



**उत्पाद मैनुअल
सिलिका फुम्स
के लिए आई एस 15388:2003 के अनुसार**

**PRODUCT MANUAL
SILICA FUME
ACCORDING TO IS 15388:2003**

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 15388:2003
	शीर्षक Title	:	Silica Fume
	संशोधनों की संख्या No. of amendments	:	1
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Nil
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Nil
c)	नमूने का परिमाण Sample Quantity	:	10 kg of silica fume 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 (incase of market surveillance, effort may be made to procure therequired 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		- Same as the scope of licence - Applicability of Alkali requirement
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-A
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	(i) Moisture Content. (ii) SiO ₂ % by Mass (iii) Loss of Ignition. (iv) Particle retained on 45 microns IS sieve		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 15388:2003 with the following scope:		
	Name of the product	Silica Fume	

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ANNEX-A

List of Test Equipment

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Chemical requirements (Clause 4)	<u>SiO₂</u> • Anhydrous Sodium carbonate • Hydrochloric acid (Sp. Gr 1.1.6) • Sulphuric Acid • Hydrofluoric acid • Sodium or potassium persulphate • Ammonium chloride, • Methyl red • ammoniacal ammonium • nitrate solution • Ammonium chloride • Weighing balance • Hot Air Oven • Distilled water • Platinum crucible • Muffle furnace • Steam Bath • No. 40/41 Whatman paper or equivalent • Clock glass • Hotplate with fumehood • Rubber tipped rod • Steam bath • sand-bath /suitable radiant heater • Fume Hood • Desiccator <u>Moisture Content</u> • Hot air Oven • Weight balance <u>Loss on Ignition</u> • Platinum crucible/ porcelain crucible • Muffle furnace, Desiccator • Weight balance

		<u>Available Alkalies (Annex-A of IS 15388)</u> • Metal spatula • Vial of 25ml capacity • 250 ml casserole • Pestle • Medium textured filter paper • 500ml Volumetric flask • Hydrated lime • Hydrochloric Acid • Phenolphthalein indicator • Flame photometer • Calcium chloride
2.	Particle retained on 45 microns IS sieve (Clause 5)	• 45 micron IS Sieve • Weighing balance
3.	Specific Surface (Clause 5)	• Specific determination area by Gas adsorption using BET method as per Annex-B of IS 15388.
4.	Compressive Strength at 7 days as percent of control sample (Clause 5)	• 50 mm cubes moulds • Planetary mixer, • paddle, • mixing bowl, • scrapper • Flow table and Accessories • Tamping rod • Trowel • Vibration machine with timer & cube mould fitting assembly • Compressive Strength machine • Poking Rod, • Petroleum Jelly • Tachometer • Gauging trowel (210 ± 10 g) • gauging plate, stainless steel(non-perforated) • Standard sand grade 1, 2 and 3(as per IS 650) • Curing tank of appropriate size with water circulation arrangement • Graduated glass cylinders 150 to 200ml • Humidity chamber with temperature & RH Control 27 ± 2° C, RH 90 to 100 % • - Hydrated lime

ANNEX B

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 : Silica Fume processed in a day from the same source of supply of raw material shall constitute a 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**.

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 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/empanelled 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 clearly and permanently marked on each bag/consignment of silica fume provided always that the product so marked conforms to each requirement of the specification.

3.1 Marking on the product shall be done as per Clause 9 & 11 of IS 15388:2003.

3.2 **Additional Marking requirements:** Each bag/consignment of silica fume, shall also be marked with the following additional requirement:

“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 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 Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4 Table 1	Chemical requirements						
i)	SiO ₂ % by Mass	4 Table1	IS15388&IS 1727	R	One	Daily composite sample	-
ii)	Moisture Content	4 Table1	IS 15388	R	One	Daily composite sample	-
iii)	Loss of Ignition	4 Table1	IS 15388 and IS 1727	R	One	Daily composite sample	
iv)	Alkalies as equivalent Na ₂ O	4 Table1	IS3812(Part1)	R	One	Daily composite sample	-
5 Table-2	Physical requirements						
i)	Specific Surface	5 Table-1	IS15388	R	One	Daily composite sample	Any one of the tests specified in (i) or (ii) and (iii) indicated may be adopted.
ii)	Oversize % retained on 45 micron IS sieve	5 Table-1	IS15388	R	One	Daily composite sample	
iii)	Oversize % retained on 45 micron IS sieve, variation from average %	5 Table-1	IS15388	R	One	Daily composite sample	

iv)	Compressive Strengthat7days	5 Table-1	IS15388 and IS 17127	R	One	Daily composite sample	-
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Note-1: Composite sample shall be made out of hourly samples for the required period. (please refer)