

1512 S BATAVIA AVENUE  
GENEVA, IL 60134  
630-232-0104

An  ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

## Test Report

FOR: **Signet Mills**  
Spartanburg, SC

**Sound Absorption**  
**RAL™-A18-288**

CONDUCTED: 2018-09-14

Page 1 of 8

ON: R\_1 76778 D01-0445B EFSL61W Fabric over 2 in. fiberglass insulation

### TEST METHOD

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 17025:2005 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM C423-17: "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 measuring procedure and room qualifications is available upon request.

### DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as R\_1 76778 D01-0445B EFSL61W Fabric over 2 in. fiberglass insulation. A full internal inspection performed on the test specimen by Riverbank personnel verified the manufacturer's description.

#### Insulation

Material: Rigid fiberglass insulation board  
Dimensions: 8 @ 1219.2 mm (48 in.) x 609.6 mm (24 in.)  
2 @ 1219.2 mm (48 in.) x 304.8 mm (12 in.)  
Thickness: 50.8 mm (2.0 in.)  
Overall Weight: 32.55 kg (71.75 lbs)  
Density: 95.78 kg/m<sup>3</sup> (5.98 lbs/ft<sup>3</sup>)

#### Fabric

Designation: R\_1 76778 D01-0445B EFSL61W  
Material: Knit textile  
Dimensions: 1 @ 2743.2 mm (108 in.) x 1492.25 mm (58.75 in.)  
1 @ 2743.2 mm (108 in.) x 946.15 mm (37.25 in.)  
Thickness: 0.53 mm (0.021 in.)  
Overall Weight: 1.47 kg (3.25 lbs)  
Mass per Unit Area: 0.22 kg/m<sup>2</sup> (0.045 lbs/ft<sup>2</sup>)

1512 S BATAVIA AVENUE  
GENEVA, IL 60134  
630-232-0104

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

## Test Report

Signet Mills  
2018-09-14

**RAL™-A18-288**

Page 2 of 8

### Physical Measures

---

Size: 2.44 m (96.0 in) wide by 2.74 m (108.0 in) long  
Thickness: 0.05 m (2.021 in)  
Weight: 34.02 kg (75.0 lbs)  
Mass per Unit Area: 5.09 kg/m<sup>2</sup> (1.04 lbs/ft<sup>2</sup>)  
Area: 6.69 m<sup>2</sup> (72 ft<sup>2</sup>)

### Test Environment

---

Volume: 291.98 m<sup>3</sup> (10311 ft<sup>3</sup>)  
Temperature: 20.4 °C ± 0.2 °C (Requirement: ≥10° C and ≤5° C change)  
Humidity: 70.35 % ± 0.9 % (Requirement: ≥40% RH and ≤5% change)  
Barometric Pressure: 99.3 kPa (Requirement not defined)

1512 S BATAVIA AVENUE  
GENEVA, IL 60134  
630-232-0104

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

Test Report

Signet Mills  
2018-09-14

RAL™-A18-288  
Page 3 of 8

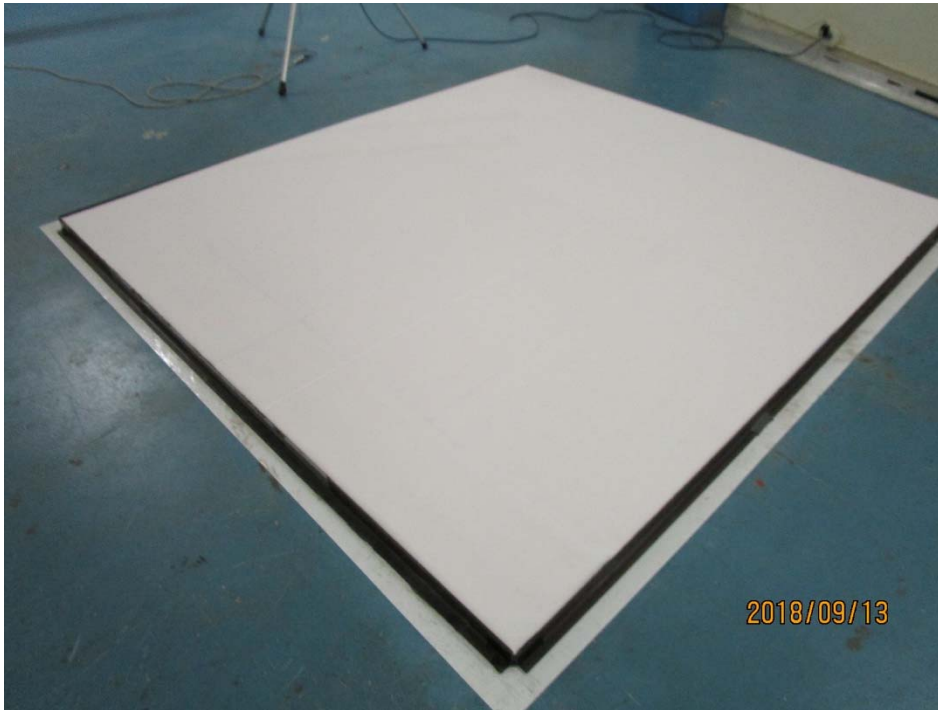


Figure 1 – Specimen mounted in test chamber



Figure 2 – Detail of specimen composition

1512 S BATAVIA AVENUE  
 GENEVA, IL 60134  
 630-232-0104

An  ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY  
 WALLACE CLEMENT SABINE

