



**Product Manual for Epoxy Based Zinc Phosphate Primer (Two Pack)  
According to IS 13238:1991**

**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.**

<b>1.</b>	<b>Product</b>	:	IS 13238:1991
	Title	:	Epoxy based Zinc Phosphate primer (Two Pack)
	No. of Amendments	:	3
<b>2.</b>	<b>Sampling Guidelines:</b>		
a)	Raw material	:	Epoxy resin shall conform to cl. 4.1.1.1, and pigment shall conform to cl. 4.1.1.2 of IS 13238
b)	Grouping guidelines	:	Not Applicable since there are no varieties
c)	Sample Size	:	3X500 ml (both the packs)
<b>3.</b>	<b>List of Test Equipment</b>	:	Please refer ANNEX –A
<b>4.</b>	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX –B
<b>5.</b>	<b>Possible tests in a day:</b>		
	(i) Drying time – Only Surface dry, and Hard Dry, 70°C (ii) Finish (iii) Colour (iv) Dry film thickness (v) Volume solids (vi) Flash Point (vii) Mass in kg/ 10 litres		
<b>6.</b>	<b>Scope of the Licence :</b>		
	"Licence is granted to use Standard Mark as per IS 13238: 1991 with the following scope:		
	Name of the product	:	Epoxy based Zinc Phosphate primer (Two Pack)

## Annex - A

## List of Test Equipment

Major test equipment required to test as per the Indian Standard.

Sr. No.	Test / Cl. Ref.	Test Equipment
1.	Composition/CI 4.1	<b>Epoxy content</b> - Burette, Magnetic stirrer, Erlenmeyer flask, magnetic stirring bar (TFE coated), Chlorobenzene, Crystal violet, glacial acetic acid, anhydrous hydrogen bromide, potassium acid phthalate – primary standard AR (as per 4 of IS 9162) <b>Mass of Pigment</b> - Pyridinium chloride, methyl alcohol, sodium hydroxide, phenolphthalein indicator, analytical balance. <b>Mass of Zinc Phosphate</b> – Centrifuge tubes, lab oven, centrifugal machine, analytical balance, Methyl iso-butyl ketone or methyl ethyl ketone, xylene and acetone (as per IS 101 Pt 8 Sec 2)
2.	Drying time/CI 4.2 Table 1 SI No 1	Silver sand, IS sieve 150 and 300-micron, brush (soft haired), k-4 power cable paper, humidity chamber, metal test panel (Ref IS 101 Pt 3 Sec1)
3.	Consistency/CI 4.2 Table 1 SI No 2 and Pot Life/CI 4.2 Table 1 SI No 13	<b>Flow Cup Method:</b> Flow cup, thermometer, spirit level, stand, straight edge scrapper, stop watch, Or <b>Cone &amp; plate or concentric cylinder viscometer method:</b> Viscometer of cone & plate or concentric cylinder type, standard refined mineral oils, thermometer, Or <b>Stromer Viscometer Method:</b> Stromer viscometer, beaker, thermometer, weights 5 – 1000 g (Ref IS 101 Pt 1 Sec 5)
4.	Finish/ CI 4.2 Table 1 SI No 3	Mild Steel Panel, Brush, Panel Stand (Ref IS 101 Pt 3 Sec 4)
5.	Colour/CI 4.2 Table 1 SI No 4	Reference colour standard, Test panels, Brush Panel stand, Thickness gauge, Color matching booth (Ref IS 101 Pt 4 Sec 2)
6.	Dry film thickness/CI 4.2 Table 1 SI No 5	Electromagnet, test metal panel/surface, brush, airless spray (Annex B)
7.	Volume solids/CI 4.2 Table 1 SI No 6	Analytical balance (LC 0.1 mg) SS disc, weight box, beaker, mass per litre cup, hot air oven (105±2°C). (Annex C)
8.	Scratch hardness with 1500 g load /CI 4.2 Table 1 SI No 7	Scratch hardness apparatus with needle, Mild steel panel, Brush Panel stand, Oven, Humidity Chamber (Ref IS 101 Pt 5 Sec 2)
9.	Flexibility and adhesion/CI 4.2 Table 1 SI No 8	Panels, Bend test apparatus, cutting tool, cutting guide, magnifying glass, pressure sensitive tape, illumination (Ref IS 101 Pt 5 Sec 2)
10.	Flash point, /CI 4.2 Table 1 SI No 9	Test cup with stirrer & cover, flame source, thermometer, constant temperature bath (Ref IS 101 Pt 1 Sec 6)
11.	Resistance to Salt Spray/CI 4.2 Table 1 SI No 10	Metal panels, corrosion cabinet and spray cabinet as per IS 101 (part 6/ sec 1), DFT meter, humidity chamber. (Ref IS 101 Pt 6 Sec 1)
12.	Protection against corrosion/CI 4.2 Table 1 SI No 11	-do-
13.	Mass in kg / 10 litre/CI 4.2 Table 1 SI No 12	Pyknometer, analytical balance, constant temperature bath, thermometer (0.1 LC) (Ref IS 101 Pt 1 Sec 7)
14.	Keeping properties/CI 4.2 Table 1 SI No 14	Spatula with square ended blade, Weighing balance, Nylon Paint Brush, Test Surface

