, stop watch/Other Suitable Timing Device with scale division of 0.2 seconds, 150 micron sieve and air conditioner, Flow Cup
8	Mass, Table 2 (ii)	Pyknometer, thermometer, water bath/ Temperature-controlled chamber, analytical balance (0.2 mg), Chromic acid (for cleaning glass container)/ solvent which leaves no residue on evaporation (for metal container), distillation assembly/ arrangement for distilled water, tissue paper, tongs, gloves made of dry absorbent material (recommended).
9	Drying Time (a) Surface Dry (b) Hard Dry (c) Tack Free, Table 2 (iii) and Table 3 iii)	Silver sand, 150 & 300-micron sieve, camel hair brush, stop watch, paint brush, mild steel panels (150mmx100mmx1.25mm), Hygrometer, Conditioning chamber/ humidifier or arrangement for maintaining 60±5% RH, angle protractor, ventilated chamber, Power Cable Paper For Method A of Tack Free- balance with dead weights, cotton wool For Method B of Tack Free- 50x75 mm test piece of special paper, 50 mm dia and 2.85 kg weighing steel cylinder, stop watch

10	Finish, Table 2 (iv)	Concrete/wooden/mild steel test panels paint brush/sprayer, approved sample.
11	Gloss 60 degrees, Table 2 (v) and Table 3 iv)	Glossmeter consisting of light source and lens, receptor meter, Certified reference material and working standards, instrument for measurement of film thickness, test panels, humidity chamber
12	Fineness of Grind, Table 2 (vi)	Gauge as per Cl 4.1 of 101 (Part 3/Sec 5) and Scraper
13	Colour, Table 2 (vii)	For Visual Comparison Method- Color matching booth and light source as per IS IS 101 (Part 4/Sec 2) , test panels and reference standards
14	Flexibility and Adhesion Table 2 (viii) (a) Scratch Hardness (and Table 3 iii) & (b) Bend Test	<u>Bend test</u> Mandrel/apparatus for bend test as per IS 101 (Part 5/Sec 2), arrangement for ambient conditions, conditioning chamber, coat-meter, stopwatch, a lens of 10 x magnification <u>Scratch Hardness</u> Mechanized apparatus/Hand operated apparatus as per IS : 101 (Part 5/Sec 2), scratching needle, Burnished tinsplate or tin plate or acid chromate treated hard aluminium test panels with clamp, conditioning chamber
15	Flash Point, Table 2 (ix)	Flash point apparatus with test cup, bath, thermometer and support for cup, ignition device, Air-tight containers for storing samples.
16	Volume Solids Table 2 (x)	Analytical balance (LC- 0.1 mg), stainless steel disc, beaker, mass per litre cup, weight box, Hot Air Oven
17	Resistance to Acid, Table 2 (xi)	Clean glass panel (150x100 mm), wax, vessel to place test panel with cover, sulphuric acid, Metal Panels Corrosion cabinet conditioning chamber
18	Resistance to Alkali, Table 2 (xii)	Clean glass panel (150x100 mm), wax, vessel to place test panel with cover, laundry soap, sodium carbonate AR grade
19	Accelerated Storage Stability Test, Table 2 (xiii)	Metal container (500 ml), electrically heated oven (60±2 degree Celsius), stirrer
20	Durability using accelerated weathering equipment's, Table 2 xiv)	Xenon Arc/ QUV-A weatherometer, Mild steel panels as per clause F-2 as applicable for Xenon Arc QUV-A, Ready mixed paint [air drying, red oxide-zinc phosphate, priming as per IS 12744 (Part 1)], water proof emery paper no. 320/400, claes & dry soft cloth Accelerated Weathering Apparatus, coat/thickness meter, arrangement for air drying paint at room temperature and RH of 70 %, spectrophotometer for delta E calculation and reflectance, Glossmeter
	a) Degree of blistering, less than equal to	
	b) Degree of rusting, less than equal to	
	c) Degree of cracking less than equal to	
	d) Degree of flaking less than equal to	
	e) Degree of chalking less than equal to	
	f) Degree of colour change, ΔE, Max	
	g) Gloss retention 60°, percentage of original	

