1512 S BATAVIA AVENUE
GENEVA, IL 60134

630-232-0104

Test Report

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FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Frasch**
Byhalia, MS

Sound Absorption
RAL™-A23-045

CONDUCTED: 2023-02-22

ON: PIXL Sheets (ceiling tiles)

TEST METHODOLOGY

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2017 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM C423-22: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-16: "Standard Practices for Mounting Test Specimens During Sound Absorption Tests." A description of the measurement procedure and room specifications are available upon request. The results presented in this report apply to the sample as received from the test sponsor.

INFORMATION PROVIDED BY SPONSOR

The test specimen was designated by the sponsor as PIXL Sheets (ceiling tiles). The following nominal product information was provided by the sponsor prior to testing. The accuracy of such sponsor-provided information can affect the validity of the test results.

Product Under Test

Product Name:	PIXL Sheets
Manufacturer:	Frasch

SPECIMEN MEASUREMENTS & TEST CONDITIONS

Through a full external visual inspection performed on the test specimen, Riverbank personnel verified the following information:

Test Specimen

Material:	PET felt sheets with PET felt protrusions
Geometry:	Eight sheets have six by twelve grid of rounded square protrusions
	Two sheets have three by twelve grid of circular protrusions
Dimensions:	8 sheets w square protrusions @ 603 mm (23.75 in.) by 1207 mm (47.5 in.)
	2 sheets w circular protrusions @ 298 mm (11.75 in.) by 1207 mm (47.5 in.)
Thickness:	Sheets' base felt @ approx. 9.02 mm (0.355 in.)
	Total of sheets with square protrusions @ 46.06 mm (1.8135 in.)
	Total of sheets with circular protrusions @ 45.54 mm (1.793 in.)

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Test Specimen (continued)

Protrusion Dimensions:	Square protrusions @ 83.21 mm (3.276 in.) by 83.18 mm (3.275 in.)
	Circular protrusions @ 83.21 mm (3.276 in.) diameter
Protrusion Spacing:	Square protrusions spaced 17.2 mm (0.6755 in.) apart
	Circular protrusions spaced 17.3 mm (0.68 in.) apart
Overall Weight:	22.57 kg (49.75 lbs)

Overall Specimen Properties

Size:	2.71 m (106.75 in) wide by 2.41 m (95.0 in) long
Thickness:	0.05 m (1.813 in)
Weight:	22.57 kg (49.75 lbs)
Mass per Unit Area:	3.45 kg/m² (0.71 lbs/ft²)
Calculation Area:	6.543 m² (70.43 ft²)

Test Environment

Room Volume:	291.98 m³
Temperature:	19.9 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity:	58.05 % ± 1.9 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure:	97.5 kPa (Requirement not defined)

MOUNTING METHOD

Type E-400 Mounting: The test specimen was mounted across a metal fixture which was open at its top and bottom and enclosed at its sides, creating an enclosed airspace between the test specimen and the horizontal test surface. The numeral suffix in the designation is defined in ASTM E795-16 as the distance in millimeters from the exposed face of the test specimen to the test surface, rounded to the nearest integer multiple of 5. For the purposes of this report, the mounting designation uses the plane tangent to the topmost surfaces of the sheet's protrusions as a reference datum. Perimeter edges were sealed with metal framing.

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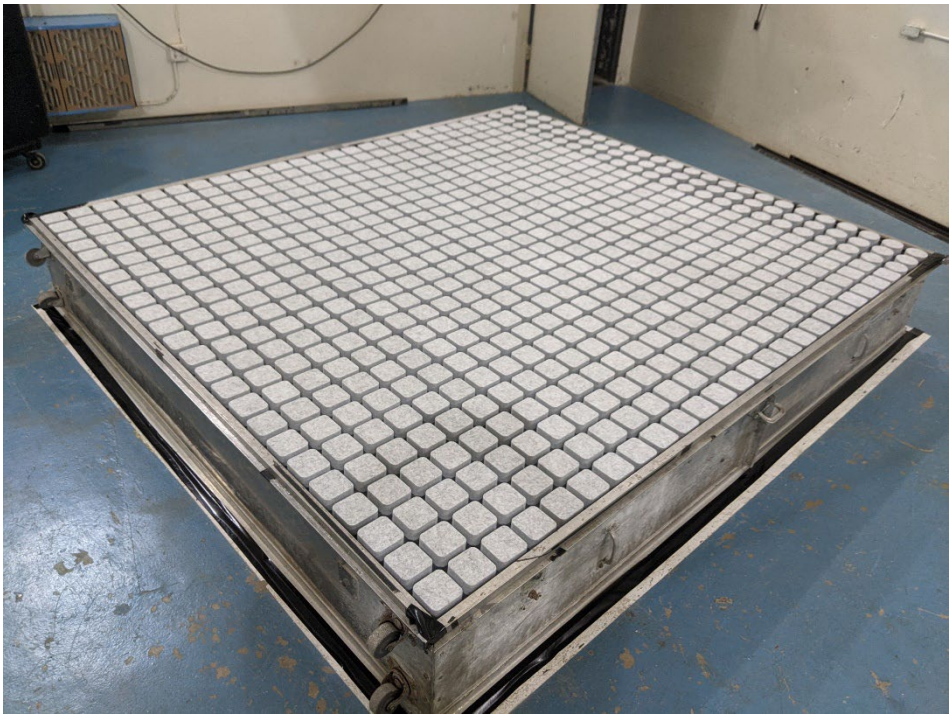

