CONFIDENTIAL

TEST REPORT ON DETERMINATION OF RANDOM INCIDENCE SOUND ABSORPTION COEFFICIENT OF PU FOAM SAMPLE OF 40 MM THICKNESS

ULR-TC50852405000 0122F
NVH/3100016386/2023-24/0122

3rd May 2023

1.0 CUSTOMER NAME : Jindal Petro Foams
Naraingarh Road, Village Mandhoure,
Ambala – 134003, Haryana

2.0 LETTER REF. : E-mail dated 28th April 2023

3.0 TEST COMPONENT DETAILS : Test sample details given by customer is as follows

3.1	Sample Description	:	PU Foam
3.2	Total Sample Density	:	30 kg/m^3 density measured at ARAI
3.3	Total Sample Thickness	:	40 mm thickness

4.0 TEST REQUIREMENTS :

Measurement of random incidence sound absorption coefficient on above mentioned test sample as per ASTM C-423 / ISO 354 in reverberation chamber.

5.0 TEST PROCEDURE :

The random incidence sound absorption coefficient measurement was carried out on above mentioned test sample as per ASTM C-423 / ISO 354 in reverberation chamber. The test sample of size 2.7 m x 2.0 m was directly placed on the floor with type A mounting. Please refer figure 1 for test set up and test component details. The random incidence sound absorption coefficient test was carried out three times on same sample in reverberation chamber and average value reported. The measurement was carried out at temperature 25^{0}C ± 1^{0}C, humidity 36% and barometric pressure 939 mbar.

6.0 DATE OF EVALUATION :

The random incidence sound absorption coefficient measurement was carried out on above mentioned test samples on 2nd May 2023.

An ISO 9001, ISO 14001, ISO 45001 and ISO/IEC 27001 Certified Organization

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7.0 INSTRUMENTATION :

Sr. No	Instrument Name	Type / Model No	Make	Calibrated on	Calibration due on
1	Multi-channel Data Acquisition System	3560 D	Bruel & Kjaer, Denmark	11-Aug-22	11-Aug-23
2	½" Random Incidence Microphone	378C20	PCB, USA	11-Aug-22	11-Aug-23
3	Power Amplifier	2716	Bruel & Kjaer, Denmark	Does not require separate calibration as it is driven by data acquisition system	
4	Omni directionnel sound source	Omni power 4296	Bruel & Kjaer, Denmark		
5	Reverberation room	80 m^3 and 110 m^3	-	-	-

8.0 TEST RESULTS :

Table 1 and figure 2 shows the average values and plot for random incidence sound absorption coefficient of PU foam sample of measured 30 kg/m^3 density and 40 mm thickness in the frequency range of 100 Hz to 5000 Hz.

9.0 CONCLUSIONS :

9.1 The Noise Reduction Coefficient (NRC) is given by the average value of sound absorption coefficient at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz is calculated as per ASTM C- 423.

9.2 The weighted sound absorption coefficient (α_w) and sound absorption class are calculated as per ISO 11654 are given below.

PU foam sample of measured 30 kg/m3 density and 40 mm thickness	
Noise Reduction Coefficient (NRC)	0.85
Weighted Sound Absorption Coefficient (αw)	0.75 (M,H)
Sound Absorption Class	Class C

Tested and Report Prepared By:	Reviewed By:	Reviewed By:	Approved By:
P.P. Kamble	M. P. Joshi	S. K. Jain	Dr. N. H. Walke
Dy. Manager	Dy. General Manager	General Manager	Sr. Dy. Director & HOD

TC-5085

SACHIN KUMAR JAIN Digitally signed by SACHIN KUMAR JAIN Date: 2023.05.04 18:19:16 +05'30'

