

# RIVERBANK ACOUSTICAL LABORATORIES

1512 BATAVIA AVENUE  
NEVA, ILLINOIS 60134

OF  
IIT RESEARCH INSTITUTE

708/232-0104  
FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

## REPORT

FOR: USA Foam

Sound Absorption Test  
RAL™-A93-289

ON: 2" Thick Sonomat™ Foam

Page 1 of 4

CONDUCTED: 2 November 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 E795-92. 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 1440522.

### DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as 2" thick Sonomat™ foam. The overall dimensions of the specimen as measured were 2.44 m (96 in.) wide by 2.44 m (96 in.) long and 51 mm (2 in.) thick. The specimen consisted of two units. Each unit measured 1.22 m (48 in.) wide by 2.44 m (96 in.) long by 51 mm (2 in.) thick. The specimen was tested in the laboratory's 292 m<sup>3</sup> (10,311 ft<sup>3</sup>) test chamber. The description of the specimen was as follows: The sample consisted of sheets of convoluted open cell foam. The thickness of the foam at the base was 25 mm (1.0 in.). The weight of the specimen as measured was 5.0 kg (11 lbs) an average of 0.8 kg/m<sup>2</sup> (0.17 lbs/ft<sup>2</sup>). The area used in the calculations was 5.9 m<sup>2</sup> (64 ft<sup>2</sup>). The room temperature at the time of the test was 22°C (71°F) and 58% 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.

 NVLAP

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ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.  
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2 November 1993

Page 2 of 4

### TEST RESULTS

1/3 Octave Center Center Frequency (Hz)	Absorption Coefficient	Total Absorption In Sabins	% Of Uncertainty With 95% Confidence Limit With Specimen
100	0.08	4.96	2.99
** 125	0.13	8.27	2.89
160	0.14	9.26	2.05
200	0.20	12.55	1.90
** 250	0.27	17.24	1.35
315	0.35	22.58	1.11
400	0.47	30.22	1.24
** 500	0.62	39.45	1.26
630	0.75	48.12	0.86
800	0.85	54.44	0.79
** 1000	0.92	58.59	0.83
1250	0.96	61.55	0.65
1600	1.01	64.48	0.67
** 2000	1.02	65.24	0.58
2500	1.00	64.17	0.48
3150	1.02	65.09	0.51
** 4000	1.02	65.48	0.48
5000	1.06	68.01	0.47

NRC = 0.70

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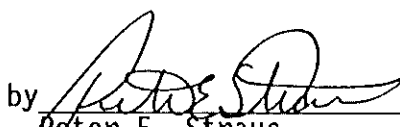
Page 3 of 4

### TEST RESULTS (con't)

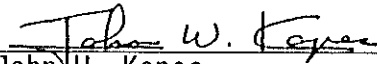
The percentage of uncertainty for the required 95% confidence limits indicated above must fall within the prescribed limits designated in par. 13.2 of ASTM C423-90a. It states that for the absorption of the reverberation room containing the specimen the testing laboratory shall obtain data with less 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  
Senior Experimentalist

Reviewed by

  
John W. Kopec  
Supervisor, Riverbank  
Acoustical Laboratories

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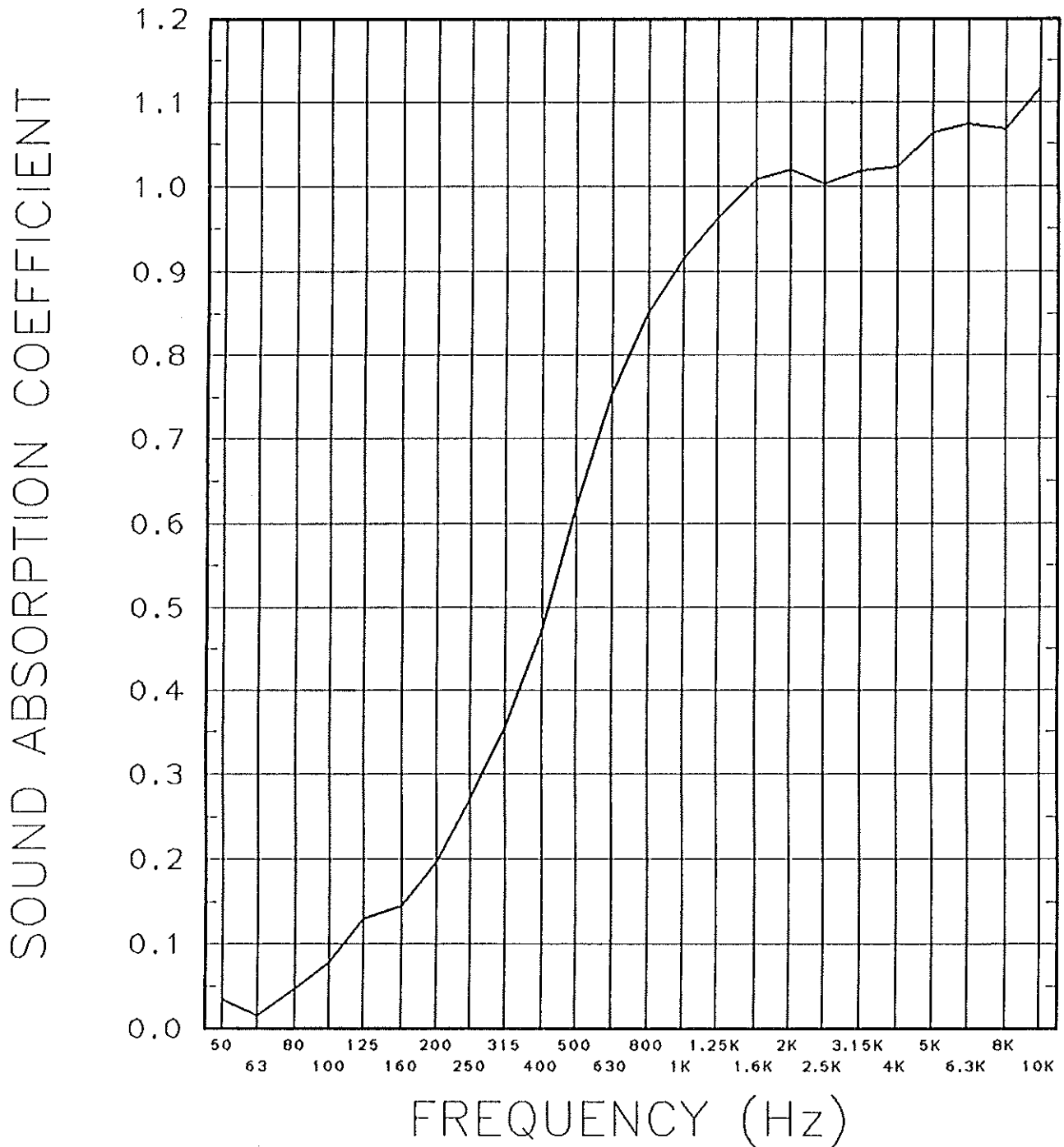
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### SOUND ABSORPTION REPORT

RAL - A93-289 Page 4 of 4



NRC = 0.70

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