



PM/ IS 15965/ 1  
Sept 2019

**PRODUCT MANUAL FOR  
Pre-painted Aluminium Zinc Alloy Metallic Coated Steel Strip and Sheet (Plain)  
According to IS 15965:2012**

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.	<b>Product</b>	:	IS 15965:2012
	<b>Title</b>	:	Pre-painted Aluminium Zinc Alloy Metallic Coated Steel Strip and Sheet (Plain)
	<b>No. of amendments</b>	:	NIL
2.	<b>Sampling Guidelines</b>		
a)	<b>Raw material</b>	:	The substrate for pre-painted aluminium-zinc alloy metallic coated steel strip and sheet (plain) shall conform to IS 15961.
b)	<b>Grouping Guidelines</b>	:	Please refer Annex - A
c)	<b>Sample Size</b>	:	Mechanical:1 m length; Chemical: 5 pcs of 5cm x 5cm each, Separate 0.5 m length shall be drawn for Clause 8.3.2, 8.5 and 10.1 (Sample to be drawn during PI for test of substrate as per 5.1 also)
3.	<b>List of Test Equipment</b>	:	Please refer Annex –B
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer Annex –C
5.	<b>Possible tests in a day</b>	:	All tests except Corrosion Resistance and Humidity Resistance
6.	<b>Scope of the Licence :</b>		
	Licence is granted to use Standard Mark as per IS 15965:2012 with the following scope:		
	<b>Name of the product</b>	Pre-painted Aluminium Zinc Alloy Metallic Coated Steel Strip and Sheet (Plain)	
	Grade	Steel grade as per IS 15961 (YS 550 etc.)	
	Coating Class	AZ 150 etc.	
	Class of durability of paint coating	Class 1/2/3/4	
	Thickness	From ___ mm up to and including ___ mm	



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**ANNEXURE A  
TO PRODUCT MANUAL FOR  
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**GROUPING GUIDELINES**

1. From each durability class of pre-painted aluminium-zinc alloy metallic coated steel strip and sheet (plain), one sample of highest thickness and highest mass of metallic coating, shall be drawn for testing for covering the entire range of thickness and metallic mass of coating of Pre-painted Galvanized Steel Sheet and coils, offered for inspection.
2. If a sample has been drawn and tested for higher durability class of material offered (e.g.class 4), the recommendation shall include lower classes (e.g. class1 , class 2, class 3) also
3. If a sample has been drawn and tested for higher grade of material offered (e.g. Grade designation YS 550), the recommendation shall include lower grades (e.g. Grade designation YS 250, Y5 300, Y5350, YS450) also.
4. It shall be ensured that manufacturer is having complete manufacturing and testing arrangements required for the varieties to be covered in the licence.
5. During operation of licence, samples shall be drawn during surveillance visits on rotation basis so as to cover all grades included in the licence.
6. For inclusion of additional classification of grades in the existing license, samples shall be drawn from additional grades, following the same procedure as mentioned above for grant of license.



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**ANNEXURE B**  
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**LIST OF TESTING EQUIPMENT**

Major test equipment required to test as per requirements of Indian Standard.

Sr. No.	Test Equipment	Tests used in with Clause Reference
1	Atomic Absorption Spectrometer	Clause 5.1 -To analyse the Al,& Zinc bath & chemistry of HR Coil / CR Coil
2	Single Pan Balance	Clause 7.1 -Weight Measurement
3	Universal Testing Machine	Clause 6.2 -To check the mechanical property of metal
4	Micrometer	Clause 7.3, 7.4,8.7,11.1,11.3 - To measure thickness of sheet and paint Coating
5	Bend Tester	Clause 8.3.1 -To check the adhesion
6	Pencil Hardness Tester	Clause 8.4 -Hardness of Dry Paint film
7	Impact Tester	Clause 8.3.2 -For Adhesion and flexibility of Dry film paint.
8	Salt Spray/Humidity Testing Machine	Clause 7.5, 10.1, 10.2- To check corrosion and Humidity resistance
9	Colour Matching Cabinete	Clause 9.1 -To check colour difference visually
10	Colour Spectrophotometer with Gloss	Clause 9.2 , 9.3 -To check Gloss and Shade of Dry paint
11	Measuring Tape	Clause 11.4.2,11.4.3,12.1,12.2 - To measure Width and length, camber,out of squareness
12	Weigh Bridge	Clause 11.2 , 13.1 -To do weightment of mass.
13	Verniercaliper for Flatness	Clause 12.3 -To measure flatness of sheet
14	Scratch Resistance Tester	Clause 8.5 - For Scratch resistance of Dry film of paint.
15	MEK Rub Machine	Clause 8.6 -To check the curing of dry film paint
16	Cross Hatch Tester	Clause 8.3.2 -For Adhesion and flexibility of Dry film of paint.

Least Count and Range should match the values/parameters/tolerances mentioned in the Indian Standard.

**The above list is meant only for guidance and may not be treated as exhaustive.**



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**ANNEXURE C**  
**TO PRODUCT MANUAL FOR**  
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**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.

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

**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 marked on the top of each coil or package of sheets provided that the material contained in the package thus marked conforms to the requirement of the specification.

3.1 Packing and Marking shall be done as per the provisions of the standard. In addition, details of BIS Certification i.e. BIS Licence Number CM/L—and BIS website shall be marked on each coil or package of sheets or shown on a tag attached to each coil 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 material or part thereof representing the same cast/heat-treatment batch and of the same thickness per shift shall constitute a control unit.

