

**ACOUSTIC SYSTEMS
ACOUSTICAL RESEARCH FACILITY
OFFICIAL LABORATORY REPORT
AS-TL976B**



ERNEST BUTLER, M.D., Chairman
DAVID MICHALEX, President

Subject: Sound Transmission Loss Test

Date: 12 April, 1996

**Contents: Transmission Loss Data, 1/3-octave bands
Transmission Loss Data, octave bands
Sound Transmission Class rating
Outdoor Indoor Transmission Class rating**

on

Core-Fill 500 SB Filled 8" CMU Wall

for

Tailored Chemical Products, Inc.

**ACOUSTIC SYSTEMS ACOUSTICAL RESEARCH FACILITY is
NVLAP-Accredited for this and other test procedures**

National Institute
of Standards and
Technology



National Voluntary
Laboratory
Accreditation Program

-
- ★ Certified copies of the Report carry a Raised Seal on every page.
 - ★ Reports may be reproduced freely if in full and without alteration.
 - ★ Results apply only to the unit tested and do not extend to other same or similar items.
 - ★ The NVLAP logo may not be used to claim endorsement by the U. S. Government.

INTRODUCTION

"The Transmission Loss of a partition in a specified frequency band is defined as ten times the common logarithm of the airborne sound power incident on the partition to the sound power transmitted by the partition and radiated on the other side. The quantity so obtained is expressed in decibels." [ASTM E90 - 90]

APPLICABLE STANDARDS

ASTM E 90 - 90, "Standard Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions"

ASTM C 423 - 90a, "Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method"

ASTM E 413 - 87, "Classification for Sound Insulation Rating"

ASTM E 1332 - 90, "Classification for Determination of Outdoor-Indoor Transmission Class"

SPECIMEN DESCRIPTION

The test specimen comprised a nominal 1219 by 1219 by 203 mm [48 by 48 by 8 inch] wall section made up of 8" construction masonry units (CMU) and framed with angled steel for structural purposes. Prior to testing, the cores of these blocks were filled with Core-Fill 500 SB Foam Insulation. This sample was manufactured, submitted for test, and designated "Core-Fill 500 SB Filled 8" CMU Wall" by Tailored Chemical Products, Inc. of Hickory, North Carolina. The total mass [weight] of the sample was 471.4 kg [1037 pounds].

TEST SPECIMEN MOUNTING

The specimen was mounted in an opening in the high transmission loss filler wall installed in the 2440 by 2440 mm transmission loss test opening. The perimeter of the panel was packed with fiberglass and the face of the panel was sealed to the edge of the test aperture with a dense mastic putty. The calculated transmission loss of the composite (test specimen and filler wall) was adjusted to account for the sound power transmitted through the filler wall.

DESCRIPTION OF TEST

Broad-band pink noise is produced by a loudspeaker in the source chamber. The steady-state space-time average sound pressure levels in the source and receive room were determined using rotating microphone booms and a Norwegian Instruments NI-830 Dual Channel Real Time Analyzer. The sound absorption in the receiving room was measured in accordance with ASTM C 423-90a. The precision of the resulting calculated Transmission Loss varies with frequency band, and is included in the Data Table. The test was performed in strict accordance with ASTM E 90 - 90. This test took place at ACOUSTIC SYSTEMS ACOUSTICAL RESEARCH FACILITY, Austin, Texas, on 4 April, 1996.

TRANSMISSION LOSS DATA

The measured Sound Transmission Loss of the test specimen at the preferred one-third octave band center frequencies is tabulated below and presented graphically on page 4. The Octave-Band Transmission Loss values are calculated from the 1/3-Octave Band results assuming a "pink" source spectrum. This calculation is described in Note 14 of E90-90.

Tallored Chemical Products, Inc. Core-Fill 500 SB Filled 8" CMU Wall
AS-TL976B

Frequency	TL [dB]	notes	octave	def'cy
50	18 ± 1.5			
63	22 ± 0.8		21	
80	30 ± 0.7			
100	34 ± 0.8			
125	37 ± 0.8		35	
160	35 ± 0.4			5
200	43 ± 0.6	[d]		
250	45 ± 0.4	[d]	45	1
315	47 ± 0.4			2
400	50 ± 0.4			2
500	49 ± 0.4		50	4
630	52 ± 0.3			2
800	52 ± 0.5			3
1000	53 ± 0.2		53	3
1250	54 ± 0.1			3
1600	56 ± 0.2			1
2000	56 ± 0.1		56	1
2500	57 ± 0.1			
3150	59 ± 0.2	[d]		
4000	60 ± 0.1	[d]	60	
5000	62 ± 0.2	[d]		
6300	62 ± 0.2	[d]		
8000	51 ± 0.1		51	
10000	49 ± 0.2			

Sound Transmission Class 53
Outdoor Indoor Transmission Class 44

[a]: correction for flanking, [b]: corrections for background noise, [c]: insufficient precision, [d]: Transmission Loss of specimen too close to that of Filler Wall, [e]: Transmission Loss of Specimen nears or exceeds previous highest measured TLs: no corrections for flanking made.

