



उत्पाद मानुयल
FIRE RESISTANT BRATTICE CLOTH
IS 4355:1977 के अनुसार
PRODUCT MANUAL
FOR FIRE RESISTANT BRATTICE CLOTH ACCORDING TO IS
4355:1977

भारतीय मानक ब्यूरो)अनुरूपता मूल्यांकन (विनियम की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरणके प्रचलन मे रीति और पारदर्शिता के सुसंगता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप मे उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग 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 4355:1977
	शीर्षक Title	:	FIRE RESISTANT BRATTICE CLOTH
	संशोधन संख्या No. of Amendments	:	1
2.	नमुनाकरण दिशा निर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	Material as per Cl. 3.1 of IS 4355.

b)	समूहिकरण दिशा निर्देश Grouping guidelines	:	Not applicable as only one type of product requirements are mentioned in the standard.
c)	नमूने का परिमाण Sample Size	:	Quantity: 10 m length
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX –A
4.	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX –B
5.	एक दिन में संभावित परीक्षण Possible tests in a day :		
	Please refer ANNEX – C		
6.	लाइसेन्स का कार्यक्षेत्र /Scope of the Licence:		
	IS 4355:1977 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्रके लिए प्रदान किया जाता है “Licence is granted to use Standard Mark as per IS 4355:1977with the following scope:		
	Name of the product	Fire Resistant Brattice Cloth	
	Type of Base Fabric	Jute Cotton or any other fabric	
	Any other aspect as per the standard	Including or excluding Electrical Resistance (for Plastic Coated Brattice Cloth Only)	

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ANNEX A
TO THE PRODUCT MANUAL
FOR FIRE RESISTANT BRATTICE CLOTH AS PER IS 4355:1977

List of Test Equipment

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Length & Width(Cl3.2)	Steel Tape, Steel Scale
2	Fire Resistance (Cl 3.4.1 & Appendix A)	Barthel Burner with a jet of 0.8mm diameter with a flame gauze of aperture 0.5mm over it and 20mm Diameter flame tube. Suitable stand for flame test. Draught free cabinet Copper wire of 0.71mm diameter and having free length not less than 100mm Vernier Scissor Hot air oven Ethanol, Methanol Stop watch
3	Breaking Load (Cl 3.4.2)	Tensile testing Machine
4	Accelerated Weathering Test(Cl 3.4.3)	Humidity Chamber capable of maintaining 70±1° C and 90 ± 2 % Relative Humidity
5	Air- Permeability (Cl 3.4.4 & Appendix B)	Air permeability testing apparatus as specified at Appendix B fitted with manometer, flow meter and air pump.
6	Electrical Resistance (for Plastic Coated Brattice Cloth Only) – (Cl 3.4.5 & Appendix C)	Conditioning chamber capable of maintaining 65±5% Relative Humidity and 27±2°C temperature Electrical resistance testing apparatus
7	Mass (Cl 4 for Packing and Marking)	Weighing Balance

The above list is indicative only and may not be treated as exhaustive.

ANNEX B
TO THE PRODUCT MANUAL
FOR FIRE RESISTANT BRATTICE CLOTH AS PER IS 4355:1977

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 a calibration plan for the test equipments.

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 licence shall be applied (stencilled) on each piece of fire resistant brattice cloth provided the same conforms to all the requirements of IS 4355:1977.

3.1 In addition, the following information shall be marked with indelible letters of atleast 2 cm in height on each piece of fire resistant brattice cloth at the beginning and also at the end:

- a) Manufacturer's name and trade mark;
- b) Name of the material
- c) Length and width of the material in meters;
- d) Identification in code or otherwise to enable the date and batch of manufacture to be traced back to factory records, and
- e) Month and year of manufacture

4. RAW MATERIAL:

4.1 The base fabric for brattice cloth shall be jute, cotton or any other fabric of such quality so that after treatment it satisfies the requirements as laid down in Clause 3.4.

4.2 Length and width shall be as agreed between the purchaser and the supplier. Tolerances of width shall not be more than – 5 %.