Figure 1 – Specimen mounted in test chamber

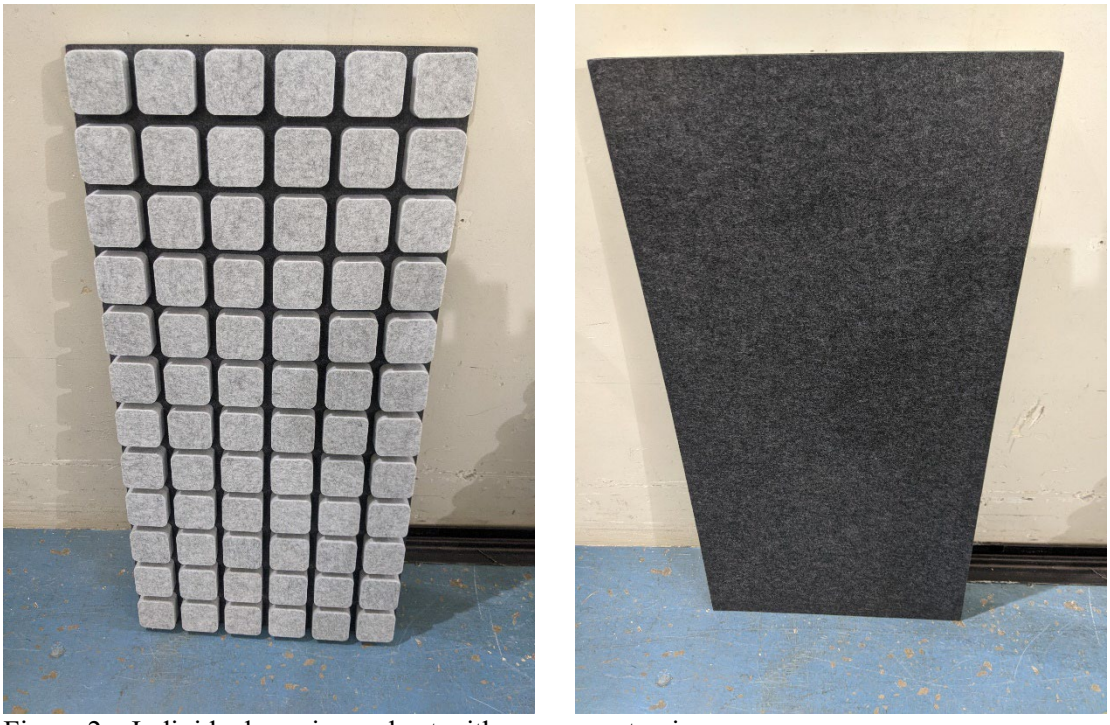

Figure 2 – Individual specimen sheet with square protrusions

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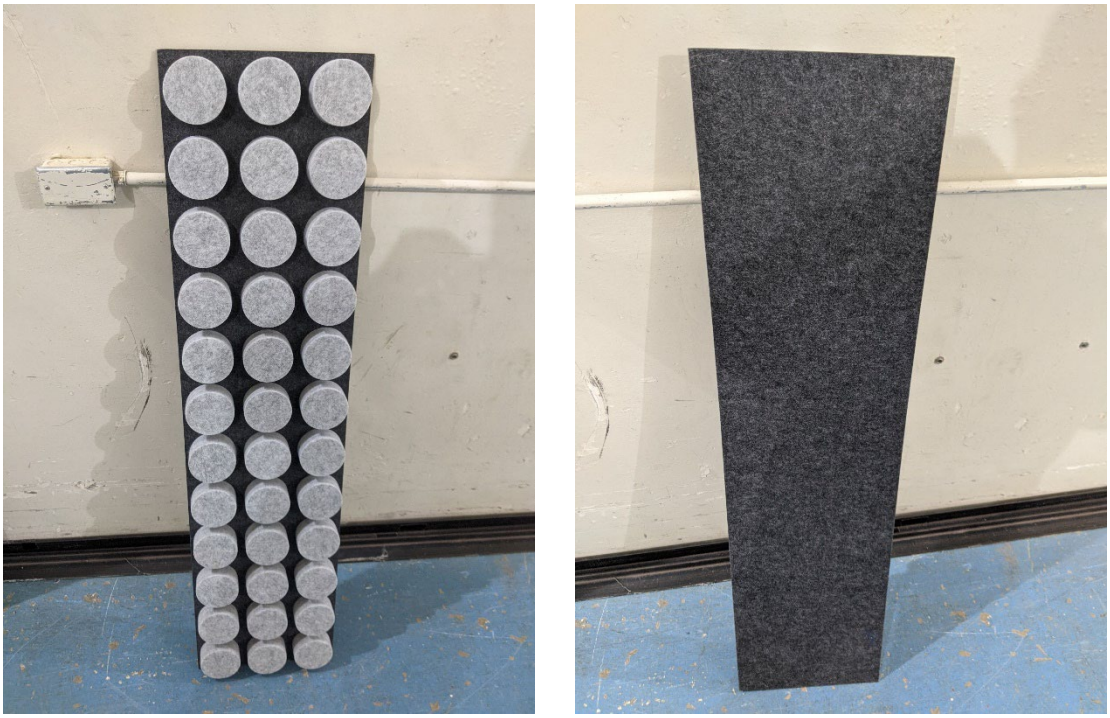

Figure 3 – Individual specimen sheet with circular protrusions

Figure 4 – Detail of specimen materials

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Figure 5 – Detail of specimen materials

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TEST RESULTS

Specimen total absorption and absorption coefficient are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages.

1/3 Octave Center Frequency (Hz)	Total Absorption (m^2)	Total Absorption (Sabins)	Absorption Coefficient
100	6.51	70.06	0.99
** 125	6.01	64.71	0.92
160	5.46	58.80	0.83
200	7.03	75.66	1.07
** 250	6.65	71.57	1.02
315	6.67	71.80	1.02
400	6.69	72.04	1.02
** 500	5.75	61.93	0.88
630	6.71	72.25	1.03
800	6.97	75.05	1.07
** 1000	7.05	75.90	1.08
1250	7.50	80.76	1.15
1600	7.24	77.95	1.11
** 2000	7.29	78.42	1.11
2500	7.40	79.68	1.13
3150	7.37	79.37	1.13
** 4000	7.66	82.46	1.17
5000	7.90	84.99	1.21

SAA = 1.06
NRC = 1.00

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TEST RESULTS (continued)

The sound absorption average (SAA) is defined in ASTM C423-17 Section 3.1.1 as the arithmetic average of the sound absorption coefficients of a material for the twelve one-third octave bands from 200 Hz through 2500 Hz, inclusive, rounded to the nearest integer multiple of 0.01.

The noise reduction coefficient (NRC) is defined from previous versions of ASTM C423 as the arithmetic average of the sound absorption coefficients at 250 Hz, 500 Hz, 1000 Hz, and 2000 Hz, rounded to the nearest integer multiple of 0.05.

Tested by _____
Marc Sciaky
Senior Experimentalist

Report by _____
Keith Kimberling
Test Engineer

Approved by _____
Eric P. Wolfram
Laboratory Manager

Digitally signed by
Eric P Wolfram
Date: 2023.03.03
14:19:16 -06'00'