During the test the conditions in the reverberation chambers were 22.3C and 65.7% relative humidity. The precision values tabulated above represent 95% probability that the true mean value lies within the stated range.

Respectfully Submitted,

Brandon Tinianow
Laboratory Technical Director

Certified Copies of the Report carry a Raised Seal on every page

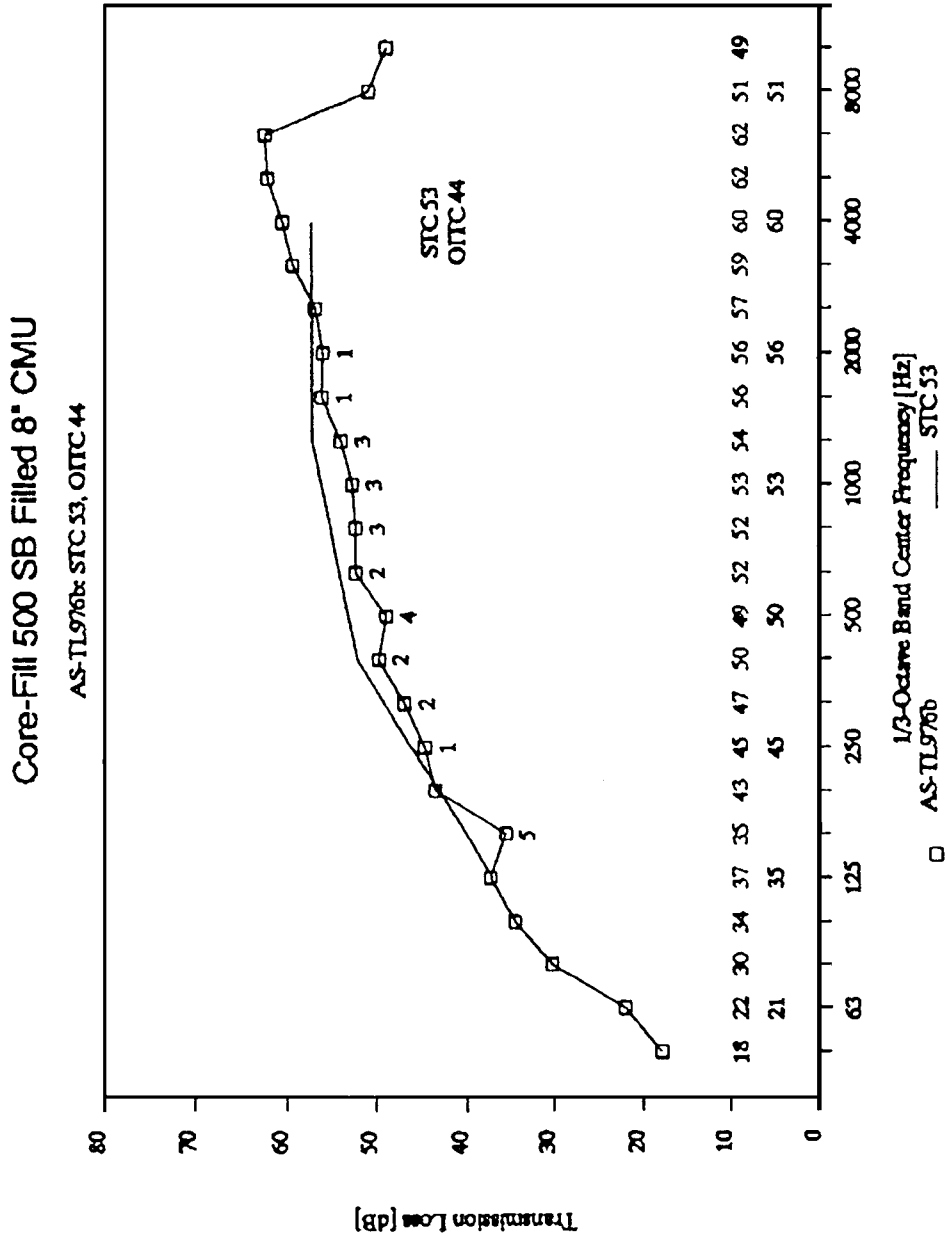


Figure 1