Note-1 : The least count and range of test equipment should match value/ parameters/ tolerances mentioned in the Indian Standard.

Note 2: The list is meant for guidance only and may not be taken as exhaustive.

**Annex - B**  
**SCHEME OF INSPECTION AND TESTING**

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

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

2. **TEST RECORDS** - 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 license shall be printed on each container and on the label applied to the container; provided always that the material in each container on which this Mark is thus applied conforms to every requirement of the specification.

3.1 The Standard Mark as given in Schedule of the license and Licence Number (i.e. CM/L .....), labeling/ marking and packing shall be done as per the provision of the Indian Standard, provided always the product thus marked conforms to all the requirement of the specification. In addition, details of BIS website shall be marked as follows: "For details of BIS certification please visit [www.bis.gov.in](http://www.bis.gov.in)"

4. **CONTROL UNIT** – For the purpose of this scheme, the Epoxy based Zinc Phosphate primer 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 indicated in Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

All the production which conforms to the Indian Standards and covered by the licence should be marked with 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. A separate record providing the detailed information regarding the rejected control units and mode of their disposal shall be maintained. Such material shall in no case be stored together with that conforming to the specification. The Standard Mark (if already applied) on rejected material should be defaced.

**IS 13238: 1991**  
**POLYURETHANE FULL GLOSS ENAMEL (TWO-PACK)**

**TABLE 1: LEVEL OF CONTROL**  
**(Para 5 of the Scheme of Inspection and Testing)**

(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 13238:1991				
4.1.1	Base						
4.1.1.1	Epoxy resin	4	IS 9162:1979	S	One	Each consignment of epoxy resin No testing is required if epoxy resin is received with supplier's test certificate	
4.1.1.2	Minimum Mass of pigment on the mass of paint	4.1.1.2	IS 13238:1991	R	One	Each Control Unit	
4.1.1.2	Minimum Mass of Zinc Phosphate in the pigment	27	IS 101 (Pt 8/Sec 2)	S	One	Each consignment of pigment No testing is required if pigment is received with supplier's test certificate	
4.1.2	Hardener	4.1.2	IS 13238:1991	R	One	Each Control Unit	
4.2 & Table 1 SI No 1	Drying Time a) Surface Dry b) Hard Dry c) Hard Dry, 70°C d) Curing time	-	IS 101( Part3/Sec 1)	R	One	Each Control Unit	

SI No 2	Consistency		IS 101( Part1/Sec 5)	R	One	-do-	
SI No 3	Finish	-	IS 101( Part3/Sec 4)	R	One	-do-	
SI No 4	Colour	-	IS 101( Part4/Sec2)	R	One	-do-	
SI No 5	Dry film thickness	Annex B	IS 13238:1991	R	One	-do-	
SI No 6	Volume solids	Annex C	IS 13238:1991	R	One	-do-	
SI No 7	Scratch hardness with 1500g load	-	IS 101( Part5/Sec1)	R	One	-do-	
SI No 8	Flexibility and adhesion	-	IS 101( Part5/Sec2)	R	One	-do-	
SI No 9	Flash point	-	IS 101( Part1/Sec6)	R	One	-do-	
SI No 10	Resistance to salt spray at 40±5 micron DFT, 500 hours	-	IS 101( Part 6/Sec 1)	R	One	Once in a month	
SI No 11	Protection against corrosion under condition of condensation at 40±5 micron DFT, 500 hours	-	IS 101( Part 6/Sec 1)	R	One	Once in a month	
SI No 12	Mass in Kg/ 10 Lt.		IS 101(Part1/Sec7)	R	One	- do-	
SI No 13	Pot life at 27 ± 2 °C	Annex D	IS 13238:1991	R	One	- do-	
SI No 14	Keeping Properties		IS101(Part6/Sec2)	R	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 empaneled 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 B.O. Head.