BISCO® A2 Sound Transmission Loss

ROGERS CORPORATION

BISCO® Silicones

THE CHALLENGE

Rogers Corporation was approached by a major Aerospace OEM to develop a primary sound insulation material that meets demanding flammability, smoke density and toxicity (FST) requirements, including the new radiant panel flammability test FAR25.856(a).

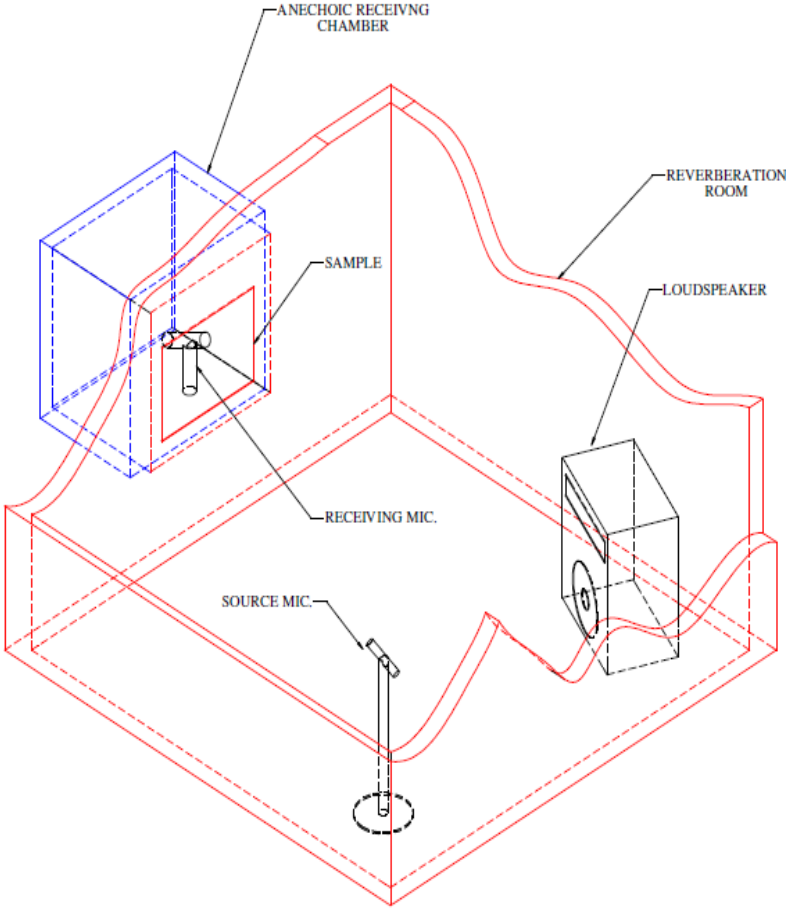
The solid silicone rubber BISCO® A2 Sound Barrier was engineered for this purpose, using innovative filler technology to create superior flame resistance. The BISCO A2 demonstrates high sound transmission loss through a wide range of frequencies.

Availability in low through high areal densities and material flexibility allows OEMs to meet all needs in the aircraft. Additional information and typical physical properties can be found on the BISCO A2 Data Sheet.

Applications:

- Aircraft acoustic insulation
- Noise reduction liner for interior panels
- Aircraft flooring noise barrier
- Rail interior noise blocker