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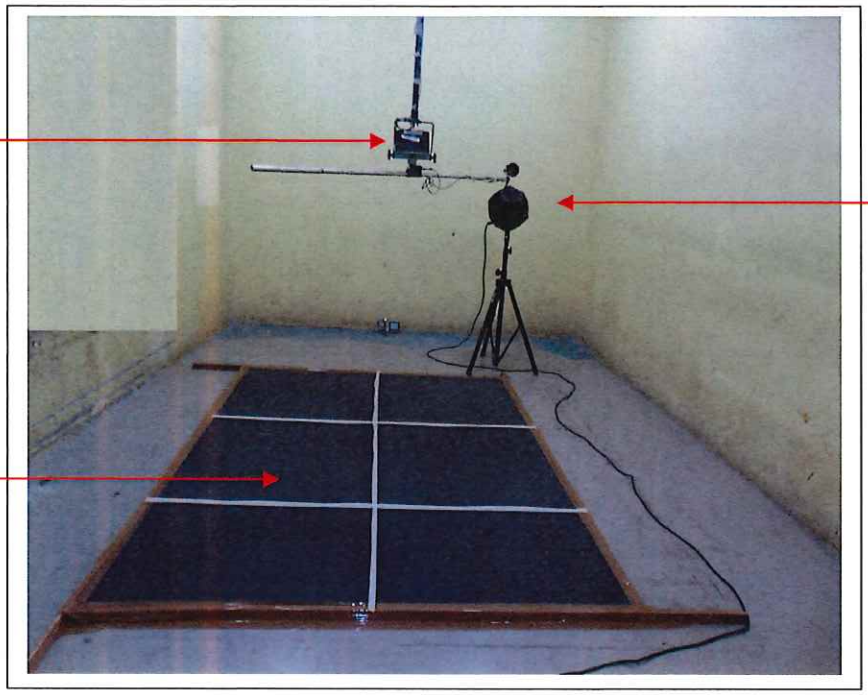
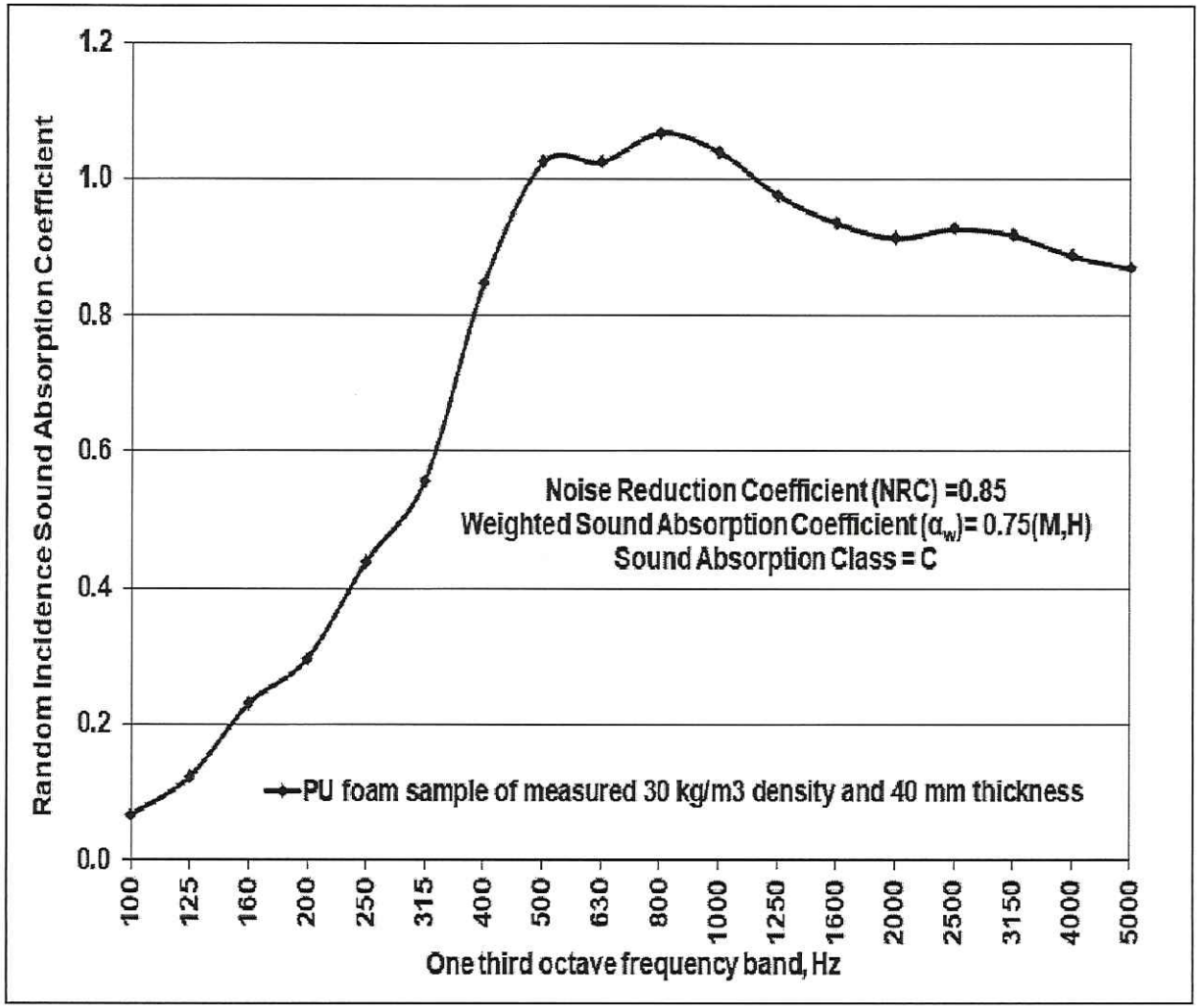


Figure 1: Test set up for mounting and testing of PU foam sample of measured 30 kg/m^3 density and 40 mm thickness in reverberation chamber

Table 1 and Figure 2: Values and plot for random incidence sound absorption coefficient of PU foam sample of measured 30 kg/m^3 density and 40 mm thickness at one third octave frequencies

One third octave frequency, Hz	Random Incidence Sound Absorption Coefficient	Standard Deviation
100	0.07	0.01
125	0.12	0.01
160	0.23	0.01
200	0.30	0.02
250	0.44	0.01
315	0.56	0.03
400	0.85	0.01
500	1.02	0.02
630	1.03	0.02
800	1.07	0.03
1000	1.04	0.00
1250	0.98	0.01
1600	0.94	0.00
2000	0.91	0.02
2500	0.93	0.01
3150	0.92	0.01
4000	0.89	0.01
5000	0.87	0.01



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