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उत्पाद मैनुअल
फेरोक्रोमियम –विशिष्टि
IS 1170: 2026 के अनुसार

Product Manual for
Ferrochromium
According to IS 1170: 2026

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 uniformity 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.

1.	भारतीय मानक संख्या IS No.	:	IS 1170:2026
	शीर्षक Title	:	Ferrochromium
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement 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
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer to Annex- A
c)	नमूने का परिमाण Sample Quantity	:	1Kg (for lab sample, Compliance to Cl 6.1.3 & 6.1.4, as applicable, of IS 1472 to be ensured)

		Note: This section indicates the quantity of the sample of the 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)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	Grade Designation, Size Designation : Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	: Please refer to Annex- B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	: Please refer to Annex- C
5.	एक दिन में संभावित परीक्षण Possible tests in a day All tests. 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.	
6.	लाइसेंस का दायरा /Scope of the Licence: IS 1170: 2026 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है □Licence is granted to use Standard Mark as per IS 1170: 2026 with the following scope:	
7.	उत्पाद का नाम Name of the product	Ferrochromium
	Grade Designation	FeCr50C50, FeCr70C50.....
	Size Designation	I, II,.....

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

ANNEX-A
TO PRODUCT MANUAL FOR
Ferrochromium

According to IS 1170:2026

1. IS 1170:2026 specifies five types of Ferrochromium, along with multiple grade designations under each type, as detailed below:

- (a) High Carbon Ferrochromium- 22 grade designations
- (b) Medium Carbon Ferrochromium- 03 grade designations
- (c) Low Carbon Ferrochromium- 06 grade designations
- (d) Low Carbon Ferrochromium, High Chromium Content- 03 grade designations
- (e) Low Carbon Ferrochromium, Nitrogen Containing- 03 grade designations

These grade designations shall be completed by the figure for the required standard chromium range selected from Table 1 of IS 1170:2026.

Examples: The grade designation is specified as 'FeCr...C50'

a) In the case of a required standard chromium range from 45.0 percent to 55.0 percent, the designation would read FeCr50C50.

b) In the case of a required standard chromium range from 65.0 percent to 75.0 percent, the designation would read FeCr70C50.

2. Grouping has been done on the basis of grade designation as under:

Group	Type	Grade Designation	Remark
Group 1	High Carbon Ferrochromium	FeCr.....C50 to FeCr.....C90Si6LS	Manufacturer shall declare the grade designations and size designations intended to be included in the scope of licence.
Group 2	Medium Carbon Ferrochromium	FeCr...C10 FeCr...C20 FeCr...C40	
Group 3	Low Carbon Ferrochromium	FeCr...C01 FeCr...C03 FeCr...C05 FeCr...C1 FeCr...C2 FeCr...C5	One sample of highest grade (based on higher Cr range) may be drawn from each group for all tests, to cover all the grade designations of the product within that group.
Group 4	Low Carbon Ferrochromium, High Chromium Content	FeCr...C01 FeCr...C03 FeCr...C05	
Group 5	Low Carbon Ferrochromium, Nitrogen Containing	Smelted FeCr...C1N3 Sintered FeCr...C1N7 Sintered FeCr...C1N7Si	Further, with respect to size designations, the samples drawn amongst the groups should comprise of all the size designations intended to be included in the scope of licence, from any of the grades applied for.

3. However, the licence can be granted for all the particle sizes of the Ferromanganese specified in the specification and applied by the applicant/licencee, provided that the firm is having all

the necessary manufacturing and testing facilities for the manufacture and testing of all other particle sizes of the Ferromanganese proposed to be included in the licence.

4. During the operation of license, BO shall ensure that all sizes /grades covered in the license are drawn for independent testing on rotation over a period of time.

LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

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

Sl. No.	Test Equipment/Chemicals and Identification Numbers (Where applicable)	Tests Used in with Clause Reference
1	Rough Polishing Machine, Cutting Machine, Fine Polishing Machine, Grinder Machine	Preparation of specimen for chemical composition (7.2)
2	Instrumental methods Spectrometer: atomic-absorption spectrometry, inductively coupled plasma atomic emission, inductively coupled plasma mass spectrometry techniques, spark source optical emission spectrometry. Spectrophotometer	C,S,P,Mn,Si,Al (7.2) Si,Mn,S,P
3	Digital weighing balance, Hot air oven, Muffle Furnace, Hot plate, Conc. Nitric Acid, Potassium chloride, phenolphthalein indicator, Hydrofluoric Acid, sodium hydroxide, Conc. Nitric Acid, Boric Acid, Zinc, Barium Chloride,	C content (7.2) (Chemical method, alternative to instrumental method)
4	Digital weighing balance, Hot air oven Hot plate, Potassium nitrate, Dilute Hydrochloric Acid, Conc. Hydrochloric Acid, Dilute Sulphuric Acid, Hydrofluoric Acid, Conc. Nitric Acid, Boric Acid, Zinc(Sulphur free), Barium Chloride, Nickel crucible, Nickel rods, Hydrogen peroxide, sodium carbonate, sodium peroxide	S content (7.2) (chemical method, alternative to instrumental method)
5	Digital weighing balance, Nickel crucible, Nickel rods, sodium peroxide, dilute sulphuric acid, potassium permanganate, manganese sulphate, ferrous ammonium sulphate, phosphoric acid, potassium dichromate, sodium diphenylamine sulphonate indicator solution, potassium permanganate, Gooch crucible or fritted glass crucible	Cr content (7.2) (chemical method, alternative to instrumental method)
6	Digital weighing balance, Hot air oven , nickel crucible, sodium carbonate, sodium peroxide, Dilute Hydrochloric Acid, Concentrated Nitric Acid, hydrofluoric acid, Dilute Sulphuric Acid, conc. Ammonium hydroxide, dilute nitric acid, sulphurous acid, potassium permanganate, potassium nitrite, ammonium molybdate, Conc. Sulphuric acid, perchloric acid, hydrobromic acid, potassium nitrate, sodium hydroxide, phenolphthalein indicator	Phosphorus content (7.2) (chemical method, alternative to instrumental method)
7	Digital weighing balance Nickel crucible, muffle furnace, sodium carbonate, sodium peroxide, sodium hydroxide, Dilute	Silicon content (7.2) (chemical method,

	Hydrochloric Acid, Conc. Hydrochloric Acid, Dilute Sulphuric Acid, Hydrofluoric acid	alternative to instrumental method)
8	Apparatus as per Fig 3 of IS 1559, Nessler's reagent, Nitrogen free water, potassium sulphate, copper sulphate, dilute sulphuric acid, barium chloride, conc. Sulphuric acid, bromocresol green, methyl red, methanol, selenium metal, Devarda's alloy, boric acid, sodium hydroxide, tartaric acid,	N content (7.2) (chemical method, alternative to instrumental method)
9	Different sizes of sieve	Size Range (8)

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

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) 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 (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

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, material of one cast/ melt representing one furnace heat/ one tap of continuous furnace/ladle or holding furnace shall constitute one 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. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

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.

2. ENSURING COMPLIANCE THROUGH TESTING- manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
 - a) BIS recognised/empanelled laboratories, or
 - b) Any accredited laboratory as per ISO/IEC 17025

2.1 TEST RECORDS- The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L...) shall be suitably incorporated on the material and on the test certificate issued along with each consignment, provided always that the product thus marked and packed conforms to all the requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 Additional Marking requirements: Additionally, the following shall also be marked on each Package of the material:

- a) “For BIS certification details please visit www.bis.gov.in”
- b) Any other requirement not specified in the Indian Standard

4. TEST CERTIFICATE – For each consignment of BIS Certified material conforming to IS 1170:2026 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).

5. REJECTION - 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
(Recommended Levels of Control by BIS- For Guidance Only)

(1)				(3)		(4)
TEST DETAILS				LEVELS OF CONTROL		REMARKS
Clause	Requirements	Test Method		No. of Samples	Frequency	
		Clause	Reference			
7.2	Chemical Composition	7.2.1 to 7.5.1	IS 13452 or any other established instrumental or chemical method	One	Each Control Unit	Samples may be taken at the time of tapping. Occasional analysis of finished product shall also be done. The finished sample may be composed of materials collected from different containers of same heat.
8	Particle Size	8.1 8.2	IS 1170 IS 1607 IS 460 (Part 1) IS 460 (Part 2) IS 460 (Part 3)	Adequate inspection to ensure that the particle size range of material being supplied is in accordance with ISS.		
9	Extraneous Contamination	9	IS 1170	Adequate inspection to ensure that the material is reasonably free from extraneous contaminations.		

Annexure-I
(Para 4 of the Scheme of Inspection and Testing)
XYZ COMPANY
(Registered office Address and works address)

ISI Mark
With IS No.
and CM/L
no.

Test Certificate for Ferrochromium
According to IS 1170:2026
TEST CERTIFICATE NO. _____

To M/s _____

Dated _____

We certified that the material described below fully conforms to IS 1170:2026 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.

(PLEASE REFER TO IS 1170:2026 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Grade Designation	Cast No./ Lot No.	Qty (in tonnes)	Chemical Composition (%)									Size Designation	Constitution of consignment	Remarks
				C	S	P	Mn	Si	Al	Cr	N	Residual elements			

Remarks
Wagon No.
Truck No.

FOR XYZ COMPANY

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