**5. LEVELS OF CONTROL** - The tests as indicated in column 1 of 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.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

**6. TEST CERTIFICATE**-For each consignment of BIS Certified material conforming to this specification there shall be a test certificate which shall contain the Standard Mark, the lot/cast number and the corresponding test results (as given in Annexure I enclosed).

**7. REJECTIONS** – 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. Any rejected material which is potentially resalable be sheared or cut or deformed in such a manner that it cannot be used for any other purpose. A separate record shall be maintained giving information on quantity and batch number/control unit number, as applicable, relating to all such rejections/defective/substandard material of the production not conforming to the requirements of the Specification and the method of its disposal. 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.

**TABLE 1**  
**LEVELS OF CONTROL**  
(Clause 5 of SIT)

(1)				(2)	(3)		
TEST DETAILS				Test Equipment R: required S: Sub Contracting	LEVELS OF CONTROL		
Cl.	Requirement	Test Methods			No. of samples	Frequency	Remarks
		Clause	Reference				
5.1	Manufacture	5	IS 15965:2012	R	1	Each cast of materials rolled having same quality and dimensions and grade of metallic coating OR Each consignment of same quality, dimensions and metallic coating.	Each consignment of Material to be supported with test certificate. No further testing required if materials are Standard Marked.
7	Coatings	7.1;7.3; 7.4,8.2	- do-	R	1 from every 25 t of Sheets / Coil	Each control unit	Paint coatings may Also be supplied as per agreement with manufacturer and the purchaser (Note under clause 7.3 and Annex F of IS 15965:2012). In such cases, requirements to be tested against declared values

8	Physical Properties of Paint Coating	8, 8.2					
8.3.1	T-bend Adhesion Test	Annex A	IS 15965:2012	R	1 from every 25 t of Sheets / Coil	Coil / Sheets: every 25 tonnes or each control unit	Sheets/coils of the Same quality, dimensions, grade of metallic coating and colour.
8.3.2	Reverse Impact Resistance Test	Annex B	IS 15965:2012	R	-do-	-do-	-do-
8.4	Pencil Hardness Test	4	IS 101 Pt 5/Sec 1	R	-do-	-do-	-do-
8.5	Scratch hardness	3	IS 101 Pt 5/Sec 1	S	As agreed between purchaser and supplier		
8.6	Solvent Resistance Test	Annex C	IS 15965:2012	R	1 from every 25 t of Sheets / Coil	Coil / Sheets: every 25 tonnes or each control unit	Sheets/coils of the Same quality, dimensions, grade of metallic coating and colour.
8.7	Dry Film Thickness	5B	ISO 2808	R	-do-	-do-	-do-
9.1	Appearance – general	9.1	IS 15965:2012	R	-do-	-do-	Visual

9.2	Appearance- Colour	9.2, 8.2	IS 15965:2012	R	-do-	-do-	Colour of sheets/coils as per agreement between the manufacturer and the purchaser (Clause 9.2 of IS 15965:2012)
9.3	Appearance- Gloss	9.3	IS 15965:2012	R	-do-	-do-	Gloss of sheets/coils as per agreement between the manufacturer and the purchaser (Clause 9.3 of IS15965:2012)
10.1	Salt Spray Test (Corrosion Resistance)		IS 9844	S	One	Once every three months	Samples of all durability classes covered in licence shall be tested in rotation
10.2	Humidity Resistance		IS 101 (Part 6/Sec 1)	S	One	Once every three months	Samples of all durability classes covered in licence shall be tested in rotation
11	Dimensions and Tolerances	11.1, 11.2, 11.3, 11.4.1, 11.4.2, 11.4.3	IS 15965:2012	R	Sheet:3 Coil :each	Each control unit	Sheets and coils may also be supplied in sizes and mass as per agreement with manufacturer and the purchaser (Clause11.3 of IS15965:2012). In such cases, requirements to be tested against declared values
13	Mass	11.2, 11.3, 13.1, 13.2	IS 15965:2012	R	Sheet : 1 Coil :Each	Each coil / Packet	-do-
12	Shapes	12	IS 15965:2012				

12.1	Camber	12.1	IS / ISO 16163	R	Sheet:3 Coil :1	Each control unit	
12.2	Deviations from Squareness (Out of Square)	12.2	IS 15965:2012	R	Sheet:3	Each control unit	
12.3	Deviations from Flatness	9.3	IS 15965:2012	R	Sheet:3	Each control unit	

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: The control unit and levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.



**ANNEXURE I**

(Para 6 of the Scheme of Inspection and Testing)  
XYZ IRON AND STEEL COMPANY  
(Registered office Address and works address)

**TEST CERTIFICATE FOR**

**Pre-painted Aluminium Zinc Alloy Metallic Coated Steel Strip and Sheet (Plain) According to IS 15965:2012**

TEST CERTIFICATE No. \_\_\_\_\_

DATE \_\_\_\_\_

To M/s \_\_\_\_\_

We certified that the material described below fully conforms to IS 15965:2012

. 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 15965:2012 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

**TEST RESULTS**

Order No. and date	Control unit/Coil/Package No.	Size T x W x L	Durability Class	Quantity (tonnes)	No of Sheets/Coil	Dry film thickness	Adhesion Test	Pencil hardness test	Impact resistance test	Solvent resistance test	Gloss	Name of top colour	Al-Zn Coating class	Steel Grade	Remarks

# If agreed between purchaser and manufacturer

\* If applicable

REMARKS  
WAGON NO.  
TRUCK NO.

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

FOR XYZ IRON AND STEEL COMPANY