



PM/IS 9294/2, Nov 2023

**PRODUCT MANUAL FOR
Cold-Rolled Stainless Steel Strips for Razor Blades
ACCORDING TO IS 9294:2023**

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.	Product	:	IS 9294:2023
	Title	:	Cold-Rolled Stainless Steel Strips for Razor Blades
	No. of Amendments	:	NIL
2.	Sampling Guidelines:		
a)	Raw material	:	No specific requirement
b)	Grouping guidelines	:	Please refer Annex A
c)	Sample Size	:	2 Pieces of 2.5 m length each
3.	List of Test Equipment	:	Please refer ANNEX – B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	Possible tests in a day:		All tests
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 9294:2023 with the following scope:		
	Name of the product		Cold-Rolled Stainless Steel Strips for Razor Blades
	Grade		X66Cr13
	Size		Thickness from ...xx...mm to up to and including ...xx... mm, Width fromxx...mm to up to and including ...xx... mm

New Delhi – 110002

ANNEX A

GROUPING GUIDELINES

1. IS 9294:2023 covers Cold Rolled Stainless Steel Strips for Razor Blades of Grade X66Cr13.
2. As per cl.13. Dimensions and Tolerances, it has been stated that the Cold Rolled Strips shall be supplied in widths upto 25 mm and in thicknesses from 0.05 mm to 0.15 mm. Thus, Grouping of Cold Rolled Stainless Steel Strips for Razor Blades has been done on basis of thickness of stainless steel strip as follows for the purpose of GoL/CSoL:
 - a) **Samples of strips having the lowest, intermediate and highest thickness, intended to covered in the licence ,of any width, shall be drawn and tested to cover the entire range of thicknesses in the scope of the licence.**
3. It shall be ensured that the firm is having all the necessary manufacturing and testing facilities for the manufacture and testing of the sizes to be included inthe licence.
4. During the operation of licence, BO shall ensure that all the sizes covered in the license are drawn for independent testing on rotation over a period of time.

ANNEX B

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Test Equipment	Tests used in with Clause Reference
1	Device for instrumental chemical analysis such as Optical Spectrometer/XRF with all requisite channels OR •Carbon Sulphur (Strohlein's type) 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) Required CRM/SRM	Chemical Composition (6)
2	Vernier Calipers, Micrometer, Steel Scale, Surface Table, Measuring Tape, Feller Gauge, Cord, Taper Gauge Straight Edge, Flat bench	Dimension and tolerances (13)
3	Optical microscope 1000x magnification With camera for Photograph	Microstructure (9)
4	Micro hardness tester for Vickers method	Hardness test (8)
5	Surface Roughness Tester calibrated with Standard Roughness Block	Surface Finish (14)

5	Rough Polishing Machine, Cutting Machine, Fine Polishing Machine, Grinder Machine	Preparation of specimen
6	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	Carbon and Sulphur Content(4) (chemical method, alternative to instrumental method)
7	Weighing balance, 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 (KMnO ₄), Sodium Nitrite (Na ₂ NO ₃), Ammonium Molybdate [(NH ₄) ₂ Mo ₂ O ₇], Ammonium Phosphate [(NH ₄) ₃ PO ₄], Potassium Nitrate (K ₂ NO ₃), Phenolphthalein Solution, Rectified spirit or methyl alcohol, Sodium Hydroxide (NaOH), Hydrofluoric Acid (HF), Perchloric Acid (HClO ₄), Sulphurous Acid,,Hydrobromic Acid (HBr) , other chemicals and reagent as applicable	Phosphorus content (4) (chemical method, alternative to instrumental method)
8	Hot plate, Conical flask Reagents: silver nitrate, ammonium persulphate sodium arsenite solution, Dilute Nitric Acid, Phosphoric Acid, Dilute Sulphuric Acid, Concentrated .Nitric Acid, NaCl Solution, Permanganic acid	Manganese content (4) (chemical method, alternative to instrumental method)
9	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 SulphuricAcid, PerchloricAcid, Tartaric acid and hydroflouric acid	Silicon content (4) (chemical method, alternative to instrumental method)

