उत्पाद मैन्युअल

विलायक-आधारित पॉलीयुरेथेन इनेमल पेंट (दो पैक)
भारतीय मानक 13213: 2026 के अनुसार

PRODUCT MANUAL
FOR SOLVENT-BORNE POLYURETHANE ENAMEL PAINT (TWO PACK)
ACCORDING to IS 13213: 2026

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 underScheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations,2018 for variousproducts. The document may also be used by prospective applicants desirous of obtaining BIS certification.

1.	मानक संख्या **IS No.**	:	IS 13213: 2026
	शीर्षक **Title**	:	**विलायक-आधारित पॉलीयुरेथेन इनेमल पेंट (दो पैक)** Solvent-Borne Polyurethane Enamel Paint (Two Pack)
	संशोधनों की संख्या **No. of amendments**	:	Nil
2.	नमूना दिशानिर्देश **Sampling Guidelines**		
a)	कच्चा माल **Raw material**	:	No specific requirement
b)	समूहीकरण दिशानिर्देश **Grouping Guidelines**	:	Each class to be tested.
c)	नमूने का परिमाण **Sample Quantity**	:	4 x 500 ml (both the packs) *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. Class — Glossy / Satin / Matt 2. Colour (IS 5 reference or agreed colour) 3. Mixing ratio (Base : Hardener) as declared by manufacturer 4. Declared viscosity of mixed paint (KU or as applicable) 5. Declared pot life 6. Shelf-life 7. VOC as supplied after mixing (if declared)
3.	परीक्षण उपकरणों की सूची **List of Test Equipment**	:	Please refer to Annex-A
4.	निरीक्षण और परीक्षण की स्कीम **Scheme of Inspection and Testing**	:	Please refer to Annex-B
5.	एक दिन में संभावित परीक्षण **Possible tests in a day**		
	a) Composition (Annex B); Consistency; Application check; Fineness of grind; Flash point; Mass; Viscosity; Lead; VOC; Drying time (forced dry). b) If panels already cured / ready: Finish; Gloss at 60°; Colour; Dry film thickness; Bend test and Scratch hardness; Abrasion resistance; Pull-off adhesion *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.*		
6.	लाइसेंस का दायरा**/Scope of the Licence:**		
	"Licence is granted to use Standard Mark as per IS 13213: 2026 with the following scope:		
	Name of the product		Solvent-Borne Polyurethane Enamel Paint (Two Pack)
	Class		Glossy / Satin / Matt

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9, बहादुर शाह ज़फ़र मार्ग
Manak Bhawan, 9, Bahadur Shah Zafar Marg
नई दिल्ली- 110002
New Delhi – 110002

Annex-A
List of Test Equipment

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	***Requirement***	***Testing arrangement***
1.	Composition	Chemicals and reagents
2.	Durability test	1. Xenon arc apparatus, or QUV-A apparatus 2. Test panels 3. Agreed standard sample 4. Reflectance spectrophotometer 5. Glossmeter 6. Measurement standards
3.	Consistency	1. Palette Knife or Metal Rod 2. Metal Panels
4.	Drying time — surface dry; hard dry; forced dry	Manual Test Method 1. Silver sand (small transparent glass spheres) 2. Brush 3. Stop-watch or stop-clock 4. Brush, paint 5. Power cable paper 6. Test panel 7. Well-ventilated chamber, in absence of direct sunlight and under standard atmospheric conditions of (27 ± 2) °C and (60 ± 5) percent relative humidity 8. Camel hair brush 9. Special test paper (Method-B) 10. Steel cylinder (Method-B) 11. Mass of 2.85 kg (Method-B) Instrumental Test Method Method C 1. Straight-line drying-time recorder 2. Magnifying glass 3. Glass strips Method D 1. Circular Drying-Time Recorder 2. Transparent Template 3. Magnifying glass
5.	Gloss at 60° (Glossy / Satin / Matt as applicable)	1. Glossmeter 2. Measurement standards 3. Test panels

