



उत्पाद मैनुअल
कोल्ड रिड्यूस्ड टिनप्लेट और कोल्ड रिड्यूस्ड ब्लैकप्लेट
के लिए कॉइल फॉर्म में हॉट रोलड माइल्ड स्टील शीट और स्ट्रिप
IS 2385:1977 के अनुसार

PRODUCT MANUAL FOR
Specification for hot - Rolled mild steel sheet and strip in coil
form for cold - Reduced tinplate and cold - Reduced
blackplate according to IS 2385:1977

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम 2018 की स्कीम-I के तहत यह उत्पाद मैनुअल प्रमाणीकरण की संचालन रीति में सुसंगतता और पारदर्शिता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्सधारियों द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग 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 2385:1977
	शीर्षक Title	:	Specification for hot - Rolled mild steel sheet and strip in coil form for cold - Reduced tinplate and cold - Reduced blackplate
	संशोधन संख्या No. of amendments	:	02
2.	नमूनाकरण दिशा निर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific raw material requirement

b)	समूहिकरण दिशा निर्देश Grouping Guidelines	:	N.A.
c)	नमूने का परिमाण Sample Size	:	For Chemical Test: 5 test pcs of 50 mm x 50 mm size For Physical Test: NA (No physical tests prescribed in IS 2385. Dimensional tests to be done in the factory on full width strip)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer Annex – A
4.	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing	:	Please refer Annex – B
5.	एक दिन में संभावित परीक्षण Possible tests in a day	:	All tests are possible to be carried out in a day
6.	लाइसेन्स का कार्यक्षेत्र /Scope of the Licence:		
	IS 2385:1977 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्रके लिए प्रदान किया जाता है Licence is granted to use Standard Mark as per IS 2385:1977 with the following scope:		
	Name of the product	Hot Rolled Mild Steel Sheet and Strip in Coil Form for Cold Reduced Tinplate and Cold Reduced Blackplate	
	Size	Thickness from ...xx... mm to up to and including ...xx... mm Width from ...xx... mm to up to and including ...xx... mm	

BUREAU OF INDIAN STANDARDS
Manak Bhawan, 9, Bahadur Shah Zafar Marg,
New Delhi – 110002

**ANNEX A TO PRODUCT MANUAL FOR
Specification for hot - Rolled mild steel sheet and strip in coil
form for cold - Reduced tinplate and cold - Reduced
blackplate according to IS 2385:1977**

LIST OF TESTS EQUIPMENTS

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

Sr.No.	Test Equipment	Test Used in With Clause Reference
1	Device for instrumental chemical analysis such as Optical Spectrometer with all requisite channels OR • Carbon Sulphur (Strohlein“stye) Apparatus – Complete set consisting of glass parts, combustion furnace, oxygen cylinder , combustion tubes/ boats etc. • Porcelain boat (capable of withstanding 1150 deg. C) • Weighing Balance • Hot plate • Muffle furnace • Induction Furnace • Barometer, Thermometer • Burette, Pipette and Full Range of Lab. Glassware like : Conical Flasks ,Beakers, Funnel, Pipettes Glass rod, watch Glass, Brush etc. • Standard Reference Material • Platinum Crucible for Silicon Test • Dessicator • Filter paper, Whatman Filter Paper & Ash less clippings • Arrangements for nitrogen testing • Drilling machine Chemicals and reagents as applicable (Indicative element wise list of test apparatus, chemicals and reagents is enclosed)	For Chemical Composition (Cl. 5) (C,S,P, Mn, Si, Al, N)
2	Micro meter (Flat Type), Vernier Calipers and Steel Measuring Tape, Weigh bridge or weighing scale of appropriate capacity	Dimensions and tolerances and Weight (Cl. 8)
3	Visual	Freedom from defects (Cl.6)

Note: The above is an indicative list for the purpose of guidance only.

ANNEX A -continued
INDICATIVE LIST OF TEST APPARATUS, CHEMICALS AND
REAGENTS FOR CHEMICAL ANALYSIS THROUGH
CHEMICAL METHODS AS PER IS 228

1	cl.8.1,8.2 – C&S (chemical method ,alternative to instrumental method)	Strohlein or Leco apparatus with all attachments Barometer with chart, Hot plate,Muffle furnace, Complete range of glass wares, measuring cylinders, Desiccator, porcelain boats or ceramic crucibles, Thermometer, Electronic Balance, Distilled Water, Hot air oven, Oxygen - 99.5 percent minimum purity,ether or acetone Standard Reference Material (NML)with certificate Reagents for C:tin granules or pure iron fillings, acidulated water/brine water, methyl red, caustic potash Reagents for S: Ceramic boats/crucibles –desiccators, Fluxes-Low sulphur copper, tin or iron, Dilute hydrochloric acid, Starch Iodide solution, Potassium iodate
2	Phosphorus content Cl 8.1,8.2 (chemical method,alternative to instrumental method)	Weighingbalance,Heater/Heating element along with energy regulator, Ice water bath, Vol Flask Cap – 1 litre, (Whatman) filter paper No. 040, Suction Filtration Facility, Filter paper pulp pad, Standard Reference Material (NML)with certificate Potassium Permanganate(KMnO₄),SodiumNitrite (Na₂NO₃), Ammonium Molybdate [(NH₄)₂ Mo₂O₇], Ammonium Phosphate[(NH₄)₃ PO₄], Potassium Nitrate (K₂NO₃), Phenolphthalein Solution,Rectified spirit or methyl alcohol, Sodium Hydroxide (NaOH), Hydrofluoric Acid (HF), Perchloric Acid (HClO₄), Sulphurous Acid, ,Hydrobromic Acid(HBr),other chemicals and reagent as applicable
3	ManganesecontentCl8.1,8.	Hotplate, Conical flask

