



फेरोसिलिकॉन के लिए उत्पाद मैनुअल
IS 1110: 2023 के अनुसार
PRODUCT MANUAL FOR
FERROSILICON
ACCORDING TO IS 1110: 2023

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना-I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता की सुसंगतता सुनिश्चित करने 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 लाइसेंस/प्रमाणपत्र 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.	उत्पाद Product	:	IS 1110: 2023
	शीर्षक Title	:	Ferrosilicon
	संशोधनों की संख्या No. of Amendments	:	Nil
2.	नमूनाकरण दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहीकरण दिशानिर्देश Grouping guidelines	:	Sample of each grade of any size is to be drawn for independent testing for the requirement of Chemical Composition only for considering GoL/Inclusion. For the requirement of Size(cl.8.), the manufacturer shall declare the particle size ranges (bottom size and top size) in which Ferro Silicon is intended to be supplied.

			Testing of Particle Size (undersize/oversize) as per the requirements specified at cl.8.2. shall be carried in accordance with the method specified in IS 15765 ,for each particle size range, during factory testing.
c)	नमूने का आकार Sample Size	:	100 gms
3.	परीक्षण उपकरण की सूची List of Test Equipment	:	कृपया अनुबंध-ए देखें Please see Annex –A
4.	निरीक्षण और परीक्षण की योजना Scheme of Inspection and Testing	:	कृपया अनुबंध-बी देखें Please see Annex – B
5.	एक दिन में संभावित परीक्षण Possible tests in a day :	:	Size designation, Extraneous contamination, Carbon & Sulphur by chemical method, all required elements by instrumental Method
6.	लाइसेंस का दायरा /Scope of the Licence:		
	IS 1110:2023 के अनुसार निम्नलिखित दायरे के साथ मानक चिह्न का उपयोग करने के लिए लाइसेंस प्रदान किया जाता है Licence is granted to use Standard Mark as per IS 1110:2023 with the following scope:		
	उत्पाद का नाम Name of the product	Ferrosilicon	
	Grade Designation	FeSi48,..	
	Size Designation	Agreed to between the purchaser and manufacturer (Size Range:mm to mm)	

BUREAU OF INDIAN STANDARDS
ManakBhawan, 9, Bahadur Shah ZafarMarg,
New Delhi – 110002

ANNEX – A
TO THE PRODUCT MANUAL FOR
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List of test equipment

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

Sr. No.	Tests used in with Clause Reference	Test Equipment/Chemicals
1.	Chemical Composition, Clause 7.2.1 (Silicon) and Table 1	Sodium carbonate, Sodium peroxide, Dilute Hydrochloric Acid, Concentrated Hydrochloric Acid, Perchloric Acid, Silver Nitrate, Hydrofluoric Acid, Sulphuric Acid, Analytical balance, IS Sieve 150 microns, Nickel Crucible (25 to 30ml) or silicon free iron crucible with cover, Muffle furnace, Tongs, Polythene Beaker 500 ml with polythene cover plate, Glass beaker 500ml, Hot Plate, glass rod for stirring, filter paper, wash bottle, Platinum Crucible, Dessicator
2.	Chemical Composition, Clause 7.2.1 (carbon) and Table 1	Dilute Sulphuric Acid, Concentrated Sulphuric Acid, Chromic Sulphuric Acid, Manganese sulphate, Ammonium Hydroxide, Ammonium Persulphate, soda Asbestos, Anhydron (Magnesium Perchlorate), Magnesite Brick Powder, Lead Foil, Buchner funnel, mortar grinder, IS Sieve 85(842Microns) to 70(708 microns), IS Sieve 50, combustion boat, low carbon standard steel of known carbon content Recommended Apparatus: Apparatus for determination of carbon by gravimetric method comprising oxygen cylinder & purifier, furnace with combustion tube, train for purifying & absorbing CO ₂
3.	Chemical Composition, Clause 7.2.1 (Sulphur) and Table 1	Concentrated Nitric Acid, Concentrated Hydrochloric Acid, Hydrofluoric Acid, Sodium Carbonate, Zinc 99.9% pure, Barium Chloride, Acid Wash Solution, Dilute Hydrochloric Acid, Beaker 600ml tall form, Hot plate, pulp pad, filter assembly, platinum or porcelain crucible, Muffle furnace
4.	Chemical Composition, Clause 7.2.1 (Phosphorus) and Table 1	Concentrated Nitric Acid, Hydrofluoric Acid, Dilute Potassium Permanganate Solution, sodium Nitrite solution, Boric Acid, Ammonium Hydroxide, Ammonium Molybdate, Potassium Nitrate wash solution, Nitric acid wash solution, Sodium Hydroxide, standard Sodium Carbonate solution, Distilled water, Methyl Orange, Phenolphthalein, Conical flask, Hot Plate, Platinum dish, filter assembly
5.	Chemical Composition, Clause 7.2.1 (Aluminium) and Table 1	Hydrofluoric Acid, Concentrated Nitric Acid, Dilute Hydrochloric Acid, Concentrated Hydrochloric Acid, Sodium Hydroxide solution, Ammonium Chloride solution (50% & 2%), Phenolphthalein