## Test Report

**Signet Mills**  
 2018-09-14

**RAL™-A18-288**

Page 4 of 8

### MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. The perimeter edges were sealed with metal framing.

### TEST RESULTS

1/3 Octave Center Frequency (Hz)	Total Absorption (m <sup>2</sup> )	Total Absorption (Sabins)	Absorption Coefficient
100	1.31	14.05	0.20
** 125	3.04	32.77	0.46
160	3.84	41.30	0.57
200	4.81	51.79	0.72
** 250	5.14	55.33	0.77
315	6.94	74.68	1.04
400	7.61	81.95	1.14
** 500	7.90	85.06	1.18
630	8.03	86.40	1.20
800	7.67	82.56	1.15
** 1000	7.48	80.46	1.12
1250	7.33	78.95	1.10
1600	7.13	76.77	1.07
** 2000	6.90	74.32	1.03
2500	6.94	74.72	1.04
3150	6.94	74.68	1.04
** 4000	7.14	76.88	1.07
5000	7.28	78.37	1.09

**SAA = 1.05**

**NRC = 1.05**

1512 S BATAVIA AVENUE  
GENEVA, IL 60134  
630-232-0104

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

## Test Report

Signet Mills

2018-09-14

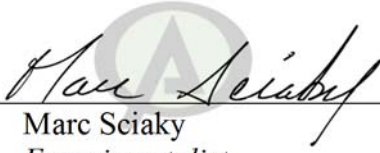
**RAL™-A18-288**

Page 5 of 8

### TEST RESULTS (Continued)

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

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

Tested by   
Marc Sciaky  
Experimentalist

Report by   
Malcolm Kelly  
Acoustician

Approved by   
Eric P. Wolfram  
Laboratory Manager

1512 S BATAVIA AVENUE  
GENEVA, IL 60134  
630-232-0104

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

Test Report

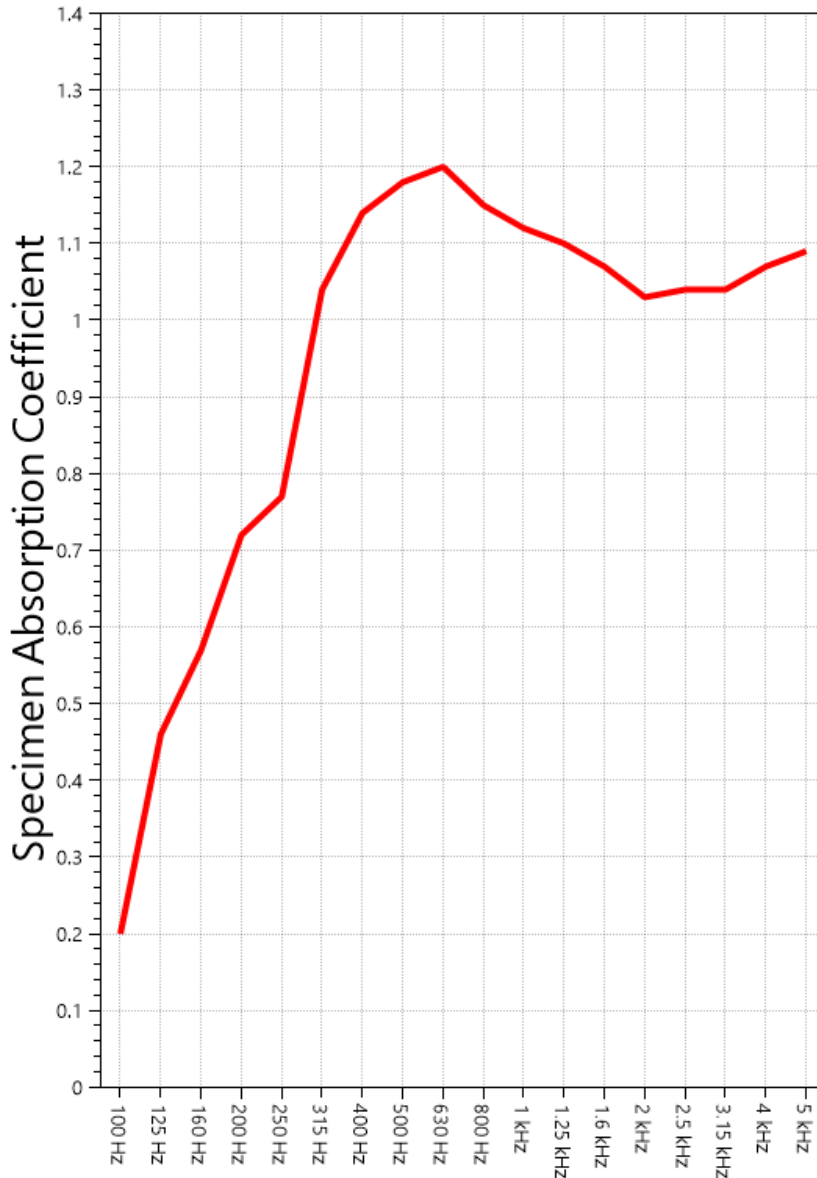
RAL™-A18-288

Page 6 of 8

Signet Mills  
2018-09-14

SOUND ABSORPTION REPORT

R\_I 76778 D01-0445B EFSL6IW Fabric over 2 in. fiberglass insulation



Frequency (Hz)

SAA = 1.05

NRC = 1.05



RIVERBANK ACOUSTICAL LABORATORIES IS ACCREDITED BY NVLAP (LAB CODE 100227-0) FOR ACOUSTICAL TESTING SERVICES IN ACCORDANCE WITH ISO/IEC 17025:2005 AND FOR THIS PROCEDURE. THIS REPORT MUST NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY RAL, NVLAP, NIST, OR ANY AGENCY OF THE U.S. GOVERNMENT. THIS REPORT SHALL NOT BE MODIFIED WITHOUT THE WRITTEN APPROVAL OF RAL. THE RESULTS REPORTED APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR TESTING; RAL ASSUMES NO RESPONSIBILITY FOR THE PERFORMANCE OF ANY OTHER SAMPLE.



1512 S BATAVIA AVENUE  