TESTING PROCEDURE

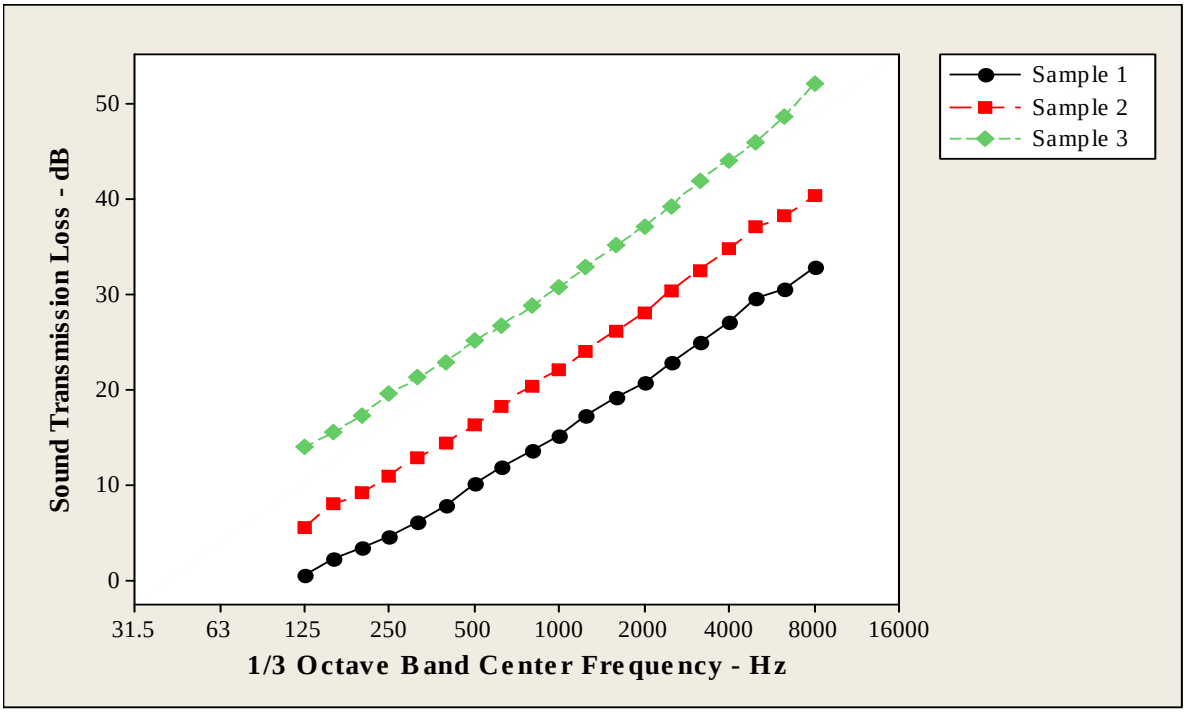


The test procedures for the STL test conformed to that specified by SAE recommended practice for the "Laboratory Measurement of Airborne Sound Barrier Performance of Automotive Materials and Assemblies" – SAE J1400 August, 2010.

- Three BISCO A2 samples were used for this test.
- Standard test fixture is 0.61m x 0.61m in size with an opening 0.51m x 0.51m between the source room and receiving room
- The lowest usable frequency band of measurement for this size opening is 125Hz per Table 1 in SAE J1400-2010 Standard
- One 0.61m x 0.61m thin homogenous reference panel of 4.88 kg/m^2 surface density was used to compute the correlation factor as referenced in SAE J1400
- Measurements were made at six microphone locations in the source room and at one location 100mm from sample, six times in the receiving room.

The STL test results are given on page 2.

RESULTS



Sample No.	Sample Density (kg/m^2)	Thickness (mm)
1	1.2	0.8
2	3.0	1.8
3	8.2	5.1

Sound Transmission Loss Values - STL, dB			
Freq.(Hz)	**S1**	**S2**	**S3**
125	0.6	5.6	14.1
160	2.3	8.1	15.6
200	3.4	9.2	17.3
250	4.7	11.0	19.6
315	6.2	13.0	21.3
400	8.0	14.5	23.0
500	10.2	16.4	25.2
630	12.0	18.4	26.8
800	13.6	20.5	28.9
1000	15.3	22.1	30.8
1250	17.3	24.1	33.0
1600	19.2	26.3	35.2
2000	20.8	28.2	37.2
2500	22.9	30.5	39.4
3150	25.1	32.6	42.0
4000	27.2	34.8	44.2
5000	29.6	37.1	46.1
6300	30.6	38.3	48.8
8000	32.9	40.4	52.2