



## PRODUCT MANUAL FOR FIBRE CEMENT FLAT SHEETS ACCORDING TO IS 14862 : 2000

*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.	<b>Product</b>	:	IS 14862 : 2000
	<b>Title</b>	:	Fibre Cement Flat Sheets
	<b>No. of Amendments</b>	:	3
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	Cement – Clause 3 of IS 14862: 2000
b)	<b>Grouping guidelines</b>	:	Please refer ANNEX – A
c)	<b>Sample Size</b>	:	Acceptance test: 1 sheet Type test: Upto 35 sheets based on tests applicable.
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX – B
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX – C
5.	<b>Possible tests in a day</b>	:	
	i) Dimensional and Geometrical Characteristics (Clause 5.1)		
6.	<b>Scope of the Licence:</b>		
	“Licence is granted to use Standard Mark as per IS 14862:2000 with the following scope:		
	Name of the product	Fibre Cement Flat Sheets	
	Type	Type A/B	
	Category	1/2/3/4/5	
	Size (length x width x thickness)	For sizes upto and including --- mm	
	Any other aspect required as per the Standard	Applicability of optimal test for Type A	

**ANNEX A****Grouping Guidelines**

1. IS 14862: 2000 covers Fibre cement flat sheets which are categorized as given below:

Type	Category (Based on Modulus of rupture)				
	1	2	3	4	5
A	-	-	✓	✓	✓
B	✓	✓	✓	✓	✓

**Dimension:**

- (i) Length – up to 3000 mm
- (ii) Width – up to 1220 mm
- (iii) Thickness – From 3 to 30 mm

(Sheets of greater nominal lengths and widths may be supplied as agreed between the manufacture and the supplier. Thickness other than above may be supplied by mutual agreement between the manufacturer and the purchaser.)

2. Considering the above, following grouping guidelines is developed for GoL/CSoL:
- a) One sample of fibre cement flat sheet of highest nominal thickness and of any size (Nominal Length and width) from each type and category shall be tested for all requirements to cover sheets of all sizes upto and including the thickness tested for that particular type and category.
  - b) Sheets with declared additional characteristics as per clause 5.2.3 of IS 14862: 2000 shall be tested for these additional properties for covering in the scope of licence.
3. The Firm shall declare the varieties they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
4. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

**ANNEX B****List of Test Equipment***Major test equipment required to test as per the Indian Standard*

<b>Sl. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1	Dimensions and Geometrical Characteristics (Clause 5.1)	<ul style="list-style-type: none"> <li>- Smooth flat and rigid inspection platform with two metal rules or square as per clause B-1 (a) of IS 14862: 2000</li> <li>- Measuring Steel tape/ Vernier calliper</li> <li>- Dial gauges with flat parallel metal jaws</li> <li>- Volumetric tank with arrangement to measure change on volume of water</li> <li>- Filler gauges</li> <li>- Square</li> <li>- Fine thread</li> </ul>
2	Bending strength (Clause 5.2.1 & 6.1)	<ul style="list-style-type: none"> <li>- Vernier calliper</li> <li>- Dial gauges with flat parallel metal jaws</li> <li>- Sample cutter</li> <li>- Arrangement for keeping samples in well ventilated condition</li> <li>- Water tank</li> <li>- Bending test machine with supports with variable span and loading arrangement at specified rate of loading.</li> <li>- Stop watch</li> </ul>
3	Apparent density (Clause 5.2.2)	<ul style="list-style-type: none"> <li>- Hot air oven</li> <li>- Weighing balance equipped with determination of immersed mass and non-immersed mass of specimen</li> </ul>
4	Water permeability (Clause 6.2)	<ul style="list-style-type: none"> <li>- Frame as per as per clause E-2 of IS 14862 : 2000</li> <li>- Air conditioner</li> <li>- Steel scale</li> <li>- Thermometer</li> <li>- Hygrometer</li> </ul>
5	Frost resistance (Clause 6.3)	<ul style="list-style-type: none"> <li>- Testing arrangement as per bending strength</li> <li>- Deep freezer</li> <li>- Water bath</li> <li>- Timer</li> <li>- Thermometer</li> <li>- Hygrometer</li> <li>Or arrangement for Freeze-thaw cycle as per clause F-3 of IS 14862 : 2000</li> </ul>
6	Warm water (Clause 6.4)	<ul style="list-style-type: none"> <li>- Thermostatically controlled water bath</li> <li>- Bending strength apparatus as per C-1.5. of IS 14862 : 2000</li> </ul>

7	Soak dry (Clause 6.5)	<ul style="list-style-type: none"><li>- Conditioning chamber to maintain temperature <math>65 \pm 5</math> °C and relative humidity less than or equal to 20 %</li><li>- Water bath</li><li>- Bending strength apparatus as per C-1. of IS 14862 : 2000</li></ul>
8	Heat rain (Clause 6.6)	<ul style="list-style-type: none"><li>- Frame to hold sheets vertically with water spray system, heating system with automatic control system as per clause J-4 and to meet requirements as per procedure defined in clause J-5 of IS 14862 : 2000</li></ul>

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

## ANNEX C

### 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** – As per the requirement of IS 14862:2000.

**4. CONTROL UNIT** – All fibre cement flat sheets of the same type, category and size manufactured from same composition of material under similar manufacturing conditions 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.

**5.1** All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

**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. However, the disposal method should be as much eco-friendly as possible.

**TABLE 1**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl	Requirement	Test Method			No. of samples	Frequency	Remarks
		Clause	Reference				
<b>5</b>	<b>Acceptance Characteristics</b>						
5.1	Dimensional and Geomaterial Characteristics*	5.1, 7.1	IS 14862	R	Five	Each control unit	-
<b>5.2</b>	<b>Mechanical and Physical Characteristics*</b>						
5.2.1	Bending Strength	5.2.1, 7.1 Table 1 Annex C	IS 14862	R	Three	Each control unit	-
5.2.2	Apparent Density	5.2.2, 7.1 Annex C	IS 14862	R	Three	Each control unit	-
5.2.3	Other Characteristics*	5.2.3	IS 14862	S	Any additional characteristics which the manufacturer desires to specify, is to be mutually agreed between the manufacturer and the purchaser, including their method of testing requirements.		
<b>6</b>	<b>Type Characteristics (Applicable for Type A only)</b>						
6.1	Bending Strength	6.1, 7.2, Annex D	IS 14862	S	Three	Once in five years or whenever there is a fundamental change in formulation and/or method of manufacture.	
6.2	Water impermeability	6.2, 7.2, Annex E	IS 14862	S	Three		
6.3	Frost Resistance (Freeze - Thaw) (Optional test)	6.3, 7.2, Annex F	IS 14862	S	Three		

6.4	Warm Water (Optional test)	6.4, 7.2, Annex G	IS 14862	S	Three	Once in five years or whenever there is a fundamental change in formulation and/or method of manufacture.
6.5	Soak - Dry	6.5, 7.2, Annex H	IS 14862	S	Three	
6.6	Heat – Rain (Optional test)	6.6, 7.2, Annex J	IS 14862	S	Three	

\* These tests are applicable to coated products also. The manufacturer shall establish a correlation between the results of tests on sheets with and without coating.

Note -1: Testing as per clause 6.3, 6.4 and 6.6 are optional requirements and to be carried out as per requirements of purchaser.

Note-2: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-3: 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.