 GENEVA, IL 60134  
 630-232-0104

An **ALION** Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY  
 WALLACE CLEMENT SABINE

**Test Report**

**Signet Mills**  
 2018-09-14

**RAL™-A18-288**

Page 7 of 8

**APPENDIX A: Extended Frequency Range Data**

Specimen: R\_1 76778 D01-0445B EFSL61W Fabric over 2 in. fiberglass insulation (See Full Report)

*The following non-accredited data were obtained in accordance with ASTM C423-17, 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	2.72	0.04
40	14.92	0.21
50	10.00	0.14
63	1.27	0.02
80	-3.35	-0.05
100	14.05	0.20
125	32.77	0.46
160	41.30	0.57
200	51.79	0.72
250	55.33	0.77
315	74.68	1.04
400	81.95	1.14
500	85.06	1.18
630	86.40	1.20
800	82.56	1.15
1000	80.46	1.12
1250	78.95	1.10
1600	76.77	1.07
2000	74.32	1.03
2500	74.72	1.04
3150	74.68	1.04
4000	76.88	1.07
5000	78.37	1.09
6300	79.37	1.10
8000	80.42	1.12
10000	83.11	1.15
12500	90.91	1.26



RIVERBANK ACOUSTICAL LABORATORIES IS ACCREDITED BY NVLAP (LAB CODE 100227-0) FOR ACOUSTICAL TESTING SERVICES IN ACCORDANCE WITH ISO/IEC 17025:2005 AND FOR THIS PROCEDURE. THIS REPORT MUST NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY RAL, NVLAP, NIST, OR ANY AGENCY OF THE U.S. GOVERNMENT. THIS REPORT SHALL NOT BE MODIFIED WITHOUT THE WRITTEN APPROVAL OF RAL. THE RESULTS REPORTED APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR TESTING; RAL ASSUMES NO RESPONSIBILITY FOR THE PERFORMANCE OF ANY OTHER SAMPLE.

1512 S BATAVIA AVENUE  
GENEVA, IL 60134  
630-232-0104

An  ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

## Test Report

Signet Mills  
2018-09-14

**RAL™-A18-288**

Page 8 of 8

### APPENDIX B: Instruments of Traceability

Specimen: R\_1 76778 D01-0445B EFSL61W Fabric over 2 in. fiberglass insulation (See Full Report)

<u>Description</u>	<u>Model</u>	<u>Serial Number</u>	<u>Date of Certification</u>	<u>Calibration Due</u>
System 1	Type 3160-A-4/2	3160-106968	2018-08-09	2019-08-09
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2017-09-22	2018-09-22
Bruel & Kjaer Pistonphone	Type 4228	2781248	2018-08-06	2019-08-06
Omega Digital Temp., Humid. And Pressure Recorder	OM-CP-PRHTemp2000	P97844	2018-02-03	2019-02-03

---

END