NORTH ORBIT ACOUSTIC LABORATORIES

REPORT NUMBER	NOAL 22-0941
TEST METHOD	ASTM C423-22: ***Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method***
TEST SPONSOR	PolySorb, 4813 8th Ave NW, Seattle, WA 98107
ISSUED TO	PolySorb, 4813 8th Ave NW, Seattle, WA 98107
TEST SPECIMEN	2" PolySorb acoustic panel
RESULT SUMMARY	NRC 1.05 SAA 1.03
TEST DATE	September 29, 2022
REPORT DATE	November 14, 2022
TEST SITE	North Orbit Acoustic Laboratory Facility, 917 Rice Street, St. Paul, MN 55117
TECHNICIAN	D. Berg

CONTENTS

ELECTRONICALLY REPRODUCED SIGNATURE

DAVID M. BERG –LABORATORY MANAGER

ELECTRONICALLY REPRODUCED SIGNATURE

HEIDE GROSS – LABORATORY QUALITY MANAGER

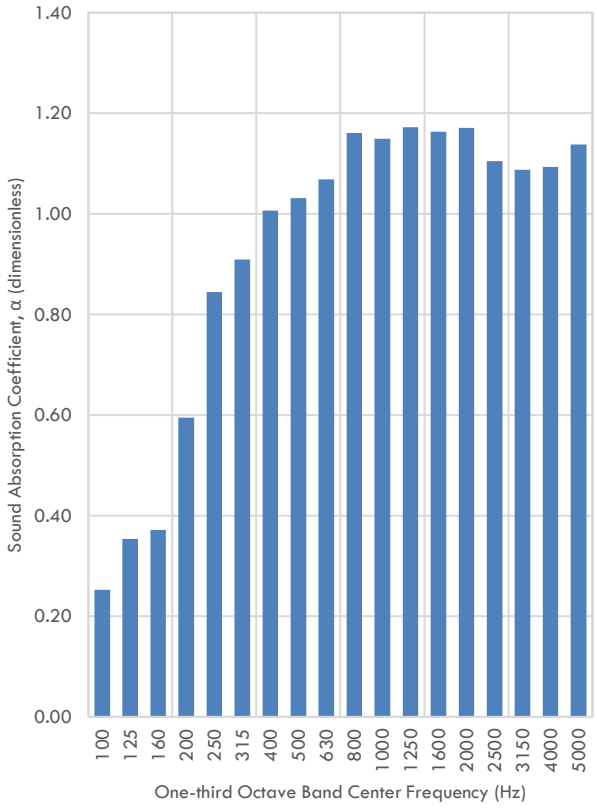
ilac-MRA A2LA ACCREDITED

TEST SPONSOR PolySorb, LLC
4813 8th Ave NW
Seattle, WA 98107

REPORT NUMBER NOAL 22-0941
REPORT DATE November 14, 2022

SECTION A – DATA SUMMARY

NRC 1.05, SAA 1.03



FREQUENCY Hz	ABSORPTION COEF. dimensionless
100	0.25
125	0.35
160	0.37
200	0.60
250	0.84
315	0.91
400	1.01
500	1.03
630	1.07
800	1.16
1,000	1.15
1,250	1.17
1,600	1.16
2,000	1.17
2,500	1.10
3,150	1.09
4,000	1.09
5,000	1.14

SPECIMEN DESCRIPTION

2" PolySorb acoustic panel

SPECIMEN MOUNTING

Type A Mounting - Test specimen laid directly against the test surface.

See Section C on page 4 and 5 for a full specimen description.

SECTION B – APPROACH

INSTALLATION

The specimen was installed for testing at the Saint Paul, MN acoustic laboratory facility. The specimen description can be found in Section C on page 4 of this report. Some details of the specimen design are proprietary and have been withheld at the request of the test sponsor.

Qualified representatives from North Orbit Acoustic Laboratories observed or performed the installation and inspected all major elements when completed and prior to testing.

Upon completion of the test, the specimen materials were disposed of.

