



उत्पाद मैनुअल
औद्योगिक कोक

IS 439:2020 के अनुसार

DRAFT PRODUCT MANUAL
FOR
Industrial Coke — Specification
ACCORDING TO IS 439:2020

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.	मानक संख्या IS No.	:	IS 439: 2020
	शीर्षक Title	:	Industrial Coke — Specification
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No Specific Requirement

b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer Annex-A
c)	नमूने का परिमाण Sample Quantity	:	300 Kg – Industrial Coke
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		
	Ash, Moisture, Volatile Matter, Shatter Index, Micum Index, Porosity, & Size Range		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 439: 2020 with the following scope:		
	Name of the product	Industrial Coke	
	Type and Designation	Blast Furnace Coke (BFC) / Foundry Coke (FC) / Coke for Ferro Alloys Industries (FAC)	
	Grade(s)	Blast furnace coke — Grade 1 and Grade 2. Foundry coke — Special Grade, Grade 1, Grade 2 and Grade 3. Coke for ferro-alloys industry — Special Grade, Grade 1, Grade 2 and Grade 3.	

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002

ANNEX-A

GROUPING GUIDELINES

For the purpose of Grant of Licence/Change in Scope of Licence, the following grouping guidelines shall apply:

a) On the basis of Designation & Grade, the following grouping shall apply for "**Industrial Coke**"

Group	Designation	Grades	Sampling guidelines
1.	Blast Furnace Coke (BFC)	 1. Grade – 1 2. Grade – 2	One Sample of Higher Grade from Each Designation may be drawn for testing to cover all the Grades for which manufacturing and testing facility is available (For example, if the sample from Grade 1 is tested then Grade 2 may be covered in the scope of licence).
2.	Foundry Coke (FC)	 1. Special Grade 2. Grade – 1 3. Grade – 2 4. Grade – 3	One Sample of Higher Grade from Each Designation may be drawn for testing to cover all the Grades for which manufacturing and testing facility is available (For example, if the sample from Special Grade is tested then all other Grades may be covered in the scope of licence).
3.	Coke for Ferro Alloys Industry (FAC)	 1. Special Grade 2. Grade – 1 3. Grade – 2 4. Grade – 3	One Sample of Higher Grade from Each Designation may be drawn for testing to cover all the Grades for which manufacturing and testing facility is available (For example, if the sample from Special Grade is tested then all other Grades may be covered in the scope of licence).

c) Scope of Licence shall be restricted based on the manufacturing and testing facilities available.

d) During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible

ANNEX – B

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1	Ash CI 4.1 Table 1 (i)	Weighing Balance Muffle Furnace Silica Crucible with Desiccator Silica Gel & Asbestos Disk 212 micron sieve, mechanical shaker
2	Moisture CI 4.1 Table 1 (ii)	Weighing Balance Hot Air Oven Silica Crucible with Desiccator Silica Gel & Asbestos Disk Apparatus for gravimetric determination of moisture (in case of gravimetric method)
3	Volatile Matter CI 4.1 Table 1 (iii)	Weighing Balance Tray for Sampling Muffle Furnace Benzene Silica Crucible with Desiccator Silica Gel & Asbestos Disk 212 micron sieve
4	Sulphur CI 4.1 Table 1 (iv)	Muffle Furnace, Hot Air Oven, Silica Crucible with Desiccator, Silica Plate, Measuring Cylinder, Burette Calcinated Magnesia, Sodium Carbonate, Concentrated Hydrochloric Acid, Potassium Sulphate, Barium Sulphate, Barium Chloride, Methyl Red Indicator, Ammonia Solution, Hydrogen Peroxide, Silver Nitrate, Filter paper / Gooch Crucible
5	Phosphorous CI 4.1 Table 1 (v)	Muffle Furnace, Hot Air Oven, Crucible Platinum and Sintered Glass , Glass Thermometer Nitric Acid, Hydrofluoric Acid, Hydrogen Fluoride, Phenolphthalein indicator, Ethyle Alcohol, Sodium Hydroxide, Ammonium Hydroxide, Potassium Nitrate Solid, Dilute Ammonium Nitrate
6	Shatter CI 4.1 Table 1 (vii)	Shatter Test Apparatus, IS Sieves, Weighing Balance
7	Micum Index CI 4.1 Table 1 (viii)	Micum Test Apparatus, IS Sieves, Weighing Balance
8	Porosity CI 4.1 Table 1 (ix)	Metallic Container, Wire Cage, Buckets, Metallic Tank, Weight Balance, Hot Air Oven
9	Reactivity of CO ₂ CI 4.1 Table 1 (x)	Method A of Annex B of IS 439 Apparatus For Reactivity of Coke Alkaline Pyrogallol Solution, Nitrogen Gas, Sulphuric Acid, Calcium Chloride, Phosphoric Oxide, Carbon Dioxide, Concentrated Magnesium Chloride, Potassium Hydroxide, Sodium Carbonate