6.	Colour	1. Illumination for colour matching 2. Observer 3. Test panels and reference standards 4. Drying arrangement
7.	Dry film thickness per coat	1. A suitable high-speed stirrer 2. Spray Gun 3. Mild steel panel 4. Apparatus for any of the following test method, as applicable: a. Mechanical Test Method b. Gravimetric Test Method c. Optical Test Method d. Magnetic Test Method e. Radiological Test Method f. Photothermal Test Method g. Acoustic Test Method h. Electromagnetic Test Method
8.	Volume solids	1. Analytical Balance 2. Stainless Steel Disc 3. Weight Box 4. Glassware 5. Mass per Litre Cup 6. Hot Air Oven
9.	Flexibility and adhesion — bend test	1. Mandrels 2. Type 1 apparatus 3. Type 2 apparatus 4. Controlled temperature chamber 5. Test Panels
10.	Flexibility and adhesion — scratch hardness	1. Mechanized apparatus 2. Hand operated apparatus 3. Needle 4. Test Panels
11.	Flash point (each component)	1. Test cup 2. Bath 3. Thermometers 4. Support
12.	Fineness of grind	1. Gauge 2. Scraper
13.	Pot life	1. Container 2. Thermometer 3. Stopwatch

14.	Mass	1. Ordinary laboratory apparatus and glassware 2. Pycnometer 3. Analytical balance 4. Thermometer 5. Temperature control unit
15.	Accelerated tests	1. Steel panels 2. Mineral abrasive, slag abrasive, steel short or steel grit 3. Well-ventilated chamber free from draughts and dust 4. Epoxy zinc phosphate primer (two pack) 5. Emery paper no. 400 6. Dry soft cloth 7. Polyurethane surfacer (two pack) 8. Electromagnet equipment as prescribed in IS 101 (Part 3/Sec 2) 9. Chlorinated rubber paint 10. Chemicals and reagents
16.	Salt spray resistance and Protection against corrosion under	1. Metal panels 2. Corrosion cabinet 3. Apparatus for Neutral Salt Spray Test with a. Spray cabinet b. Means of supply and controlling the heat c. Means of spraying the salt. Solution d. Collecting device 4. Test Solution <u>Artificial Sea Water Spray Test</u> 1. Artificial Sea Water 2. Apparatus for Sea Water Spray Test
17.	Lead	<u>Atomic Absorption Spectroscopy method (AAS)</u> 1. Atomic absorption spectrophotometer 2. Muffle furnace 3. Hot plate 4. Glassware 5. Porcelain crucible or porcelain dish 6. Dropping bottle 7. Chemicals and reagents <u>Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES)</u> 1. Electric hot plate 2. Microwave extraction apparatus 3. Sample vessels (closed) 4. Glassware 5. Analytical balance 6. Chemicals and reagents

18.	VoC	1. Gas chromatograph 2. Oven 3. Detector a. Mass spectrometer or other mass-selective detector (MS or MSD) b. Flame ionization detector (FID) 4. Capillary column 5. Qualitative-analysis equipment 6. Injection syringe 7. Sample vials 8. Gas filters 9. Gases 10. Chemicals and reagents
19.	Viscosity	<u>Stromer viscometer method</u> 1. Stromer Viscometer 2. Beaker 3. Thermometer 4. Weights OR Automated Krebs Stromer Viscometer apparatus
20.	Abrasion resistance	1. Taber abrasion machine 2. Abrasive wheels calibrase 3. Weighing scale 4. Oven 5. Mild steel panel
21.	Pull-off adhesion, on system	1. Tensile tester 2. Test cylinders 3. Centring device 4. Cutting device 5. Materials – adhesives 6. Test Substrate
22.	Lateral flame	1. Test specimens 2. Radiant panel support framework 3. Specimen support framework 4. Specimen holder 5. Pilot flame burner 6. Test environment 7. Heat-flux meter 8. Total radiation pyrometer 9. Recorder 10. Timing devices 11. Dummy specimen 12. Calibration board 13. Backing boards and spacers

23.	Heat Release rate	1. Cone-shaped radiant electrical heater 2. Radiation shield 3. Irradiance control 4. Weighing device 5. Specimen holder 6. Retainer frame 7. Exhaust gas system with flow measuring instrumentation 8. Gas sampling apparatus 9. Ignition circuit 10. Ignition timer 11. Oxygen analyser 12. Heat flux meters 13. Calibration burner 14. Data collection and analysis system 15. Optional side screens 16. Smoke obscuration measuring system 17. Smoke system thermocouple 18. Optical filters
24.	Smoke generation	1. Test chamber 2. Specimen support and heating arrangements 3. Gas supply 4. Photometric system 5. Additional equipment 6. Cleaning materials 7. Ancillary equipment 8. Test environment
25.	Gas analysis	

The above list is indicative only and may not be treated as exhaustive.

