सी एस आई आर - राष्ट्रीय भौतिक प्रयोगशाला
CSIR-NATIONAL PHYSICAL LABORATORY
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्)
(Council of Scientific and Industrial Research)
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परीक्षण रिपोर्ट
TEST REPORT

Sound Absorbing Material

दिनांक/Date	परीक्षण रिपोर्ट संख्या/Test Report No.	पृष्ठ / Page	पृष्ठों की संख्या / No. of Pages
17-06-2019	19050186/D1.07/T-021	1	2

1. Tested for : M/s. Diamond International Inex Private Limited,
   Plot 98, Sector 8,
   IMT Manesar,
   Gurugram – 122 050 (Haryana), India
   Customer Ref. No.: Nil
   Dated 17/05/2019

2. Description and Identification of Items : 10 mm thick Diamond GRG fully perforated false Ceiling tile
   Item No: Eyelet-X 8777 of size: 595mm x 595mm with 50mm thick glass wool at the back

3. Environmental Conditions : Room Temperature: 25.0 ± 5 ^{0}C
   Relative Humidity: 50.0 ± 20 %RH

4. Standards used and Associated Uncertainty : Working Standard Microphone, ± 0.2 dB

5. Traceability of Standard Used : The standards used for testing are traceable to National Standards

6. Principle/Methodology of Testing and Test Procedure No. : Sound absorbing coefficient by diffuse field method: IS: 8225-1987 "Measurement of Sound Absorption Coefficient in Reverberation Room" (Equivalent to ISO: 354-2003 and ASTM 423-90) Sub-Div # 5.07/A/Doc. 3/ TP # 14

7. Results:

As requested by the party, the material was tested only for its sound absorption coefficient by reverberation method as per IS:8225 – 1987 under existing environmental conditions in a reverberation chamber of volume 271 m^3, surface area 240 m^2 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:	जाँचकर्ता: Checked by:	प्रभारी वैज्ञानिक: Scientist-in-charge:
(Dr. Y. K. Yadav)	(Dr. Kirti Soni)	(Dr. Mahavir Singh)

जारीकर्ता:
Issued by:
डॉ० सुशील कुमार
Dr. Sushil Kumar

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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 50 mm glass wool having density of 48 Kg/m^3 and air column (airgap) of 300 mm at backing so as to get an exposed sample area of 11.0 m^2.

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
125	0.82	0.85
250	1.00	
500	1.00	
1000	0.86	
2000	0.57	
4000	0.42	

The evaluated uncertainty in measurement is ± 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 : 24-05-2019

9. Remarks : Nil

परीक्षणकर्ता: Tested by: (Dr. Y. K. Yadav)

जाँचकर्ता: Checked by: (Dr. Kirti Soni)

प्रभारी वैज्ञानिक: Scientist-in-charge: (Dr. Mahavir Singh)

जारीकर्ता: Issued by: डॉ० सुशील कुमार Dr. Sushil Kumar