

Determination of random-incidence sound absorption coefficients
of Monoglass Spray-on

1. OBJECTIVE

The SABS was requested by to determine the sound absorption coefficients of two samples of Monoglass Spray-on using the reverberation test method.

2. DESCRIPTION OF TEST SAMPLE

The test samples consisted of the following:

Sample 1:

Identification	:	25 mm Monoglass Spray-on
Composition	:	glass fibre with binder
Density	:	62,3 kg/m ³ nominal
Sample size	:	12,0 m ²
Mounting	:	flat on reverberation room floor; solid backing

Sample 2:

Identification	:	50 mm Monoglass Spray-on
Composition	:	glass fibre with binder
Density	:	62,3 kg/m ³ nominal
Sample size	:	12,0 m ²
Mounting	:	flat on reverberation room floor; solid backing

3. DESCRIPTOR FOR SOUND ABSORPTION

The sound absorption of a material depends on frequency and on the angle of sound incidence. In applications relating to building acoustics and industrial noise control sound may arrive at any angle; in most cases reflections and reverberation will result in sound incidence at all angles simultaneously. The random-incidence sound absorption coefficient is defined by

$$\alpha_r = (W_A / W_I)$$

where W_A = Sound power absorbed by the test sample in a diffuse field;

W_I = Sound power incident on the test sample from the diffuse field.

To account for frequency dependence, α_r is usually determined in a series of third-octave bands and displayed graphically.

A single-value indicator often used for comparing sound absorbing materials is the NRC coefficient, defined as the arithmetic average to the nearest multiple of 0,05, of the absorption coefficients in the third octave bands centred at 250, 500 1000 and 2000 Hz.

4. TEST METHOD

Tests were conducted in conformance with ISO 354

(1) *ISO 354 Measurement of sound absorption in a reverberation room.*

Results obtained by the reverberation method give a realistic estimate of the performance to be expected of the material in practical applications, provided the same method of mounting is used. Absorption coefficients of materials tested by the reverberation method should not be compared with coefficients of materials tested by the impedance tube method, since the latter uses a very small sample and is valid for normal incidence of sound only.

Volume of test chamber: 217 m³

5. RESULTS

Measured sound absorption coefficients are presented in Figures 1 to 3.

