

**PRODUCT MANUAL FOR
BONDED MINERAL WOOL
According to IS8183:1993**

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.	Product	:	IS 8183:1993
	Title	:	Bonded Mineral Wool- Specification
	No. of amendments	:	4
2.	Sampling Guidelines		During one operative year, 1 Market sample to be drawn for IT for all requirement & Rest 3 samples (2 FS + 1 MS) to be drawn for all requirement except Incombustibility and Conductivity
a)	Raw material	:	No separate testing required
b)	Grouping Guidelines	:	One sample from each bulk density group to be tested to cover the entire group in scope of licence. Manufacturer shall declare (1) the Bulk Density of the product, (2) the Mean Temperature(s) for Thermal Conductivity measurement and (3) Dimensions.
c)	Sample Size	:	300 mm X 300 mm slabs – 15 nos. + 900 mm X 600 mm slabs – 2 nos. (for jolting and vibration tests)
3.	List of Test Equipment	:	Please refer <u>Annex – A</u>
4.	Scheme of Inspection and Testing	:	Please refer <u>Annex –B</u>
5.	Possible tests in a day	:	<ul style="list-style-type: none"> • Description (Cl. 4.1) • Bulk Density (Cl. 4.2) • Recovery after compression (Cl. 4.3) • Shot Content (Cl. 4.4) • Moisture Content (Cl. 4.5) • Incombustibility (Cl. 4.6) • Sulphur Content (Cl. 4.8) • Dimensions (Cl. 4.9) • Fibre Diameter (Cl. 4.10)
6.	Scope of the Licence :License is granted to use Standard Mark as per IS 8183:1993with the following scope		

	Name of the product:	Bonded Mineral Wool
	Group(s):	1/2/3/4
	Mean Temperature(s) for Thermal Conductivity:	50/100/150/200/250/300 °C

Annex –A

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sr. No.	Tests used in with Clause Reference	Test Equipment/Chemicals/Glassware
1	Bulk Density content (Cl. 4.2/ IS 3144 Cl. 9)	<ul style="list-style-type: none"> • Steel Scale • T-square • Template • Analytical Balance
2	Recovery after compression (Cl. 4.3/Annex A)	<ul style="list-style-type: none"> • Thickness measuring instrument as per 7.1 of IS 3144 • Steel Scale • Mild steel sheet • Load
3	Shot Content (Cl. 4.4/ IS 3144Cl. 13)	<ul style="list-style-type: none"> • Glass Elutriator • Analytical Balance (0.1 mg LC) • Knife • Furnace • Beaker • Distilled water • Wetting agent • Glass stirring rod • IS sieves (250 and 500 micron) • Spatula • Oven with timer • Desiccator • Rubber stopper • Bristles brush
4	Moisture Content and Moisture Absorption (Cl. 4.5 / IS 3144 Cl. 14 and 15)	<ul style="list-style-type: none"> • Drying Oven with vent • Chicken gauze • Analytical Balance • Humidity Chamber
5	Incombustibility (Cl. 4.6 / IS 3144 Cl. 16)	<ul style="list-style-type: none"> • Incombustibility test apparatus • Thermocouple • Temp. Indicator • Timer • Oven • Analytical Balance

6	Thermal Conductivity (Cl. 4.7/IS 3346)	<ul style="list-style-type: none"> • Low-temperature metal-surface guarded hot plate apparatus • High-temperature guarded hot plate apparatus
7	Sulphur Content (Cl. 4.8 / IS 3144 Cl. 19)	<ul style="list-style-type: none"> • Gas Absorption flasks • Flask with dropping funnel • Sulphuric Acid solution • Cadmium Acetate solution • Conc. Hydrochloric Acid • Std. Iodine Solution • Std. Sodium Thiosulphate solution • Starch Solution • Sulphur Determination Apparatus
8	Dimensions(Cl. 4.9 / IS 3144 Cl. 6 and 7)	<ul style="list-style-type: none"> • Steel Scale • T-square • Template • Measuring Tape • Thickness measuring instrument • Steel Scale • Mild steel sheet
9	Fibre Diameter(Cl. 4.10/ IS 3144 Cl. 24)	<ul style="list-style-type: none"> • Projection Microscope • Microscope slides • Mounting Medium (Glycerine + distilled water)

