



सी एस आई आर - राष्ट्रीय भौतिक प्रयोगशाला
CSIR-NATIONAL PHYSICAL LABORATORY

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)

(Council of Scientific and Industrial Research)

राष्ट्रीय मापिकी संस्थान (एनएमआई), सदस्य बीआईपीएम एवं हस्ताक्षरकर्ता सीआईपीएम - एमआरए
(National Metrology Institute (NMI), Member BIPM and Signatory CIPM - MRA)

डॉ. के. एस. कृष्णन मार्ग, नई दिल्ली-110012, भारत

Dr. K. S. Krishnan Marg, New Delhi-110012, INDIA

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परीक्षण रिपोर्ट
TEST REPORT

Sound Absorbing Material

दिनांक/Date	रिपोर्ट संख्या/Report No.	पृष्ठ /Page	पृष्ठों की संख्या /No. of Pages
20-09-2022	22080577/D1.07/T-050	1	2

1. Tested for

: M/S Aerolite Industries Pvt. Ltd.,
Span Solitaire, 6-3-1090/B/5,
Raj Bhawan Road, Hyderabad - 500082
Customer Ref. No.: AIPL/2022-23
Dated 12/08/2022

2. Description and

: Aerolite 'SPINTONE' Calcium Silicate Tegular Tile
(Calcium Silicate tile with integrated densified edge of size
15mm thick all around & 10 mm thick in the centre alongwith
Glasswool backing of 350 Kg/m³ in the 10mm thick central
portion & 450 Kg/m³ on the 15mm thick edges)
(Sample size: 595mm x 595mm) x 30 pieces

Identification of Items

3. Environmental Conditions

: Room Temperature: (23.0 ± 5.0) °C
Relative Humidity: (50.0 ± 20.0) %

4. Standards used and

: Dual channel Acoustic Analyzer with
Working Standard Microphone
Associated Uncertainty
: ±0.4 dB to 0.6 dB

5. Traceability of Standard Used

: The standards used for testing are traceable to
National Standards which realize the units of quantities
according to the International System of Units (SI).

6. Principle/Methodology of Testing
and Test Procedure No.

: Sound absorbing coefficient by diffuse field
method: ISO 11654-1997/ IS: 8225-2018 "Measurement
of Sound Absorption Coefficient in Reverberation
Room" (Equivalent to ISO: 354-2003,
ASTM C423- 09(a))
Sub-Div # 1.07/Doc. 3/ TP # 01

7. Results:

As requested by the customer, the material was tested only for its sound absorption coefficient by reverberation method as per IS: 8225-2018 under existing environmental conditions in a reverberation chamber of volume 271 m³, surface area 240 m² and average reverberation time of 6 sec. The chamber was of irregular shape and adequate diffusion was obtained by using suspended stationary diffusers.

परीक्षणकर्ता:
Tested by: (Dr. Chitra Gautam)

जाँचकर्ता:
Checked by: (Dr. Naveen Garg)

प्रभारी वैज्ञानिक:
Scientist-in-charge: (Dr. Naveen Garg)

जारीकर्ता:
Issued by:



डॉ० श्रीनिवास राव रागम
Dr. Srinivasa Rao Ragam



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A loudspeaker with uniform spherical radiation was used as the source of sound suspended at a height of 2.5 m above the floor in one corner while the microphone was kept in different locations near the other corners of the room and at least 1 m away from any surface. The material was kept on **300 mm airgap** so as to get an exposed sample area of 12.0 m².

Measurements were made by using 1/3-octave bands of random noise and several decay rates were determined for each of the microphone and loudspeaker positions. The sound absorption coefficient was calculated and the correction for boundary absorption was applied. The results were:

Frequency (Hz)	Sound Absorption Coefficient (α)	NRC	α_w
125	0.60	0.65	0.65 (L)
250	1.00		
500	0.63		
1000	0.49		
2000	0.49		
4000	0.43		

Using the standard reference curve as per ISO 11654:1997 standard, the Weighted Sound Absorption Coefficient (α_w) was found to be 0.65 (L) and Sound Absorption Class: C.

The evaluated uncertainty in measurement is $\pm 5\%$ which is at a coverage factor $k = 2$ and which corresponds to a coverage probability of approximately 95% for normal distribution.

8. Date of Testing : 19-09-2022

9. Remarks : NIL

परीक्षणकर्ता:
Tested by: (Dr. Chitra Gautam)

जाँचकर्ता:
Checked by: (Dr. Naveen Garg)

प्रभारी वैज्ञानिक:
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