	2 (chemical method, alternative to instrumental method)	Reagents: silver nitrate, ammonium per sulphate sodium arsenite solution, Dilute Nitric Acid, Phosphoric Acid, Dilute Sulphuric Acid, Concentrated Nitric Acid, NaCl Solution, Permanganic acid
4	Silicon content Cl 8.1, 8.2 (chemical method, alternative to instrumental method)	Medium textured filter paper, Porcelain casserole, platinum crucible, filter paper pulp, hot plate, hot air oven, muffle furnace Reagents: Silver nitrate solution, concentrated nitric acid, concentrated sulphuric acid, Dilute Hydrochloric Acid, Dilute Sulphuric Acid, Perchloric Acid, Tartaric acid and hydrofluoric acid
5	Nitrogen content cl.8.1, cl.8.2	<u>Determination of Nitrogen by Thermal Conductivity Method</u> Ascarite Anhydrome Copper Oxide Helium Graphite Crucible Standard Samples of Steel of known Nitrogen content 99.5% Pure Nitrogen Gas Analyzer <u>By Inert gas fusion followed by thermal conductivity detection</u> Gas Analyzer Graphite Crucible Crucible Tongs Helium (99.99 percent and above purity) Magnesium Perchlorate (Commonly known as Anhydrome) Sodium Hydroxide on Asbestos

		(Commonly known as Ascarite) Rare Earth Copper Oxide <u>By Steam Distillation Method</u> Sulphuric Acid Potassium Sulphate Copper Sulphate Sodium Hydroxide Tartaric Acid Mixed Indicator (bromocresol green and methyl red) Air Condenser Steam Distillation Apparatus Nessler's Reagent Ammonia Free Water Potassium Sulphate Copper Sulphate Dilute Sulphuric Acid Barium Chloride Solution Devarda's alloy Boric Acid Solution Standard Sodium Hydroxide Solution Ether Analytical Balance Burner General Glasswares Immersion Heater
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ANNEX B**Specification for hot - Rolled mild steel sheet and strip in coil
form for cold - Reduced tinplate and cold - Reduced
blackplate according to IS 2385:1977**

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 and implement calibration plan for the test equipment.
2. **TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.
3. **LABELLING & MARKING** – The Standard Mark as given in the Schedule of the license and Licence Number (i.e., CM/L.....) shall be incorporated on the product and on the test certificate accompanied along with each consignment, and the marking shall be done as per the provisions of the Indian Standard, provided always that the product thus marked conforms to all the requirement of the specification.
4. **CONTROL UNIT** – For the purpose of this scheme, a control unit shall be taken as a single coil of one cast manufactured under uniform conditions of production and up to a maximum of 30000 kg (30 tonnes).
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 IS 2385:1977 there shall be a test certificate which shall contain the Standard Mark, the cast/Control Unit 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 to ensure that there is no violation of provisions of BIS Act, 2016. A separate record shall be maintained giving information on quantity and cast number/coil number/control unit number, as applicable, relating to all such rejections/defective/sub-standard 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

(1)				(2)	(3)		(4)
TEST DETAILS					LEVELS OF CONTROL		REMARKS
Clause	Requirements	Test Method		Test equipment requirement R: required (or) S: Sub-contracting permitted	No. of Samples	Frequency	
		Clause	Reference				
5	Chemical Composition	The analysis of the material shall be carried out in accordance with IS 228 (various parts) or any other established instrumental or chemical method					
	Ladle Analysis	5.1, Table 1	IS 228 (various parts)	R	One	Each Heat	Applicable for manufacturers having steel making facilities.

	Product Analysis	5.2, Table 1	-do-	R	One	Each Cast	Applicable for manufacturers without steel making facilities.
6	Freedom from Defects	6.1 to 6.4	IS 2385	R	Adequate inspection to ensure that each coil conforms to the requirements of the specification		
8	Tolerances	8.1, 8.2	IS 2385 IS 1852	R	Adequate inspection to ensure that each coil conforms to the requirements of the specification		
	Packing	9.1, 9.1.1	IS 23856	R	Adequate measurement to ensure that coils conform to the specified requirements		

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: 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 STEEL COMPANY
(Registered office Address and works address)
**TEST CERTIFICATE FOR Specification for hot - Rolled mild steel sheet and strip in coil form for cold -
Reduced tinplate and cold - Reduced blackplate according to IS 2385:1977**



TEST CERTIFICATE No. _____ DATE _____
To M/s _____

We certified that the material described below fully conforms to IS 2385:1977, for Physical properties of the product and with Chemical composition as declared below, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks LicenceNo.CM/L_____ which indicated below against each order No.

(PLEASE REFER TO IS 2385:1977 FOR DETAILS OF SPECIFICATION REQUIREMENTS)
TEST RESULTS

Order No. & Date	Nom Size (mm)	Control Unit/ Batch No.	Designation (steel grade)	Quantity in tonnes	CHEMICAL COMPOSITION							Tolerances			Freedom from Defects
					C %	S %	P %	Si %	Mn %	Al%	N%	thickness	width	length	

REMARKS
WAGON NO. TRUCK NO.
STEEL COMPANY (It is suggested that size A4 paper be used for this test certificate)

FOR XYZ