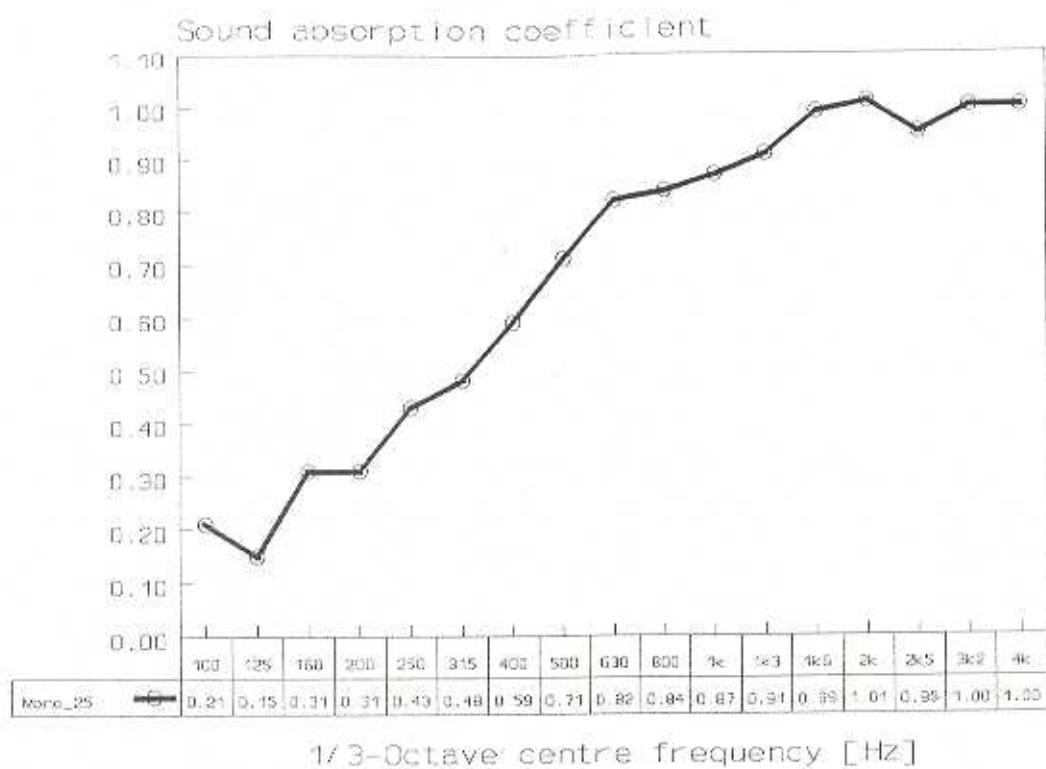


Figure 1

25 mm Monoglass Spray-on

Random-incidence sound absorption coefficients
Determined in accordance with ISO 354
NRC = 0,75

Identification Sample 1 : 25 mm Monoglass Spray-on
 Composition : glass fibre with binder
 Density : 62,3 kg/m³ nominal
 Sample size : 12,0 m²
 Mounting : flat on reverberation room floor; solid backing



South African Bureau of Standards
Suid-Afrikaanse Buro vir Standaarde
Dr Lateganweg 1, Groenkloof / 1 Dr Lategan Road, Groenkloof

Submitted for test by :

Tested by: *J. P. Herremans*

Test Date: 24.02.22.

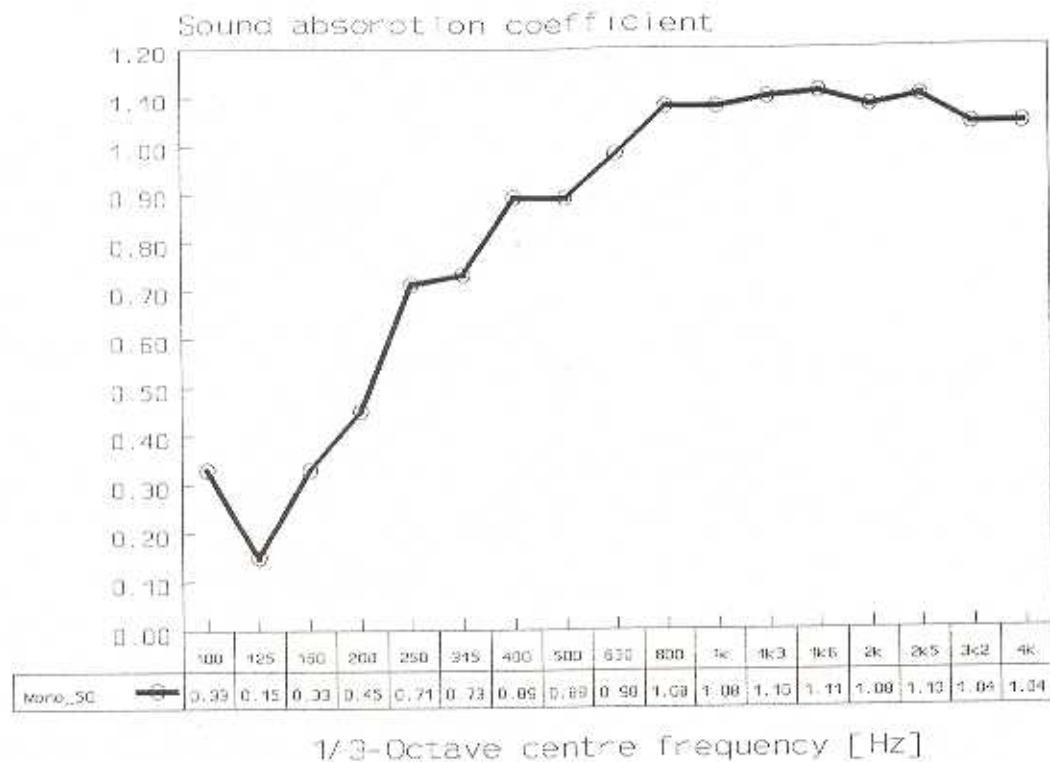


Figure 2

50 mm Monoglass Spray-on

Random-incidence sound absorption coefficients
Determined in accordance with ISO 354
NRC = 0,95

