



उत्पाद मैनुअल

सतत पूर्व - रोगनीत जस्तिकृत इस्पात की चादरें एवं पतियां - विशिष्ट

आई एस 14246:2024 के अनुसार

**PRODUCT MANUAL FOR
CONTINUOUSLY PRE-PAINTED GALVANIZED STEEL SHEET AND
STRIPS ACCORDING TO IS 14246:2024**

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 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.	मानक संख्या IS No.	:	IS 14246:2024
	Title	:	Continuously Pre-Painted Galvanized Steel Sheets and Strips
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	Raw material	:	The base steel and its grade for pre-painted galvanized sheet and strip shall conform to IS 277 <i>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</i>
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer Annex - A
c)	नमूने का परिमाण Sample Size	:	2 pcs of 500 mm x 500 mm for complete testing For the purpose of GoL in cases where base steel as per IS 277 is not ISI marked, a sample of 500 mm x 500 mm shall be drawn for complete testing as per IS 277 <i>Note: This section indicates the quantity of the sample of the</i>

			<i>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)</i>
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer Annex –B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer Annex –C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	:	Please refer Annex – D <i>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</i>
6.	Scope of the Licence :		
	Licence is granted to use Standard Mark as per IS 14246:2013 with the following scope:		
	Name of the product	Continuously pre-painted galvanized Steel sheets and coils	
	Class of durability of paintcoating	Class 0/Class 1/Class 2/Class 3/Class 4	
	Sizes	Sheets of sizes: (Thickness X width X length in mm) Coils of sizes: (Thickness x Width Internal diameter in mm)	
	Profiles	Requirements as declared by the manufacturer	

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ANNEXURE A

GROUPING GUIDELINES

1. The product is classified in to Class 1, Class 2, Class 3 & Class 4 based on durability of Organic Coating as given in Table 1 of IS 14246. Product with paint coating on only one side has been designation as Class 0. The classification is based on durability of coating to withstand salt spray test and humidity resistance test. Class 4 being the most stringent Class based upon the duration of salt spray test and humidity resistance test.
2. Other durations of Durability Tests can also be specified as per agreement between the manufacturer and purchaser. However, durability requirements are for manufacturer's information only and are not mandatory at the time of production/coating.
3. Accordingly following Grouping Guideline is to be followed for grant of licence and inclusion:

a) One sample of each Durability Class of Paint Coating (Class 1, Class 2, Class 3 and Class 4) of any size (thickness, width, length) shall be tested for all requirements of the standard to cover all sizes for that Durability Class.
4. The manufacturer may declare the duration of Durability Tests , either the same as per Table 1 or any other duration apart from those specified as per Table 1 of IS 14246:2024, and these requirements may be tested accordingly. However, since Durability tests are for information only, the declaration may not be insisted upon.
5. Class 0 may automatically be covered in the scope of the licence when sample of either of the classes (Class 1 to 4) is drawn and is found conforming.
6. The requirements of each profile (as per agreement between the manufacturer and purchaser) shall be declared by the manufacturer. Each profile shall be tested for all the requirements of IS 14246:2024, including the requirement of imposed load on roofs as per cl.4.2. of IS 875 (Part 2), for the purpose of GoL/CSoL and shall be suitably reflected in the scope of the licence.
7. Scope of licence shall be restricted based on the manufacturing and testing facilities available.
8. During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible

ANNEXURE B**LIST OF TESTING EQUIPMENT****(INDICATIVE LIST, FOR GUIDANCE ONLY)**

Sr. No.	Tests used in with Clause Reference	Test Equipment
1	Dry Film Thickness,cl.4.4.	Micrometer Depth Gauge, Dial Depth Gauge, Reference Plate (Polished Glass Plate),
1	Bend Test Clause 6.2	Cylindrical Mandrel Bend Tester, with appropriate mandrel as per Table 2 of IS 14246:2024
2	Pencil Hardness Test Clause 6.3	Pencil Hardness Tester, including various standard pencils of required hardness along with sharpener, Abrasive paper (grit no. 400), Level firm horizontal surface, spirit balance
3	Impact Resistance Test Clause 6.4	Impact Tester, with weight of 500g and apparatus to drop from 600mm
4	Cross Hatch Test Clause 6.5	Cross Hatch Cutter (11x1) for checking paint adhesion, soft brush/tissue, 25 mm wide semi transparent pressure sensitive tape
5	Solvent Resistance Test, cl.6.6.	Fume cupboard, Protective Gloves, Cotton Pad (50 mm square), Solvent (MEK or MIBK), Solvent Double Rub Machine,
6	Appearances Clause 7 Gloss Clause 7.3.1 Colour Clause 7.3.2	For Gloss as per Clause 7.3.1- Gloss Meter For Colour as per Clause 7.3.2- Colour matching Cabinet with different lights. For high repeatability and reproducibility Spectrophotometer is recommended.

7	Requirement: 1. Salt Spray Cabinet, with a volume not less than 0.2m³ as per IS 9844 (Clause 8 of IS 14246:2024). The spray cabinet shall be sufficient big enough to accommodate all samples giving enough exposure. The sample stand to be there having an angle as close as possible to 20 °. The angle of exposure to be maintained within 15 ° to 30°. The sample should not be placed in direct line with atomizer(as per IS 9844) 2. The NaCl solution of required concentration. It should be ensured that test spray which has be sprayed should not be reused. 3. pH meter to measure the pH of the solution 4. Temperature to be maintained at 35±2°C as per IS 9844 (Clause 8 of IS 14246:2013). 5. Temperature controller with heating arrangement 6. Continuous supply of power to be ensured. 7. Arrangement for cleaning of samples need to available (As per IS 9844)	Salt Spray Test (Corrosion Resistance), Clause 8.1
8	Metal Panels of Mild Steel (as per IS 101 (Part 1/Sec 3)) Corrosion Cabinet (Relative Humidity of 100%, Temp: 42-48 deg Celsius) Stove Degreasing Agent IS Grit No 180 Emery Cloth	Humidity Resistance, cl.8.2.
9	Requirement of Micrometer, Vernier Calliper, Meter Tape with valid calibration. Digital thickness gauge of sufficient resolution may also be used for very low thickness.	Dimensions and Tolerance Clause 9.1, 9.2, 9.4, 9.4.1, 9.4.2, 9.4.3
10	Weighing balance of capacity more than 10 tonnes	Mass Clause 9.3, 9.4.4
11	Straight End and filler gauge	Camber Clause 10.1
12	Square End and filler gauge	Deviation from Squareness (Out of Square) Clause 10.2
13	Flat surface and scale	Deviation from Flatness Clause 10.3

ANNEXURE 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:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is : **For the purpose of this scheme, all sheets/coils having same cast/quality, dimensions, grade of zinc coating, colour and class of paint coating manufactured on a single line in a day 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**.

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. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 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/empanelled 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 commoncluster 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 top of each coil or package of sheets or shown on a tag attached to each coil and/or on the Test Certificate, 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.

4. TEST CERTIFICATE - For each consignment of BIS Certified Material conforming to IS 14246:2024, the manufacturer shall issue a Test Certificate as per the format enclosed as Annexure-I.

