



Title: Sound Absorption Test Results

Product: 1" Poly Max

Application: Ceiling or Wall

Testing Standard: ASTM C423-17 (Type F6 Mount)

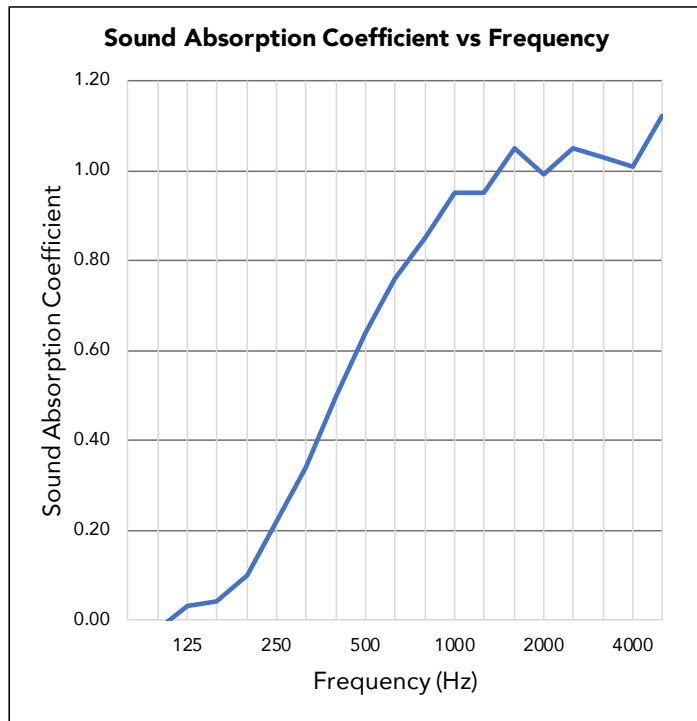
Test Date: 4/14/2021

Why this test: This test evaluates a products efficiency of absorbing sound at multiple frequencies. The test simulates the product's acoustical performance with a ceiling or wall installation using a mechanical z-clip (6mm airspace).

Test Result Summary: NRC - 0.70; SAA - 0.70

NRC	SAA
0.70	0.70

Frequency (Hz)	Absorption Coefficient
80	-0.05
100	-0.02
125	0.03
160	0.04
200	0.10
250	0.22
315	0.34
400	0.50
500	0.64
630	0.76
800	0.85
1000	0.95
1250	0.95
1600	1.05
2000	0.99
2500	1.05
3150	1.03
4000	1.01
5000	1.12



Test ID: ESP035429P-18

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SOUND ABSORPTION TESTING CONDUCTED ON 1" POLYESTER ACOUSTIC PANEL

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Report Number: ESP035429P-18

Customer PO: 00081905



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Noise Reduction Coefficient (ASTM C423-17)

INTRODUCTION:

This report presents the results of acoustical testing of 1" Polyester Acoustic Panels. This testing was requested by Mr. Joe Satek and was completed on April 14, 2021.

This report must not be reproduced except in full without the approval of Element Materials Technology. The test results contained in this report pertain only to the specific assemblies tested and not necessarily to all similar constructions.

The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

TEST RESULTS SUMMARY:

<i>Noise Reduction Coefficient (NRC) Test</i>				Test Results		
Test #	Sample Identification	Weight (lbs)	Weight (psf)	NRC	SAA	--
18	F6 Mount – 1" Polyester Acoustic Panels	40	0.55	0.70	0.70	--

Tabular and graphical presentations of the data are presented under "TEST RESULTS" below.

SPECIMEN DESCRIPTION: (Also see "Test Results")

Each of the Acoustic Panels were labeled for testing. 8 of the Panels were 1" thick, measuring 24" x 48" and weighing 4.5 lbs. each. 2 of the Panels were 1" thick, measuring 12" x 48" and weighing 2 lbs. each. Panels were placed butted together on the test floor. Each panel was fitted with 5, 6mm x 1" round spacers. The panel edges were exposed to mimic actual mounting/installation methods.

TEST PROCEDURE AND EQUIPMENT:

Sound Absorption Test

ASTM C 423-17, “Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method”, was followed in every respect. The panels were tested in a Type F6 Mounting in accordance to ASTM E795-16.