		solution, EDTA, Congo Red Indicator paper, Sodium Acetate, glacial acetic acid, Xylenol Orange, Zinc Acetate, glacial acetic acid, distilled water, Aluminium foil 99.9 percent, Absolute Alcohol, Ammonium Fluoride, Perchloric acid, Distilled water, Dessicator, Hot plate, Platinum dish, polythene Beaker, Steam bath, Volumetric flask 500ml, conical flask, Steam bath, pipette
6.	Chemical Composition, Clause 7.2.1 (Calcium) and Table 1	Hydrofluoric Acid, concentrated Nitric Acid, Perchloric Acid, Sodium Carbonate, Potassium carbonate, Dilute Hydrochloric Acid, Ammonium Chloride, Ammonium Hydroxide solution, Sodium Hydroxide solution, EDTA., calcein or Murexide Indicator solution Platinum Crucible, Hot Plate, Water bath
7.	Chemical Composition, Clause 7.2.1 (Manganese) and Table 1	Hydrofluoric Acid, Concentrated Nitric Acid, Dilute Sulphuric Acid, Phosphoric Acid, Silver Nitrate solution, Ammonium Persulphate solution, Sodium Chloride solution, Arsenous Oxide, Sodium Hydroxide, Hydrochloric Acid, Phenolphthalein, Sodium Bicarbonate, Potassium Permanganate, Concentrated Sulphuric Acid, Concentrated Hydrochloric Acid Platinum Crucible, Hot Plate, pipette
8.	Chemical Composition, Clause 7.2.1 (Ti,B,Zr) and Table 1	ICP-AES
9.	Chemical composition Clause 7.2.1 General equipments	Analytical balance, distilled water still, burette, pipette, filter assembly, volumetric flask, wash bottles, fuming chamber, dessicator, Hot plate or heating element, What man filter paper 40,41, conical flask
10.	Size Clause 8	IS Sieves for the size ranges as declared by the manufacturer.

Note: 1. Any other established Instrumental or Chemical method may also be used for Chemical composition. However in case of dispute the procedure given in latest version of IS 1559 shall be the referee method.

2. This is an indicative list for the purpose of guidance only and may not be taken as exhaustive

ANNEX B
TO THE 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 and implement 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. LABELLING AND MARKING- The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L.....) shall be marked on each package and the marking shall be done as per the provisions of the Indian Standard, provided always that the product thus marked and packed conforms to all the requirement of the specification. In addition, in each container the information “For details of BIS certification, please visit www.bis.gov.in” shall also be marked.

4. TEST CERTIFICATE – For each consignment of BIS Certified material conforming to IS 1110:2023 there shall be a test certificate which shall contain the Standard Mark, the cast/batch number and the corresponding test results (as given in Annexure-I, enclosed)

5. Control Unit- For the purpose of this scheme each Cast (Melt) of Ferrosilicon shall constitute a control unit.

6. 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.

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

7. 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.

TABLE 1 (Levels of Control)
(Para 5 of Scheme of Inspection and Testing)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
7.1	Constitution of Consignment	3.3, 7.1	IS 1110:2023	R	Adequate inspection to ensure that each consignment is complying with requirements specified for lot method.		
7.2	Chemical Composition						
	i) Silicon	7.2.1, 7.2.2, and Table-1	IS 1110:2023 IS 1559 (Parts 1 to 7) or any other established instrumental/chemical method.	R	1	Casts of same grade produced in a week	
	ii) Carbon			R	1	-do-	
	iii) Sulphur			R	1	-do-	
	iv) Phosphorus			R	1	-do-	
	v) Aluminium			R	1	-do-	
	vi) Calcium			R	1	-do-	
	vii) Manganese			R	1	-do-	
	viii) Boron			S	1	Casts of same grade produced in a year	
	ix) Zirconium			S	1	-do-	
	x) Titanium			S	1	-do-	
	8	Size	8	IS 15765 IS 460 (Part 1) IS 460 (Part 2) IS 460 (Part 3)	R	1	One bag/container in a shift
9	Extraneous contamination	9	IS 1110:2023	R	1	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: The control unit and levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.

Annexure-I

TEST CERTIFICATE FORMAT
XYZ COMPANY

BIS STANDARD
MARK

(Registered office Address and work address)

TEST CERTIFICATE FOR FERROSILICON ACCORDING TO IS 1110:2023

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

It is certified that the material described below fully conforms to IS 1110:2023. Chemical 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. etc.

(PLEASE REFER TO IS 1110:2023 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order no. and date	Constitution of consignment	Grade	Cast No./ Melt No.	Quantity (in tonnes)	Chemical Composition										Size Designation	Remarks
					Al	Ca	C	Si	S	P	B*	Ti*	Zr*	Mn		

**as required by purchaser*

REMARKS

SHIPPING ADVICE NO.

WAGON NO.

FOR XYZ COMPANY

(For details of BIS certification please visit www.bis.gov.in)