

RIVERBANK ACOUSTICAL LABORATORIES

1512 BATAVIA AVENUE
EVA, ILLINOIS 60134

OF
IIT RESEARCH INSTITUTE

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

REPORT

FOR: USAFoam

Sound Absorption Test
RAL™-A93-58

ON: STUDIOFOAM Sound Absorbent Wedges

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CONDUCTED: 4 March 1993

TEST METHOD

The test method conformed explicitly with the requirements of the ASTM Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method: ASTM C423-90a and E795-91. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure. A description of the measuring technique is available separately. The microphone used was a Bruel & Kjaer serial number 792729.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as STUDIOFOAM Sound Absorbent Wedges. The overall dimensions of the specimen as measured were 2.44 m (96 in.) wide by 2.74 m (108 in.) long and 51 mm (2.0 in.) thick. The specimen consisted of twelve pieces. Eight pieces as measured were 610 mm (24 in.) wide by 1.22 m (48 in.) long by 51 mm (2 in.) thick. Four pieces measured 305 mm (12 in.) wide by 610 mm (24 in.) long. The specimen was tested in the laboratory's 292 m³ (10,311 ft³) test chamber. The description of the specimen was as follows: STUDIOFOAM was formulated of flame-retardant stock designed 4516R, a high density (1.5-1.7 pcf) open cell polyurethane foam rubber that was cut in an anechoic wedge design. Each 610 mm (24 in.) by 1.22 m (48 in.) sheet consisted of thirty peaks and thirty valleys. The thickness was 51 mm (2 in.) at the peaks and 13 mm (0.5 in.) at the base. A visual inspection verified the description of the specimen. The weight of the specimen as measured was 6 kg (13 lbs) an average of 0.9 kg/m² (0.18 lbs/ft²). The area used in the calculations was 6.7 m² (72 ft²). The room temperature at the time of the test was 23°C (74°F) and 65% relative humidity.

MOUNTING A

The test specimen was laid directly against the test surface.

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



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TEST RESULTS

1/3 Octave Center Center Frequency (Hz)	Absorption Coefficient	Total Absorption In Sabins	% Of Uncertainty With 95% Confidence Limit With Specimen
100	0.17	12.09	2.84
** 125	0.11	8.22	2.64
160	0.16	11.23	2.03
200	0.24	17.02	1.94
** 250	0.30	21.18	1.53
315	0.45	31.88	1.18
400	0.64	46.11	1.35
** 500	0.91	65.37	1.14
630	1.01	72.63	0.92
800	1.06	76.15	0.87
** 1000	1.05	75.11	0.84
1250	1.02	73.32	0.74
1600	1.03	73.74	0.61
** 2000	0.99	70.92	0.56
2500	0.97	69.33	0.54
3150	0.95	67.95	0.56
** 4000	1.00	71.94	0.47
5000	1.05	75.48	0.44

NRC = 0.80

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NVLAQ

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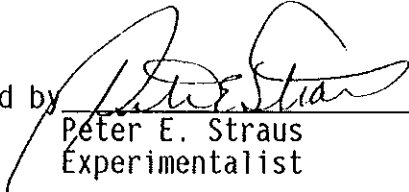
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TEST RESULTS (con't)

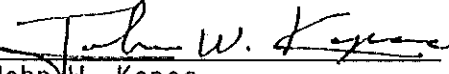
The percentage of uncertainty for the required 95% confidence limits indicated above must fall within the prescribed limits designated in par. 13.2 of ASTM C423-90a. It states that for the absorption of the reverberation room containing the specimen the testing laboratory shall obtain data with less than 4% uncertainty at 125 (hertz) and 2% uncertainty at 250, 500, 1000, 2000, and 4000 (hertz). The method of calculation is described in ASTM STP 15D and outlined in section 13 of the standard.

The noise reduction coefficient (NRC) is the average of the coefficients at 250, 500, 1000, and 2000 Hz, expressed to the nearest integral multiple of 0.05.