		Method B of Annex B of IS 439 Apparatus for Measuring Coke Reactivity Index with All Accessories I - Type Drum Tester for Coke Strength Test with All Accessories Hot Air Oven, Muffle Furnace, Stop Watch, Nitrogen gas, Carbon Dioxide gas, Vernier Caliper
10	Coke Strength after Reaction (CSR) CI 4.1 Table 1 (xi)	Apparatus for Measuring Coke Reactivity Index with All Accessories as in figure 1 of the IS 4023. Nitrogen gas with purity > 99.9%, Carbon dioxide gas with purity > 99.5%, sieves, weighing balance
11	Coke Reactivity Index (CRI) CI 4.1 Table 1 (xiii)	Apparatus for Measuring Coke Reactivity Index with All Accessories as in figure 1 of the IS 4023. Nitrogen gas with purity > 99.9%, Carbon dioxide gas with purity > 99.5%, sieves, weighing balance
12	Size Range CI 4.2 Table 1 (xiv)	Sieves, weighing balance, flat brush

ANNEX C

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan 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 defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: Entire quantity of coke, same Designation and Grade manufactured under similar conditions in a batch.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1.

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. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- Manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing all the parameters of the Indian Standard for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates tests where test equipment is required in house as "R"

2.2 **TEST RECORDS-** The manufacturers shall maintain test records for the tests carried out to establish conformity. The same shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each package and/or on the label attached to the coils and/or on the test certificate (see 4), provided always that the material so marked conforms to each requirement of the specification.

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

3.2 **Additional Marking requirements:** The material shall also be marked with the following additional requirement on each package and/or on the label attached to the coils and/or on the test certificate (see 4):

a) "For BIS certification details please visit www.bis.gov.in"

3.3 If material is supplied in tank cars, tank trucks, container ships etc. the Standard Mark as given in Schedule of the licence and Licence Number (i.e. CM/L) shall be incorporated on a test certificate to be provided along with each tank car/tank truck/container ship as per the format at Appendix-1 enclosed, provided always that the product thus marked conforms to all the requirement of the specification. Packing shall be done as per provisions of Indian Standard and the marking details as per IS 439:2020 shall also be indicated on the test certificate.

4. REJECTION - All 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
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or)S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
4.1	Ash Percent	8	IS 1350 Part 1	R	One	Each Control Unit	
4.1	Moisture Precent	6.3	IS 1350 Part 1	R	One	Each Control Unit	
4.1	Volatile Matter Precent	7	IS 1350 Part 1	R	One	Each Control Unit	
4.1	Sulphur Percent	-	IS 1350 Part 3	R	One	Each Control Unit	
4.1	Phosphorous Percent	5	IS 1350 Part 5	R	One	Each Control Unit	
4.1	Shatter Index (For Foundry Coke)	4	IS 1354	R	One	Each Control Unit	
4.1	Micum Index (For Blast Furnace Coke)	5	IS 1354	R	One	Each Control Unit	
4.1	Porosity Percent	8	IS 1354	R	One	Each Control Unit	
4.1	Reactivity to CO2 (For Coke of Ferro Alloys Industry)	Annex B	IS 439	R	One	Each Control Unit	
4.1	Coke Strength after Reaction (CSR) (For Blast Furnace Coke)	-	IS 4023	R	One	Each Control Unit	
4.1	Coke Reactivity Index (CRI) (For Blast Furnace Coke)	-	IS 4023	R	One	Each Control Unit	
4.2	Size Range	-	IS 437	R	One	Each Control Unit	

Appendix-1
TEST CERTIFICATE XYZ COMPANY
 (REGISTERED OFFICE ADDRESS AND WORKS ADDRESS)
TEST CERTIFICATE FOR INDUSTRIAL COKE AS PER IS 439:2020

TEST CERTIFICATE NO. _____

Dated: _____

SUPPLIED TO M/s _____ (Name and Address of Consignee)

It is certified that the material described below fully conforms to IS 439 : 2020. The properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks License No. CM/L _____ are as indicated below against each order no. etc.

(PLEASE REFER TO IS 439 : 2020 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order no and date	Control Unit/ Batch Number	Month and Year of manufacture	Qty	Requirements											Remarks
				Ash Percent	Moisture Precent,	Volatile Matter Precent	Sulphur Percent	Shatter Index (For Foundry Coke)	Micum Index (For Blast Furnace Coke)	Porosity Percent	Reactivity to CO2 (For Coke of Ferro Alloys Industry)	Coke Strength after Reaction (CSR) (For Blast Furnace Coke)	Coke Reactivity Index (CRI) (For Blast Furnace Coke)	Size Range	

The material supplied conforms to specified requirements of IS 439 : 2020

REMARKS: Tank Car / Tank Truck / Container ship no.

(Signature)
 For XYZ Company