Annex-B

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) 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 (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

1.3 **RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT**:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: the entire quantity of Solvent-Borne Polyurethane Enamel Paint (Two Pack) of one class and one colour manufactured from the same batch of base and hardener under similar conditions in a batch mixer (after completion of all other operations), shall constitute a control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

1.3.3 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.

2. ENSURING COMPLIANCE THROUGH TESTING- manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

i) Shared testing resources like common facility,
ii) Cluster based testing facility,
iii) Sub-contracting to outside laboratories which may either be:
   a) BIS recognised/empanelled laboratories, or
   b) Any accredited laboratory as per ISO/IEC 17025

2.1 **TEST RECORDS**- The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated (including BIS licence no. CM/L_____) legibly and indelibly on each 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 provision of the Indian Standard.
In addition, the container or the label applied to the container shall be marked with the following:

a) BIS website details: "For BIS certification details please visit www.bis.gov.in"

4. REJECTION - 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
(Recommended Levels of Control by BIS - For Guidance Only)

(1)				*(2)*	
Test Details				***Levels of Control***	
Clause	***Requirement***	***Test Methods***		***No. of Sample***	***Frequency***
		Clause	***Reference***		
5.1	Composition	Annex B	IS 13213	One	Each consignment of the material
5.3	Durability	Annex F	IS 13213	One	Once in six months
5.4					
Table 1, (i)	Consistency	Annex C	IS 13213	One	Each control unit
Table 1, (ii)	Drying time — surface dry and forced dry	-	IS 101 (Part 3/Sec 1)	One	-do-
Table 1, (ii)	Drying time —hard dry	-	IS 101 (Part 3/Sec 1)	One	Once in a month
Table 1, (iii)	Finish	-	IS 101 (Part 3/Sec 4)	One	Once in a week
Table 1, (iv)	Gloss at 60°	-	IS 101 (Part 4/Sec 4)	One	Each control unit
Table 1, (v)	Colour	-	IS 101 (Part 4/Sec 2)	One	-do-
Table 1, (vi)	Dry film thickness per coat	-	IS 101 (Part 3/Sec 2)	One	-do-
Table 1, (vii)	Volume solids	-	IS 101 (Part 8/Sec 6)	One	-do-
Table 1, (viii)	Flexibility and adhesion — bend test; scratch hardness	-	IS 101 (Part 5/Sec 2)	One	Once a month
Table 1, (ix)	Flash point (each component)	-	IS 101 (Part 1/Sec 6)	One	Each consignment of the material
Table 1, (x)	Fineness of grind	-	IS 101 (Part 3/Sec 5)	One	Each control unit
Table 1, (xi)	Pot life	Annex D	IS 13213	One	Once in a month
Table 1, (xii)	Mass	-	IS 101 (Part 1/Sec 7)	One	Each control unit
Table 1, (xiii)	Accelerated tests	Annex E	IS 13213	One	Once in a month
Table 1, (xv)	Salt spray resistance	-	IS 101 (Part 6/Sec 1)	One	Once in six months
Table 1, (xvi)	Lead	ICP-OES or AAS method	IS 101 (Part 8/Sec 5)	One	-do-
Table 1, (xvii)	VoC	Method 2	IS 101 (Part 2/Sec 4)	One	Once in a month

Table 1, (xviii)	Viscosity	-	IS 101 (Part 1/Sec 5)	One	Each control unit
Table 1, (xix)	Abrasion resistance	Annex G	IS 13213	One	Once in a month
Table 1, (xx)	Protection against corrosion	-	IS 101 (Part 6/Sec 1)	One	Once in six months
Table 1, (xxi)	Pull-off adhesion, on system	-	IS 101 (Part 5/Sec 2)	One	-do-
5.5	Optional Requirements				
Table 2, (i)	Lateral flame	-	ISO 5658 (Part 2)	One	As per agreement with the purchaser
Table 2, (ii)	Heat Release rate	-	ISO 5660-1	One	
Table 2, (iii)	Smoke generation	-	ISO 5659	One	
Table 2, (iv)	Gas analysis	-	ISO 5659	One	
5.6	Keeping properties	5.6	IS 13213	One	Once in a year