



उत्पाद मैनुअल
POLYURETHANE FULL GLOSS ENAMEL (TWO PACK)
IS 13213:2018 के अनुसार

PRODUCT MANUAL
FOR POLYURETHANE FULL GLOSS ENAMEL (TWO PACK)
ACCORDING TO IS 13213:2018

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने 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 लाइसेंस/प्रमाणपत्र 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 coherence 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 licence/certificate.

1.	उत्पाद Product	:	IS 13213: 2018
	शीर्षक Title	:	Polyurethane Full Gloss Enamel (Two Pack)
	संशोधनों की संख्या No. of amendments	:	1
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	NA
c)	नमूने का आकार Sample Size	:	3 x 500 ml (both the packs)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer Annex-A

4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer Annex-B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	(i) Composition (ii) Consistency (iii) Pot Life (iv) Drying Time (v) Volume solids (vi) Flash Point (vii) Fineness of grind (viii) Mass in kg/ 10 litres (ix) Lead restriction		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	"Licence is granted to use Standard Mark as per IS 13213: 2018 with the following scope:		
	Name of the product	Polyurethane Full Gloss Enamel (Two Pack)	

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002

ANNEX – A

LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sr. No.	Test	Test Equipment
1.	Composition	Acetone, Hydrogen Peroxide
2.	Consistency	Palette Knife (or) Metal rod, Steel Panels
3.	Pot Life	Flow cup, thermometer, spirit level, stand, straight edge scrapper, stop watch Or Cone & plate/ concentric cylinder/ immersion viscometer, standard refined mineral oils. Or Stormer viscometer, beaker, thermometer, weights 5 – 1000 g.
4.	Restriction from Lead	Evaporating dish, weighing balance, oven, muffle furnace, desiccator, filter paper, platinum gauze electrode, con. nitric acid, ammonium nitrate, copper sulphate, hydrogen peroxide Or Oven, weighing balance, furnace, con. nitric acid, con. Sulphuric acid, ammonium acetate solution, glacial acetic acid, ammonium paramolybdate, ammonium nitrate. Or Oven, weighing balance, centrifuge (capable of 5000 rpm), mechanical shaker, water bath, hydrochloric acid, benzene, acetone, methyl alcohol, petroleum hydrocarbon solvent.
5.	Drying time	Silver sand, IS sieve 150 and 300-micron, brush (soft haired), k-4 power cable paper, humidity chamber
6.	Gloss	Glass plate (substrate), film applicator, Gloss meter with working standards
7.	Bend test and scratch hardness test	Type 1 bend test apparatus with 6.25 mm dia. Mandrel, tin plate panels, fine silicon carbide paper, hydro carbon solvent, scratch test apparatus, needle, loads.
8.	Dry film thickness	MS panels, emery cloth no. 180, linen rag, hydro carbon solvent, Dry film thickness meter working on magnetic flux/ eddy current principle.
9.	Volume solids	Analytical balance (LC 0.1 mg) SS disc, weight box, beaker, mass per litre cup, hot air oven.
10	Flash point	Test cup with stirrer & cover, flame source, thermometer, constant temperature bath
11	Fineness of Grind	Fineness of grind gauge, scrapper
12	Mass in kg / 10 litre	Pyknometer, analytical balance, constant temperature bath, thermometer (0.1 LC)
13	Accelerated tests	Steel panel, humidity chamber, epoxy zinc phosphate primer, DFT meter, emery paper no. 400, epoxy surfacer, H ₂ SO ₄ , KOH, mineral lubricating oil, xylene, ethanol, acetone.
14	Keeping properties and durability	Spatula, paint brush, caustic soda, HCL, artificial weathering apparatus of QUV and Xenon arc type.

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

ANNEX B

SCHEME OF INSPECTION AND TESTING

1. **LABORATORY-** A laboratory shall be maintained, which shall be suitably equipped (as given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the method given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. **TEST RECORD-** The manufacturer shall maintain test records for the tests carried out to establish conformity.

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

3.1 Unless otherwise agreed to between the purchaser and the supplier, the material shall be packed in metal containers conforming to IS 1407 and IS 2552. The packing is subject to the provisions of the law in force in the country at that time. Each component as delivered shall be free of gel, coarse particles, skins, foreign matter and sediments. Any sediment formed in the container shall be mixed thoroughly, preferably with power driven stirrer to form homogeneous paint. Each container shall also 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;
- g) Mixing proportion recommended for use;
- h) Other instructions for safe handling and use of the material;
- j) BIS licence number and "For BIS certification details please visit www.bis.gov.in", and
- k) 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.

4. **CONTROL UNIT-** For the purpose of this scheme, the polyurethane full gloss enamel produced in a batch mixer (after completion of all other operations) at a time shall constitute a control unit.

5. **LEVELS OF CONTROL :-** The tests as indicate in Table 1 and at the levels of controls in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

6. **REJECTION** - 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.

TABLE1
LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				Test equipment requirement R:required (or) S: Sub-contracting permitted	Levels of Control		
Clause	Requirements	Test Method			No. of Samples	Frequency	Remarks
		Clause	Reference				
4.1	Composition	4.1	IS 13213 : 2018	R	One	Each Control Unit	
4.2	Lead restriction	-	IS 101 (Part 8/Sec 5)	R	One	-do-	
4.4 & Table 1	i) Consistency	Annex C	IS 13213 : 2018,	R	One	-do-	
	ii) Drying Time Surface Dry Hard Dry Hard Dry, 70 ⁰ C	-	IS 101(Part3/Sec 1)	R	One	-do-	
	iii) Finish	-	IS 101(Part3/Sec 4)	R	One	-do-	
	iv) Gloss 60 ⁰		IS 101(Part4/Sec 4)	R	One	-do-	
	v) Colour	-	IS 101(Part4/Sec2)	R	One	-do-	
	vi) Dry film thickness	6.2.1	IS 101(Part3/Sec 2)	R	One	-do-	
	vii) Volume solids	-	IS 101(Part8/Sec 6)	R	One	-do-	

	viii) Flexibility and adhesion Bend test Scratch hardness	2 3	IS 101(Part5/Sec2) IS 101(Part5/Sec2)	R R	One One	-do- -do-	
	ix)Flash point		IS 101(Part1/Sec6)	R	One	-do-	
	x) Fineness of grind		IS 101(Part3/Sec5)	R	One	Each Control Unit	
	xi)Pot life	Annex D	IS 13213 : 2018	R	One	- do-	
	xii) Mass Kg/ 10 Lt.		IS 101(Part1/Sec7)	R	One	- do-	
	xiv)Accelerated Test Resistance to acid Resistance to alkali Resistance to oil Resistance to solvents	Annex E	IS 13213 : 2018	R	One	Once in a Month	
4.3 & 4.4 & Table 1	xv) Durability test						
	Out-door Exposure		Annex F	S	One	Once in three months	
	Accelerated Weathering Test		-do-	S	One	Once a year	
	Colour change		-do-	S	One	Once in three months	
	Gloss retention		-do-	S	One	Once in three months	
	Corrosion	C-3.4	IS 8662	S	One	Once in three months	
4.4 & Table 1	xvi) Keeping Properties		IS101(Part6/Sec2)	S	One	Once in three months	

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the

Bureau.

Note–2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.