Submitted by


Peter E. Straus
Experimentalist

Reviewed by


John W. Kopec
Supervisor, Riverbank
Acoustical Laboratories

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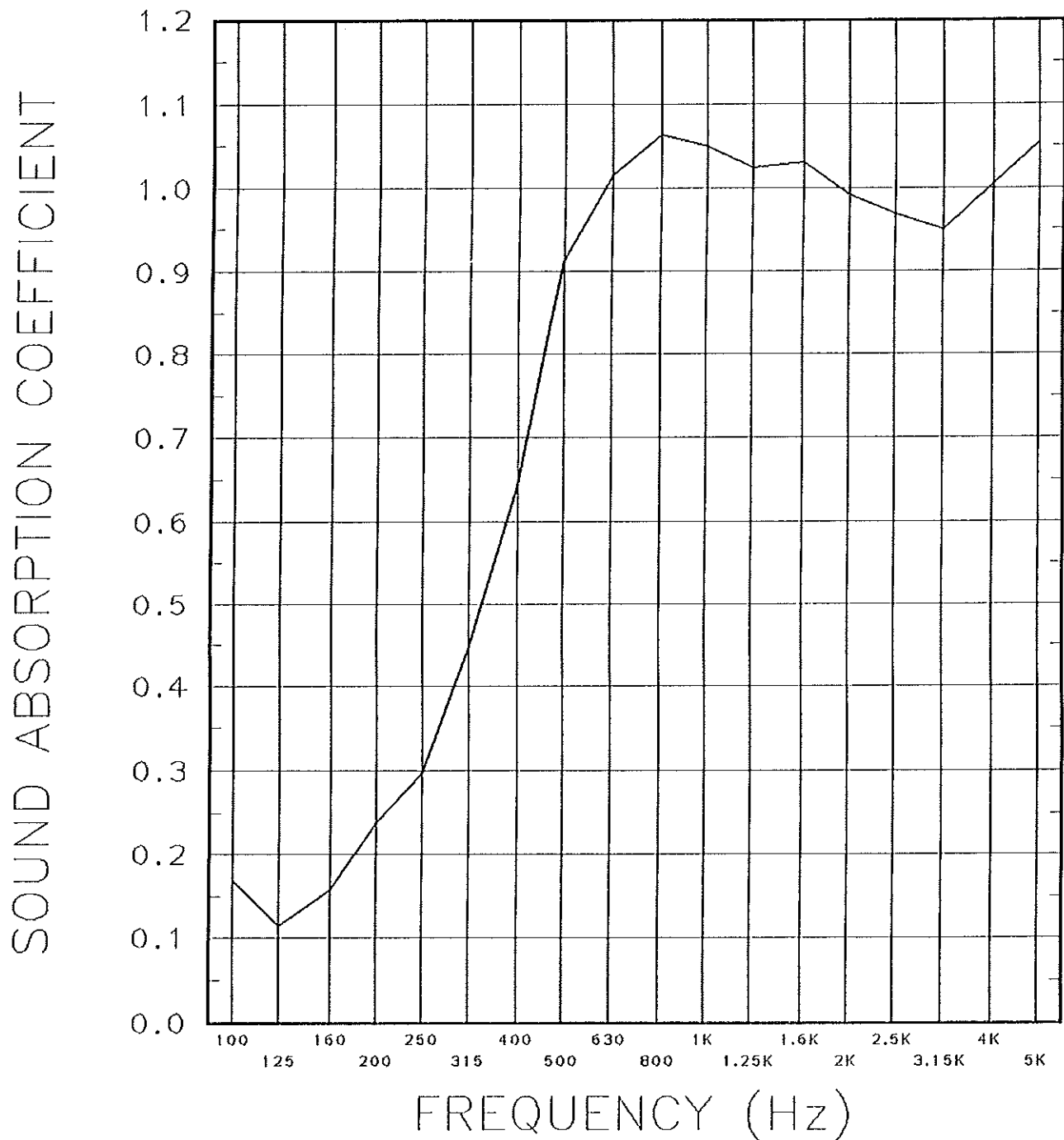
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SOUND ABSORPTION REPORT

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NRC = 0.80

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