NRC was calculated by rounding the sound absorption coefficients for 250, 500, 1000 and 2000 Hz to the nearest 0.05. SAA was calculated by rounding the sound absorption coefficients for the twelve frequencies from 200 Hz to 2500 Hz to the nearest 0.01.

The Noise Reduction Coefficient (NRC) is a scalar representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.

The Sound Absorption Average (SAA) is the average of the absorption coefficients for the twelve one-third octave bands from 200 to 2500 Hz.

The higher the SAA or NRC value, the better the material absorbs sound.

TEST EQUIPMENT:

Item Description	ID #	Manufacturer/Model	Serial #	Calibration Due
1/2" Pressure Condenser Microphone	PT-162-075	GRAS/40AD	19220-1244	7/17/2021
Microphone Calibrator	MM-440-003	Bruel & Kjaer/4230	282266	7/17/2021
Data Acquisition Module	PT-162-107	National Instruments/NI9234	1735986-1893EB3	6/8/2021
Temp and Humidity Transmitter	PT-162-077	Dwyer Instruments/Series RH	M90714-E4SV-Y	6/4/2021

TEST DATA:

SOUND ABSORPTION ASTM C423

General Information

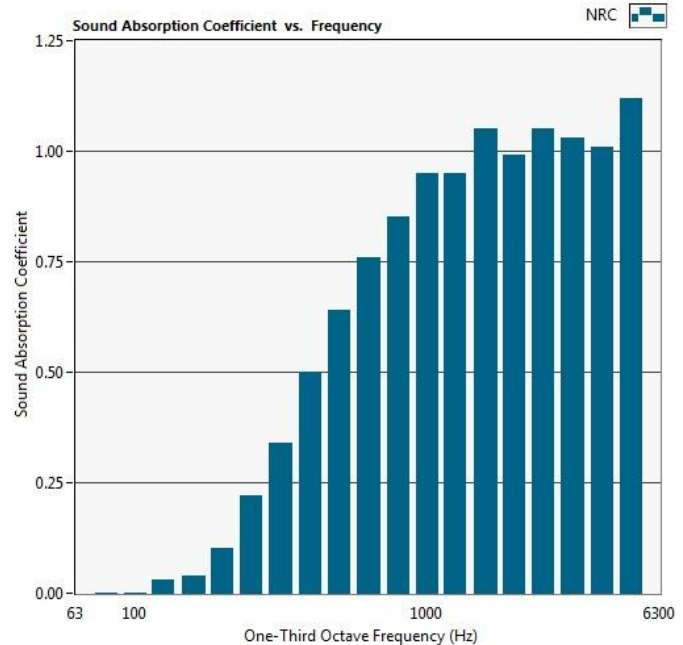
Project No:	ESP035429P-18
Customer:	ASI
Test Date:	04-14-2021
Specimen ID:	1 Inch Polyester Acoustic Panel
Specimen Description:	F6 Mount 1" - 24" - 48"
Specimen Dimensions - Area:	96.00" W x 108.00" H - 72.00 ft ²
Operator:	MJC

Data Table

	absorption empty (m ²)	absorption * sample (m ²)	Absorption Coefficient
80	3.80	-0.33	-0.05
100	5.60	-0.14	-0.02
125	4.01	0.22	0.03
160	3.57	0.27	0.04
200	3.99	0.70	0.10
250	4.05	1.50	0.22
315	3.95	2.30	0.34
400	3.99	3.33	0.50
500	4.41	4.25	0.64
630	4.66	5.05	0.76
800	4.98	5.68	0.85
1000	5.26	6.33	0.95
1250	5.81	6.37	0.95
1600	6.54	7.01	1.05
2000	7.46	6.59	0.99
2500	8.31	7.05	1.05
3150	9.61	6.91	1.03
4000	11.85	6.76	1.01
5000	13.98	7.50	1.12

Room Conditions

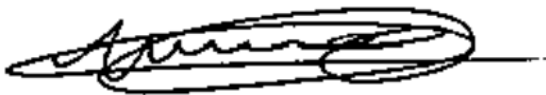
Temperature	21.7 °C
R.H.	43 %
ATM	985 hPa



NRC
0.70

SAA
0.70

* based on an extended plane area of 72.00 ft²



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3D Printed Spacer Block (6mm Thick x 1" Diameter)