OPTIONAL REQUIRMENTS

10	Resistance to Micro-organisms (Cl. 4.11.1/IS 3144 Cl. 17)	<ul style="list-style-type: none"> • Incubator • Hot-air oven • Autoclave • Analytical Balance (0.1 mg LC) • Stereoscopic Microscope • Petri Dish • Test organisms – <i>Aspergillus Niger</i> and <i>Bacillus Substilis</i> • Volumetric Flask • Pipettes • Test tube • Erlenmeyer flasks • Microbial solutions • Ethanol-water mixture • O-phenylphenol • Ethanol • Lactic Acid • Soyabean Casein Digest Agar (SCDA) • Potato Dextrose Agar (PDA) • Sodium Chloride • Distilled water
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11	Odour Emission Test (Cl. 4.11.2 / IS 3144 Cl. 18)	<ul style="list-style-type: none"> • Refrigerator • Pans • Glass Squares • Butter
12	Resistance to Vibration (Cl. 4.11.3/ IS 3144 Cl. 22.2)	<ul style="list-style-type: none"> • Vibration Test Apparatus with timer
13	Resistance to jolting (Cl. 4.11.4/ IS 3144 Cl. 22.3)	<ul style="list-style-type: none"> • Jolting Machine
14	Heat Resistance (Cl. 4.11.5 / IS 3144 Cl. 12)	<ul style="list-style-type: none"> • Hot Plate • Temp. Indicator • 5 thermocouples
15	Alkalinity(Cl. 4.11.6/Annex B)	<ul style="list-style-type: none"> • pH meter
16	Corrosive Attack(Cl. 4.11.7/ IS 3144 Cl. 26)	<ul style="list-style-type: none"> • Std. Silver Nitrate Solution • Potassium chromate • Water Bath • Whatman no. 42 filter paper • Sulphuric Acid solution • Sodium Hydroxide Solution

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

Annex - B

**SCHEME OF INSPECTION AND TESTING FOR
BONDED MINERAL WOOL - SPECIFICATION
According to IS 8183:1993**

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 printed/stencilled on each package of bonded mineral wool or printed on the label applied to the package as the case may be, provided always that the material in each package to which this mark is applied conforms to every requirement of the specification.

3.1 Marking shall be in accordance with **Cl. 5** of IS 8183:1993. In addition, the following details shall be marked on the package of bonded mineral wool:

- i) Licence No. (CM/L.....)
- ii) The phrase 'Please see www.bis.gov.in for BIS certification details'.

4. CONTROL UNIT – For the purpose of this Scheme, all bonded mineral wool of the same density produced under essentially the same conditions of manufacture in a day 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.

6. 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.

TABLE 1

(1)			(2)	(3)		
Test Details			Test equipment requirement R: required (or)S: Sub-contracting permitted	Recommended Levels of Control		
Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
	Clause	Reference				
Bulk Density content	9	IS 3144	R	Five	Each control unit	
Recovery after compression	4.3/Annex A	IS 8183	R	One	Each control unit	
Shot Content	13	IS 3144	R	One	Each control unit	
Moisture Content	14	IS 3144	R	One	Each control unit	
Moisture Absorption	15	IS 3144	R	One	Every seventh control unit	
Incombustibility	16	IS 3144	R	One	Each control unit	
Thermal Conductivity	-	IS 3346	S	One for each density	Every year	
Sulphur Content	19	IS 3144	R	One	Each control unit	
Width and length	6	IS 3144	R	Five	Each control unit	
Thickness	7	IS 3144	R	Five	Each control unit	
Fibre Diameter	24	IS 3144	R	One	Each control unit	
OPTIONAL REQUIREMENTS						
Resistance to Micro-organisms	17	IS 3144	S			
Odour Emission Test	18	IS 3144	S			

Resistance to Vibration	22.2	IS 3144	S	If required by the purchaser
Resistance to jolting	22.3	IS 3144	S	
Heat Resistance	12	IS 3144	S	
Alkalinity	4.11.6/ Annex B	IS 8183	S	
Corrosive Attack	26	IS 3144	S	

Note-1: 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 and submit his own levels of control in column 3 with proper justification for approval by BO Head.