



उत्पाद मैनुअल
धूमिल सिलिका
18731:2024 के अनुसार

PRODUCT MANUAL FOR
FUMED SILICA
ACCORDING TO IS 18731:2024

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.	:	18731:2024
	शीर्षक Title	:	FUMED SILICA
	संशोधनों की संख्या No. of amendments	:	Nil
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No Specific Raw Material requirements mentioned in the standard
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer to Annex-A
c)	नमूने का परिमाण Sample Quantity	:	500g
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		
	a) pH b) BET Surface Area c) Loss on Drying d) Tamped Density e) 325 Mesh Residue f) Carbon Content g) Viscosity h) Specific Gravity i) Solid Content		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 18731:2024 with the following scope:		
	Name of the product	FUMED SILICA	
	Grade	Grade 1 and/or Grade 2 and/or Grade 3 and/or Grade 4	

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

ANNEX-A

**GROUPING GUIDELINES
FUMED SILICA**

1. Fumed Silica is categorized into four different grades.
 - a) Grade 1- Hydrophilic fumed silica for general applications
 - b) Grade 2- Dimethyl dichlorosilane treated hydrophobic fumed silica
 - c) Grade 3- Polydimethyl siloxane treated hydrophobic fumed silica
 - d) Grade 4- Fumed silica aqueous dispersion products
2. Each grade of fumed silica shall be tested separately to cover that grade in the scope of the licence.
3. Scope of licence shall be restricted based on the manufacturing and testing facilities available.
4. During operation of licence, BOs shall ensure that samples of each variety covered in the scope of licence, are tested in rotation, to the extent possible

ANNEX – B
TO THE PRODUCT MANUAL FOR
FUMED SILICA
AS PER IS 18731:2024
LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1	pH of 4 Percent Hydrophilic Fumed Silica Aqueous Slurry (Cl 4.2, A-1.1)	Buffer solution — pH 4.0 and pH 7.0, Distilled water, pH meter with glass electrode, Magnetic stirrer, Top pan precision balance 0.01 g accuracy, Magnetic stirring bar, PVC beaker — 250 ml, Measuring cylinder — 100 ml
2	pH of 4 Percent Hydrophobic Fumed Silica Slurry in 80: 20 IPA/Water (Cl 4.2, A-1.2)	Buffer solution — pH 4.0 and pH 7.0, 80: 20 IPA: Water mixture, Hydrophobic fumed silica, Distilled water, pH meter with glass electrode, Magnetic stirrer, Top pan precision balance 0.01 g accuracy, PVC beaker — 250 ml, Measuring cylinder — 100 ml, Magnetic stirring bar
3	pH of Fumed Silica Aqueous Dispersion (Cl 4.2, A-1.3)	Fumed silica aqueous dispersion product, Buffer solution — pH 7.0 and pH 11.0, Distilled water, pH meter with glass electrode, Top pan precision balance — 0.01 g accuracy, PVC beaker — 250 ml
4	Bet Specific Surface Area (Cl 4.2, A-2)	Liquid Nitrogen, Nitrogen and Helium Gas with Purity Greater than 99.9 Percent, Glass Sample Cell, BET Surface Area Instrument, Degassing Station, Vacuum Pump, Dewar Flask for Liquid Nitrogen, Analytical Balance 0.000 1 g Accuracy
5	Loss On Drying (Cl 4.2, A-3)	Oven, Weighing Bottles, Analytical Balance, Desiccator, Spatula
6	Tapped Density (Cl 4.2, A-4)	Tap Density Meter, Weighing Balance 0.01 g, Measuring Cylinder — 100 ml
7	325 Mesh Residues (Cl 4.2, A-5)	Acetone, DM Water, Grit Washer, Analytical Balance 0.000 1 g Accuracy, Top Pan Balance 0.01 g Accuracy, Screen made of Bronze or Stainless Steel 325 Mesh, Clear Mesh Width, Hot Air Oven, Water Filter with 25-micron Filter Cartridge, Glass Beaker — 1 000 ml, Desiccators
8	Loss On Ignition (Cl 4.2, A-6)	Muffle Furnace, Platinum Crucible, Platinum Tip Tong, Analytical Balance (0.000 1 g measurement accuracy), Heat Resistant Gloves, Desiccator
9	Carbon Content	Standard Carbon Sample, Analytical Balance with 0.000 1 g Accuracy, KBr Press, Carbon Analyser, Boat, Spatula
10	Assay	Sulphuric Acid, Hydrofluoric Acid, Balance (0.000 1 g Measurement Accuracy), Platinum Crucible, Platinum Tip Tong, Muffle Furnace, Electric Burner, Hot Plate,

		Desiccator
11	Viscosity	Fumed Silica Dispersions, Viscometer, Temperature Sensing Probe, Spindle Guard, Beaker — 250 ml
12	Specific Gravity	Specific Gravity Bottle — 25 ml or 50 ml, Analytical Balance, Hot Air Oven, Temperature Measuring Device
13	Solid Content	Fumed Silica dispersion, Oven, Bottles, Analytical balance, Desiccator, Spatula

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 :
Fumed Silica of same grade manufactured continuously from a single production line in a day

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- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as "R" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as "R" in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster-based facilities as per guidelines for the utilization of cluster-based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster-based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories 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 the packaging of the product provided always that the material thus 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 packaging of the material shall also be marked with the following additional requirement:

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

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 products 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	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference		R: required (or) S:Sub-contracting permitted	No. of Sample	Frequency	Remarks
4.1	Description	-	IS 18731	R	one	Each Control unit	
4.2, Table 1	pH	Annex A-1	IS 18731	R	one	-do-	
4.2, Table 1	BET specific surface area	Annex A-2	IS 18731	R	one	-do-	
4.2, Table 1	Loss on drying	Annex A-3	IS 18731	R	one	-do-	
4.2, Table 1	Tamped density	Annex A-4	IS 18731	R	one	-do-	
4.2, Table 1	325 Mesh residue	Annex A-5	IS 18731	R	one	-do-	
4.2, Table 1	Loss on ignition	Annex A-6	IS 18731	R	one	-do-	
4.2, Table 1	Carbon content	Annex A-7	IS 18731	R	one	-do-	
4.2, Table 1	Assay	Annex A-8	IS 18731	R	one	-do-	
4.2, Table 1	Viscosity	Annex A-9	IS 18731	R	one	-do-	
4.2, Table 1	Specific gravity	Annex A-10	IS 18731	R	one	-do-	
4.2, Table 1	Solid content	Annex A-11	IS 18731	R	one	-do-	