21	Resistance to water for duration of 48 h, percentage of gloss retention in comparison with original, Min Table 2 xv)	Test Panels Glass panel of size 150 mm × 50 mm, Tank, Distilled water
22	Lead (including compounds of lead), Table 2 xvi)	<u>Atomic Absorption Spectroscopy</u> Atomic absorption spectrophotometer, muffle furnace, Hot plate, Porcelain crucible, Pipette 1, 2, 5, 10 ml capacity, Dropping bottle, Nitric acid, Ammonium acetate, Lead standard stock solution, CRM. <u>inductively coupled plasma optical emission spectrometry</u> ICP-OES, Electric hot plate, Microwave extraction, Sample vessels (closed), Volumetric flask, Volumetric pipets or piston-operated pipets, Analytical balance, hydrochloric acid, Nitric acid, Hydrogen peroxide, Water, Calibration stock solution, oven, Centrifuge, centrifuge tube or a Tarson tube, calibration standards (lead standard solution) .
23	Volatile organic compound (VOC) Table 2 xvi)	Dishes, oven, apparatus as per ISO 3251, apparatus as per ISO 11890-2/ISO 760,
24	Resistance to Humidity, test cycle for 7 days Table 3 i)	Metal panels, Corrosion cabinet, oven, protective composition for protection of edges.
25	ii) Resistance to transformer oil Table 3 ii)	Test Panels, Humidity Chamber 65 ± 5 , Thickness Gauge, test liquid,
26	Composition: a) Pigment content, percent by mass, Min, (except azure blue, oxford blue, golf red, post office red, and black colours) b) Non-volatile vehicle, percent by mass, Min; c) Phthalic anhydride content of non-volatile vehicle, percent by mass, Min. Table 3 vi)	Test equipment for determination of non-volatile matter as per IS 101 (Part 8/Sec 2). Phthalic Anhydride Method Centrifuge Tube, Water Bath, Air Oven, Analytical Balance, Centrifugal Machine, Flask and Condenser, Desiccator, Evaporating Disc G4 Glass Crucibles, Soda Lime Guard Tube. Benzene, Methyl Alcohol, Acetone, Petroleum Ether, Toluene, 6 Alcoholic Potassium Hydroxide Solution, Ether, Alcohol–Toluene Wash Solution Hydrochloric Acid, distilled water
27	Wet abrasion test (Clause 6.9) Table 3 vii) (Annex J)	Wet abrasion tester including Washing Unit, Tray Unit, Brush Size: (115 ± 10) mm × (40 ± 2) mm; Class A and class B reagents, glass panels, coat meter/thickness gauge
28	Wet opacity	Pfund cryptometer

ANNEX C

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

For the guidance of manufacturers, the recommended definition of control unit is: enamel paint of same variety (Type, class, colour) produced during a day at one uniroll and thoroughly homogenized.

1.3.1 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.2 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.3.3 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as "R" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as "R" in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each container or on a label applied to the container, provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 **Additional Marking requirements:** The material shall also be marked with the following additional requirement on each container or on a label applied to the container

a) “For BIS certification details please visit www.bis.gov.in”