TEST METHODS

North Orbit Acoustic Laboratory (NOAL) is accredited through A2LA certificate number 4240.01 for this test method.

Test methods follow the published standards listed below.

ASTM C423-22: *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*

ASTM E795-16: *Standard Practices for Mounting Test Specimens During Sound Absorption Tests*

All results reported herein were derived from tests performed in full accordance with test method ASTM C423-22. The laboratory and measurement systems fully meet all requirements of the test standard and the requirements of ASTM C423-22 Annex A3: ***Tests to Qualify the Reverberation Room***. Measurement procedures and reverberation room descriptions and qualification documents are available upon request.

TEST REPORTS

This report does not constitute certification of the specimen under test, nor an opinion or endorsement by this laboratory. The report applies only to the specimen tested and may not be reproduced, except in full, without the permission of the client or test sponsor. It is the exclusive property of the test sponsor so named herein.

CONFIDENTIALITY

The test sponsor has full control over this information. Any release of information will be only to the test sponsor. The specific testing results are deemed to be confidential exclusively for the test sponsor's use. Reproduction of this report, except in full, is prohibited.

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SECTION C – SPECIMEN DESCRIPTION

The specimens are acoustical absorber panels manufactured by PolySorb. The materials were 2" thick PET (polyethylene terephthalate) with a nominal density of 4.5 PCF. The specimen was constructed from six panels arranged to form the rectangular test specimen.

The specimen was installed according to Type A Mounting as specified in ASTM E795-16. Type A Mounting is the test specimen laid directly against the test surface; in this case the test surface was the bare concrete floor of the test chamber. No treatment was applied to the seams or the panel edges. According to the test sponsor, the panel edges are exposed in typical installations.

SPECIMEN DETAIL			
Mounting Condition	Type A Mount (ASTM E795)		
Specimen Face Dimensions	2.66 m	[104.7"] x 3.05 m	[120.1"]
Specimen Face Surface Area	8.11 m²	[87.3 SF]	
Specimen Thickness	0.05 m	[2.0"]	
Overall Mass	29.9 kg	[66.0 lb]	

For determining the absorption coefficient, the face surface area is the divisor below the total measured absorption of the specimen.

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SECTION D – MEASUREMENT SET-UP

TEST ENVIRONMENT	
Chamber Temperature	22.7 °C [72.9 °F]
Chamber Relative Humidity	49.0%
Atmospheric Pressure	99.84 kPa [29.48" Hg]
Chamber Volume	348.62 m³ [12,312 CF]

INSTRUMENTATION

DESCRIPTION	BRAND	MODEL	SERIAL
Analyzer	Sinus	Apollo	75110
Software	Sinus	Samurai	ver. 2.8.3
Microphone	Brüel & Kjær	4166	1727058
Preamplifier	Brüel & Kjær	2669C	2300986
Calibrator	Brüel & Kjær	4231	2416109
Thermohygrometer	Kestrel	5200	2311344

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SECTION E – TEST RESULTS

FREQUENCY BAND	TOTAL ABSORPTION OF TEST SPECIMEN		ABSORPTION COEFICIENT
Hz	m²	[SF]	dimensionless
100	2.05	[22.1]	0.25
125	2.87	[30.9]	0.35
160	3.01	[32.4]	0.37
200	4.83	[52.0]	0.60
250	6.85	[73.8]	0.84
315	7.38	[79.4]	0.91
400	8.17	[87.9]	1.01
500	8.37	[90.1]	1.03
630	8.67	[93.3]	1.07
800	9.42	[101.4]	1.16
1,000	9.33	[100.4]	1.15
1,250	9.51	[102.4]	1.17
1,600	9.44	[101.6]	1.16
2,000	9.50	[102.2]	1.17
2,500	8.96	[96.5]	1.10
3,150	8.82	[95.0]	1.09
4,000	8.87	[95.5]	1.09
5,000	9.23	[99.3]	1.14
	SAA (SOUND ABSORPTION AVERAGE)		**1.03**
	NRC (NOISE REDUCTION COEFFICIENT)		**1.05**