



**PRODUCT MANUAL FOR  
CORRUGATED AND SEMI-CORRUGATED  
ASBESTOS CEMENT SHEETS  
ACCORDING TO IS 459: 1992**

*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 459 : 1992
	<b>Title</b>	:	CORRUGATED AND SEMI-CORRUGATED ASBESTOS CEMENT SHEETS
	<b>No. of Amendments</b>	:	4
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	a) Cement – As per relevant IS b) Fly ash – IS 3812 (Part 1) c) Colouring material – Relevant Indian Standard
b)	<b>Grouping guidelines</b>	:	Please refer <a href="#">ANNEX – A</a>
c)	<b>Sample Size</b>	:	Three sheets of full size
3.	<b>List of Test Equipment</b>	:	Please refer <a href="#">ANNEX – B</a>
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer <a href="#">ANNEX – C</a>
5.	<b>Possible tests in a day :</b>		
	(i) Dimensions and tolerance (ii) Load Bearing capacity ( As no testing facility available in BIS/OSL Laboratory, FT shall be carried out) (iii) Optional tests, if applicable		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 459 : 1992 with the following scope:		
	Name of the product	Asbestos Cement sheets	
	Type	Corrugated/Semi-corrugated	
	Size	Length in mm (As applicable)	
	Any other aspect required as per the Standard	Applicability of sheets to be used in special situations likely to be affected by frost	

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**ANNEX A**

**Grouping Guidelines**

1. For considering GoL/CSoL, Asbestos Cement Sheets are classified as given below:
  - a) Type of Sheets – Corrugated/Semi-Corrugated
  - b) With Pulverized fuel ash / Without Pulverized fuel ash.
2. One sample of Asbestos Cement Sheet from each type, preferably of highest length, shall be tested to cover all the sizes of that particular type tested.
3. Separate samples of sheets manufactured with Pulverized fuel ash and without Pulverized fuel ash shall be tested to cover those particular varieties in the licence.
4. The Firm shall declare the varieties of Asbestos Cement Sheets they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the types and sizes 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>S. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1	Dimensions Clause 5	a) Vernier calliper, Depth gauge or any other suitable device for measuring depth of corrugation b) Micrometer or other suitable device for thickness measurement c) Measuring tape / steel scale
2	Load Bering Capacity Clause 6.1	a) Testing arrangement as per IS 5913 and b) Water bath & Thermometer
3	Impermeability	Testing arrangement as per IS 5913
4	Frost Cracking	Temperature controlled cabinet operating at temperature + 20 ° C and - 20° C ± 3 ° C
5	Density	a) Drying oven b) Volumetric flask c) Weighing balance

*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 requirements of IS 459:1992.

**4. CONTROL UNIT** – All Asbestos cement Sheets of same type and thickness manufactured from same composition under identical conditions in a continuous production 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.

**TABLE 1**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
3	Cement	3	IS 459	–	–	–	Cement received shall be ISI marked and accompanied with test certificate
3	Fly ash	3	IS 459 IS 3812 (Pt 1)	S	One sample in a month or whenever there is change of source of supply.		No further testing is required, if received with test certificate or ISI marked.
4.1	Colouring matter	4.1	IS 459	S	One	Each lot	
5	Dimensions and tolerance	5.1	IS 459	R	1% of total production with a minimum of 5 sheets from each control unit		In case of failure, all sheets shall be checked and non-conforming sheets shall be rejected.
6.1	Load Bearing Capacity	6.1	IS 459 IS 5913	R	Three	Each control unit	In case of failure, two samples from same control unit shall be tested and control unit shall be accepted only if both samples pass.
6.2	Impermeability test	6.2	IS 459 IS 5913	R	Three	Each control unit	Optional Test
6.3	Frost cracking test	6.3	IS 459 IS 5913	R	# Three samples in a week for each composition of raw material		Optional Test
6.4	Density	6.4	IS 459 IS 5913	R	Three	Each control unit	
7	General appearance and finish	7	IS 459	R	All sheets	-	

# In case of failure, frequency shall be changed to every control unit. Original frequency shall be restored if samples from 3 consecutive control units pass.

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 unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval of BO Head.