1. REJECTION - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub- contracting permitted	Levels of Control		
Clause	Requirement	Test method			No. of Samples	Frequency	Remarks
		Clause	Reference				
6.1	Composition						
6.1.1	i) General	-	IS 2932	R	One	Each Control Unit	
6.1.2	ii) Total Non- Volatile Content	-	IS 101(Part8/Sec2)	R	One	Each Control Unit	
6.2	Condition in Container						
6.2.1	At delivery	-	IS 2932:2025	R	One	Each Control Unit	
6.2.2	During Storage	-	IS 101 (Part 6/Sec2)	S	One	Once in six months	
6.3	Freedom from coarse particles	-	IS 101(Part1/Sec2)	R	One	Each Control Unit	
6.4	Skin Formation	-	IS 101(Part1/Sec2)	R	One	Each Control Unit	
6.5	Thinning properties	-	IS 2932	R	One	Each Control Unit	
6.6	Application properties	-	IS 2932	R	One	Each Control Unit	
6.7.1, 6.8, 8.2.2 & 9.1 Table 2	i) a) Consistency	Annex B	IS 2932	R	One	Each Control Unit	
	b) Viscosity	-	IS 101(Part1/Sec5)	R	One	Each Control Unit	
	ii)Mass	-	IS 101(Part1/Sec7)	R	One	Each Control Unit	
	iii) Drying time a) Surface dry b) Hard dry c) Tack free	-	IS 101(Part3/Sec1)	R	One	Each Control Unit	
	iv) Finish	-	IS101 (Part3/ Sec 4)	R	One	Each Control Unit	
	v) Gloss	-	IS 101(Part4/ Sec4)	R	One	Each Control Unit	

vi)Fineness of Grind	-	IS101 (Part3/ Sec 5)	R	One	Each Control Unit	
vii)Colour	-	IS101 (Part4/Sec2)	R	One	Each Control Unit	
viii) Flexibility and adhesion	-	IS101 (Part5/ Sec 2)	S	One	Once a Month (for each variety)	
a) Scratch Hardness	-	IS 101(Part5/Sec 2)	S	One	Once a Month (for each variety)	
b) Bend Test						
ix) Flash Point	-	IS 101(Part1/Sec 6)	R	One	Each Control Unit	
x) Volume solids	-	IS101 (Part8/Sec 6)	R	One	Each Control Unit	
xi) Resistance to Acid	Annex C	IS 2932	S	One	Once a Month (for each variety)	Only for Class B of Type II)
xii) Resistance to Alkali	Annex D	IS 2932	S	One	Once a Month (for each variety)	Only for Class B of Type II)
xiii) Accelerated storage stability	Annex E	IS 2932	S	One	Once a Month (for each variety)	
xiv) Durability a) Degree of blistering, b) Degree of rusting c) Degree of cracking d) Degree of flaking e) Degree of chalking f) Degree of colour Change g) Gloss retention 60°	Annex F	IS 2932	S	One	Once in a 6 months/ or with change in composition (for each variety)	
xv) Resistance to water for duration of 48 h. percentage of gloss retention	Annex G	IS 101(Part 1/Sec 3)	S	One	Once a Month (for each variety)	
xvi) Lead	-	ICP-OES or AAS method of (Part 8/Sec 5)	R S	One	Once a Month (for each variety)	

	Volatile organic compound (VOC)	-	IS 101 (Part 2/Sec 3)	R	One	Each Control Unit	
	xiii) Keeping properties	Annex H	IS 2932	S	One	Once in a 6 months (for each variety)	
5	Wet opacity		IS 101 (Part 4/Sec 1)	S	One	Once in a month (for each applicable colour category and shade)	
Table 3 (Cl. 6.9)	Optional requirements						
i)	Resistance to Humidity,	-	IS 101 (Part 6/Sec 1)	S	One	Once in a month (for each variety)	test cycle for 7 days
ii)	Resistance to transformer oil	-	IS 101 (Part 7/Sec 2)	S	One	Once a Month (for each variety)	
iii)	Drying time, h, Max: a) Hard dry at 70 °C	-	IS 101 (Part 3/Sec 1)	S	One	Once a Month (for each variety)	
iv)	Gloss 60°, Min.	-	IS 101(Part 4/sec 4)	S	One	Once a Month (for each variety)	
v)	Scratch hardness (at load 1.2 kg),	-	IS 101 (Part 5/sec 2)	S	One	Once a Month (for each variety)	
vi)	Composition:						
	a) Pigment content, percent by mass	-	IS 101(Part 8/Sec 2)	S	One	Once a Month (for each variety)	except azure blue, oxford blue, golf red, post office red, and black colours
	b) Non-volatile vehicle						
	c) Phthalic anhydride content of non-volatile vehicle						
vii)	Wet abrasion test	Annex J	IS 2932	S	One	Once a Month (for each variety)	