4.3. The treatment of base fabric to make it fire resistant shall give a minimum effective add on to avoid excessive increase in mass of the fabric.

4.4. The treatment material shall penetrate the fabric uniformly and adhere firmly to the fabric.

4.5 The treated fabric shall not have any desirable odour and shall be non-irritant to skin.

4. CONTROL UNIT – For the purpose of this Scheme, Fire resistant brattice cloth manufactured from the base fabric of the same type and quality in a shift shall constitute a control unit.

5. 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.

5.1 All the fire resistant brattice cloth pieces manufactured under one control unit shall be examined for visual defects and for other defects as mentioned in Clause 3.3.1 to 3.3.4. Fire resistant brattice cloth pieces which do not satisfy one or more of the requirements shall not be marked with the Certification mark.

5.2. One piece of fire resistant cloth shall be selected from each control unit and from this piece required amount of samples shall be drawn for testing against fire resistance test as per cl.3.4.1. Test results as obtained against these pieces shall satisfy the specified requirements. If the requirements are not satisfied, all the brattice cloth pieces manufactured under this control unit shall be considered as 'unfit' for marking.

5.3. One piece of brattice cloth shall be selected and tested for accelerated weathering test once in a month. This shall continue till necessary testing equipment for testing accelerated weathering test does not become available with the firm. Testing of every seventh control unit for accelerated weathering test shall be done thereafter.

5.4 In respect of all other clauses of the specification and at all stages of manufacture, the factory shall maintain appropriate controls and checks to ensure that their product conforms to the various requirements of the specification.

6. HYGIENIC CONDITIONS –Wherever applicable, hygienic conditions shall be complied in day to day production and quality control activities. Schedule for each activity for this purpose shall be displayed prominently in the factory premises and records of compliance shall be maintained.

7. REJECTIONS – 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. Any rejected material which is potentially resalable shall be deformed in such a manner that it cannot be used for any other purpose. A separate record shall be maintained giving information relating to all such rejections/defective/substandard material of the production not conforming to the requirements of the Specification and the method of its disposal. Such material shall in no case be stored together with that conforming to the Specification. The Standard Mark (if already applied) on rejected material should be defaced.

TABLE 1
(Levels of Control)

(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				
3.2	Length & Width	3.2.1	IS 4355	R	All pieces	Each control unit	In case of failure, procedure laid down in clause 5.1 to 5.3 of the Scheme shall be followed
3.3.1 3.3.2	Treatment of basic fabric	3.3.1 3.3.2	IS 4355	R	All pieces	Each control unit	-----
3.3.3 3.3.4	Visual examination	3.3.3	IS 4355	R	All pieces	Each control unit	-----
3.4.1	Fire Resistance	Appendix A	IS 4355	R	Six pieces	Each control unit	In case of failure, all the brattice cloth pieces manufactured under this control unit shall be considered for 'unfit' for marking
3.4.2	Breaking Load	3.4.2	IS 4355	R	One piece	Each control unit	-----
3.4.3	Accelerated Weathering Test	3.4.3	IS 4355	S	One piece	Once in a month	-----
3.4.4	Air- Permeability	Appendix B	IS 4355	R	One piece	Each control unit	-----
3.4.5	Electrical Resistance (for Plastic Coated Brattice Cloth Only)	3.4.5	IS 4355 Appendix C	R	One piece	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: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

ANNEX -C

- **Possible tests in a day –**

The possible tests that can be carried out in a single day during the inspection:

Sl no	Tests	Cl. No.
1	Length & Width	3.2
2	Treatment of basic fabric	3.3.1 3.3.2
3	Visual examination	3.3.3 3.3.4
4	Breaking Load (sub to fulfillment of conditioning to moisture equilibrium as per IS 1969)	3.4.2
5	Accelerated Weathering Testsub to fulfillment of conditioning to moisture equilibrium as per IS 1969)	3.4.3
6	Air- Permeability	3.4.4
7	Electrical Resistance (forPlastic Coated Brattice Cloth Only)	3.4.5