10	ashless paper pulp, paper pulp pad, hot plate, dessicator, Reagents: ammonium nitrate, methyl red, dilute ammonium hydroxide, Concentrated hydrochloric acid Concentrated, nitric acid, Perchloric acid, Hydrofluoric Acid	Ni content (4) (chemical method, alternative to instrumental method)
11	Hot plate, stop watch, Reagents: dilute sulphuric acid and phosphoric acid mixture, concentrated nitric acid, ammonium persulphate, silver nitrate, dilute hydrochloric acid, ferrous ammonium sulphate, standard potassium permanganate persulphate, silver nitrate, dilute hydrochloric acid, ferrous ammonium sulphate, standard potassium permanganate	Cr content (4) (chemical method, alternative to instrumental method)
12	Plate, Muffle Furnace, porcelain or silica crucible, Reagents: Hot Wash Solution(dilute sulphuric acid solution 1: 99 v/v with hydrogen sulphide), dilute sulphuric acid, hydrogen sulphide, Dilute Nitric Acid, Sodium Fluoride, solid, Dilute Ammonium Hydroxide, Acetic Acid, Potassium Iodide, Starch Solution, Sodium Thiosulphate Solution, Ammonium Bifluoride Solution	Cu content (4) (chemical method, alternative to instrumental method)
13	Perchloric Acid, Phosphoric Acid, Nitric Acid, Hydrochloric Acid, Dilute sulphuric acid, potassium thiocyanate solution, stannous chloride solution, n-butyl acetate, Iron-Mo free, molybdenum metal (99.9 pc pure) Volumetric flask, conical flask, titration apparatus (burette, pipette etc.), hot plate, thermometer, separating funnel, dry filter paper and other laboratory glassware and apparatus	Mo Content (4) (chemical method, alternative to instrumental method)

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

ANNEX C

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 equipment.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING & MARKING – The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L.....) shall be incorporated on the top of each coil or package of sheets or on a tag attached to each coil or packet or on the Test Certificate (see 6). In addition, stenciled content or label affixed on top of package of coil shall also contain the phrase 'Please see *www.bis.gov.in* for BIS certification details'.

4. CONTROL UNIT – For the purpose of this scheme, strip cold rolled from the same hot rolled strip and of the same thickness 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.

6. TEST CERTIFICATE- For each consignment of BIS Certified material conforming to IS 9294:2023 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 so as to ensure that there is no violation of provisions of BIS Act, 2016. Any rejected material which is potentially re-salable be sheared or cut or deformed in such a manner that it cannot be used for any other purpose except re-melting. 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)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
6	Freedom from Defects	--	IS 9294	R	Manufacture shall exercise adequate in-process control to ensure that the material manufactured is free from harmful defects		
7	Chemical Composition						
7.1	Ladle Analysis	7.1,7.3	IS 9294 IS 228 (various parts) or any other established instrumental/chemical method	R	One	Each Heat	Applicable for manufacturers with stainless steel making facilities. Others shall obtain test certificate from the supplier.
7.2	Product Analysis	7.2		R	----	-----	1) Applicable for manufacturers with stainless steel making facilities.
			S	One	Each Cast	2) Applicable for Re Rollers . No further testing is required if the material is ISI marked and received with test certificate	
8	Hardness test	8.1 , 8.2	IS 9294 IS 1501 Pt.1	R	One	Each control unit	-----
9	Microstructure	9.1	IS 9294	R	One	Each Control Unit	-----
	Carbide density	9.2	IS 9294	R	One	Each control unit	-----
12	Edge condition	12	IS 9294:1979	R	Adequate inspection to ensure that each strip shall have slit		

					edges reasonably free from burs		
13	Dimensions and tolerances	13.1, 13.2	IS 9294	R	Adequate inspection to ensure each strip conforms to the requirements of the specification		
14	Surface Finish	14.1, 14.2, 14.3	IS 9294 IS 15262	R	One	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 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.

Annexure-I
 (Para 6 of the Scheme of Inspection and Testing)
 XYZ COMPANY
 (Registered office Address and works address)
TEST CERTIFICATE FOR Cold-Rolled Stainless Steel Strips for Razor Blades

TEST CERTIFICATE No. _____
 To M/s _____

DATE _____

We certified that the material described below fully conforms to IS 9294:2023 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 9294:1979 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

Test Results

Test Results																		
Order No and Date	Type	Batch /Control Unit number	Quantity	Dimensions & Tolerances			Chemical Composition (Designation)									Mechanical Properties	Microstructure & Carbide Density	Surface Finish
				Thickness	Width	Camber	C	Si	Mn	Cr	S	P	#Cu	#Ni	#Mo	Hardness		

Residual elements

REMARKS
 WAGON NO
 TRUCK NO

FOR XYZ COMPANY

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