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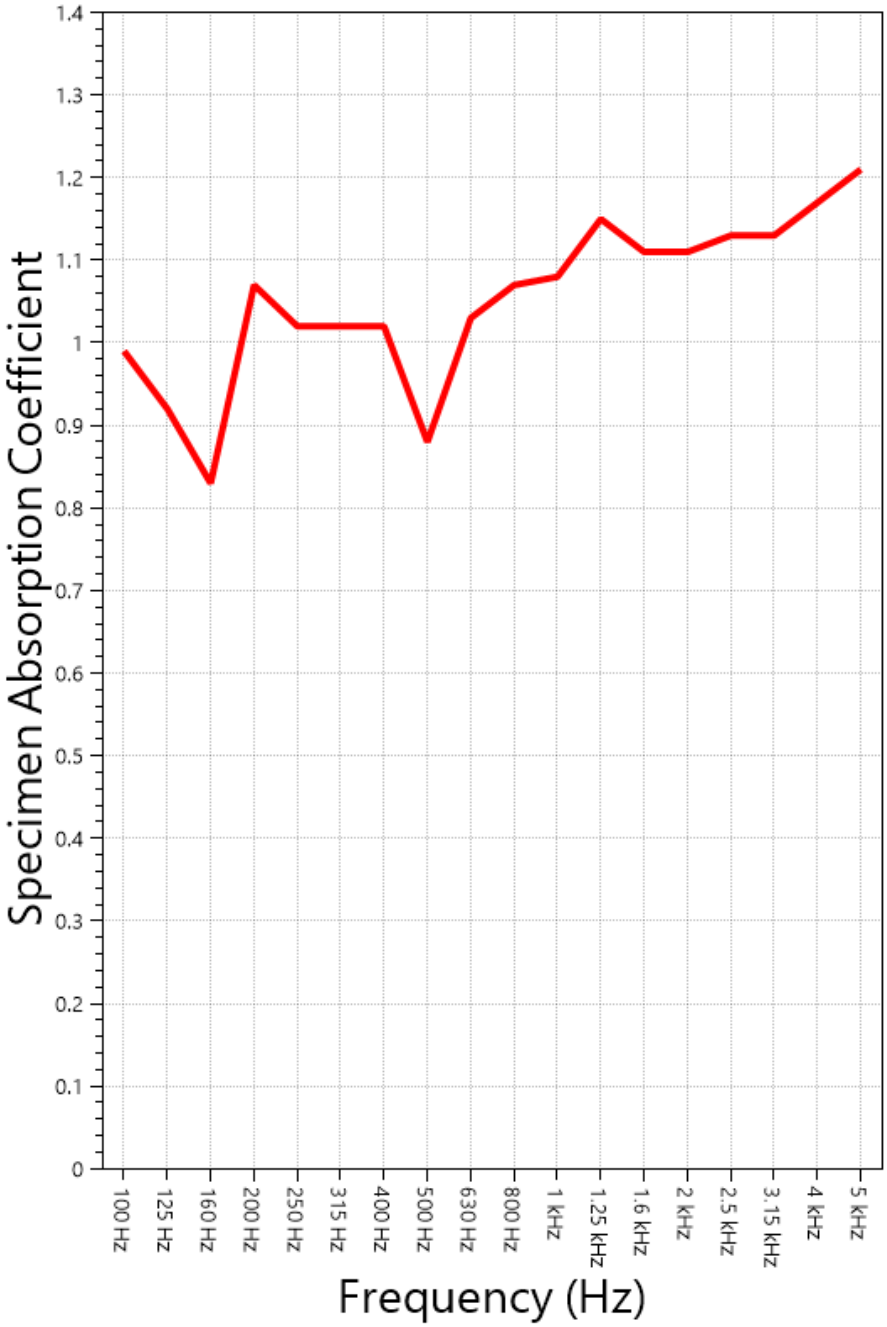
SOUND ABSORPTION REPORT

PIXL Sheets (ceiling tiles)



SAA = 1.06
NRC = 1.00

NVLAP® TESTING
NVLAP LAB CODE 100227-0

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APPENDIX A: Extended Frequency Range Data

Specimen: PIXL Sheets (ceiling tiles) (See Full Report)

The following non-accredited data were obtained in accordance with ASTM C423-22, but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	**Total Absorption** (Sabins)	**Absorption Coefficient**
31.5	22.31	0.32
40	8.84	0.13
50	22.13	0.31
63	24.06	0.34
80	46.27	0.66
100	70.06	0.99
125	64.71	0.92
160	58.80	0.83
200	75.66	1.07
250	71.57	1.02
315	71.80	1.02
400	72.04	1.02
500	61.93	0.88
630	72.25	1.03
800	75.05	1.07
1000	75.90	1.08
1250	80.76	1.15
1600	77.95	1.11
2000	78.42	1.11
2500	79.68	1.13
3150	79.37	1.13
4000	82.46	1.17
5000	84.99	1.21
6300	89.79	1.27
8000	97.34	1.38
10000	105.23	1.49
12500	117.92	1.67

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APPENDIX B: Instruments of Traceability

Specimen: PIXL Sheets (ceiling tiles) (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
System 1	Type 3160-A-042	3160-106968	2022-07-12	2023-07-12
Bruel & Kjaer Mic and Preamp F	Type 4943-B-001	2525857	2023-01-12	2024-01-12
Bruel & Kjaer Pistonphone	Type 4228	2781248	2022-07-22	2023-07-22
EXTECH Hygro 959	SD700	A099959	2022-03-22	2023-03-22

APPENDIX C: Revisions to Original Test Report

Specimen: PIXL Sheets (ceiling tiles) (See Full Report)

Date	Revision
2023-03-03	Original report issued

END