Identification Sample 2 : 50 mm Monoglass Spray-on
Composition : glass fibre with binder
Density : 62,3 kg/m³ nominal
Sample size : 12,0 m²
Mounting : flat on reverberation room floor; solid backing



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Suid-Afrikaanse Buro vir Standaarde
Dr Langweg 1, Grootkloof / 1 Dr Langweg Road, Grootkloof

Submitted for test by :

Tested by: *J. H. Renné* Test Date: *9.7.82*

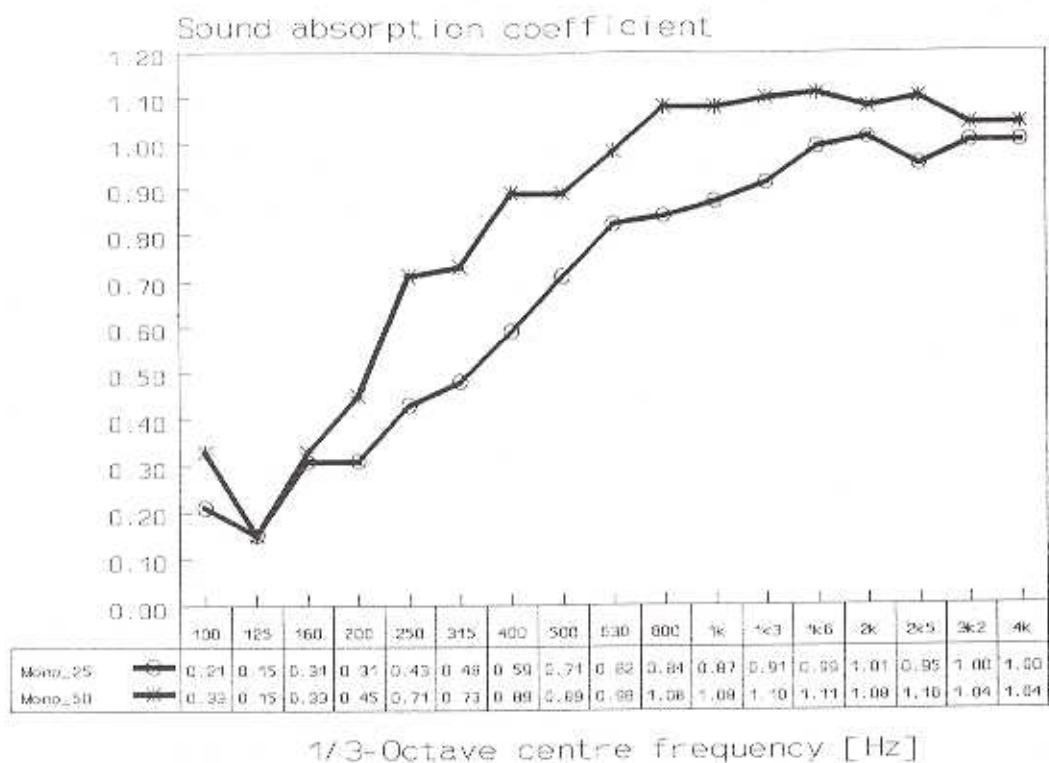


Figure 3

25 & 50 mm Monoglass Spray-on

Random-incidence sound absorption coefficients
Determined in accordance with ISO 354
NRC(25 mm) = 0,75 NRC(50 mm) = 0,95

Identification Sample 1	:	25 mm Monoglass Spray-on
Identification Sample 2	:	50 mm Monoglass Spray-on
Composition	:	glass fibre with binder
Density	:	62,3 kg/m ³ nominal
Sample size	:	12,0 m ²
Mounting	:	flat on reverberation room floor; solid backing



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Suid-Afrikaanse Buro vir Standaarde

Dr Lateganweg 1, Groenkloof / 1 Dr Lategan Road, Groenkloof

Submitted for test by

Tested by: J. H. Lassar Test Date: 94 Oct 21