5. 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)

Test Details		Levels of Control					
		Test Methods		Test equipment requirement Required or Sub Contracting Permitted	No of Samples	Frequency	Remarks
Sl No	Requirement	Clause	Reference				
1.	Manufacture (base galvanized steel)	4.1, 4.2	IS 14246, IS277	S	One	Each Consignment of same quality, dimensions and galvanized (grade of zinc coating)	Each consignment of material to be supported with test certificate. No further testing is required materials are Standard Marked
2	Dry Film Thickness	4.3, 4.4, 5 B	IS 14246, ISO 2808	R	One	Each Control Unit	

3	Profiles	4.5, 9.6	IS 14246	S	The pre-painted galvanized steel sheets of this standard may also be supplied in profiles based on mutual agreement between the purchaser and the supplier for structural applications subject to fulfillment of required condition for imposed load on roofs as per 4.2 of IS 875 (Part 2). In case of sheets of profiles the dimensions and tolerances shall be as agreed to between the purchaser and the manufacturer.		
3	Physical Properties of Organic Coating	6	IS 14246	R	Ref. Sl. No. 3.1 to 3.4 below		
3.1	Bend Test	6.2	IS 14246	R	One	Each Control Unit	---
3.2	Pencil Hardness Test	6.3	IS 14246	R	One	Each Control Unit	---
3.3	Impact Resistance Test	6.4	IS 14246	R	One	Each Control Unit	---
3.4	Cross Hatch Test	6.5	IS 14246	R	One	Each Control Unit	---
3.5	Solvent Resistance Test	6.6	IS 14246, Annex B	R	One	Each Control Unit	----
3.6	Other Tests	6.7	IS 14246	S	As per agreement between the manufacturer and the purchaser		
4	Appearance	7.1, 7.2, 7.3	IS 14246	R	Firm shall exercise adequate in process controls to ensure that each coil/sheet is free from harmful defects. However, appropriate records shall be maintained by the manufacturer for evidence of conformity.		
4.1	Gloss	7.4	IS 14246, IS 101 (Part 4/Sec 4)	S	---	----	Gloss of pre-painted steel product shall comply with the requirement as agreed between the supplier and the purchaser, when tested as per IS 101 (Part 4/Sec 4).
4.2	Colour	7.5	IS 14246,	S	---	----	Colour shall

			Table 3				be as agreed to between the manufacturer and purchaser
5	Salt Spray Test (Corrosion Resistance)	8.1	IS 14246, IS 9844, Table 4	S	----	----	Durability tests are for manufacturer's information only and are not necessarily mandatory at the time of production/coating
6	Humidity Resistance	8.2	IS 14246, IS 101 (Part 6/Sec 1)	S	---	----	Durability tests are for manufacturer's information only and are not necessarily mandatory at the time of production/coating
6	Dimensions and Tolerances	9.1,9.2,9.4,9.4.1,9.4.2,9.4.3,9.5	IS 14246, IS 277	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
6.1	Mass	9.3,9.4.4	IS 14246	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
7	Shapes	10	IS 14246, IS 513	R	Re. Sl. No. 7.1 to 7.3 below		
7.1	Camber	10.1	IS 14246 IS/ISO 16163	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be		

					maintained by the manufacturer for evidence of conformity
7.2	Deviations from Squareness (Out of Square)	10.2	IS 14246, IS/ISO 16163	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity
7.3	Deviation from Flatness	10.3	IS 14246, IS/ISO 16163	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity

ANNEXURE I
TEST CERTIFICATE FOR
Continuously pre-painted galvanized Steel sheets
and coils According to IS 14246:2024

TEST CERTIFICATE No. _____
To M/s _____

DATE _____

We certify that the material described below fully conforms to IS 14246:2024

. Chemical composition and Physical properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence No. CM/L_ are as indicated below against each order No.
(PLEASE REFER TO IS 14246:2024 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. and date	Control Unit/lot/batch number.	Nominal Size	Class of paint coating	Quantity (tonnes)	Sheets/coils	Coating	Bend test	Pencil hardness test	Impact resistance test	Cross hatch test	Solvent Resistance Test	Salt spray test	Humidity Resistance Test	Appearance	Mass	Name of top colour	Remarks

REMARKS
WAGON NO.
TRUCK NO.

(It is suggested that size A4 paper be used for this test certificate)

FOR XYZ IRON AND STEEL COMPANY

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