

# Determination and classification of sound absorption coefficient of Decocoat-coated polyester sheet

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<b>Order ref.</b>	VWZ0PT210054-01
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<b>Assignment</b>	<b>Determination and classification of sound absorption coefficient for Decocoat-coated polyester sheets according to EN ISO 354:2003 and EN ISO 11654:1997.</b>
<b>Sample details</b>	The customer supplied on 28.5.2021 to the laboratory polyester sheet samples coated with Decocoat acoustic coating. The additional information and principal section of the samples delivered by the customer is presented in in Appendix 2
<b>Date and place of testing</b>	The samples were tested on 1.6.2021 Eurofins Expert Services Oy research hall 1 (Tekniikantie 15 A, 02150 Espoo).
<b>Installation and measuring</b>	The tested samples were installed in reverberation chamber and different airspaces were achieved with solid frames. The edge joints of the specimen and the airspace between chamber surface and specimen were totally enclosed by test frame. Tests were performed by the Eurofins Expert Services Oy Senior Technician Ville Joensuu.
<b>Method and equipment</b>	The sound absorption coefficient, $\alpha_s$ was measured according to the standard SFS EN ISO 354:2003 [1] and the rating of sound absorption (calculation of $\alpha_w$ ) was determined according to the standard SFS EN ISO 11654:1997 [2]  Reverberation room dimensions and measuring equipment are presented in Appendix 3.
<b>Result</b>	The sound absorption coefficient $\alpha_s$ in one-third-octave bands and the practical sound absorption coefficient $\alpha_p$ in octave bands are presented in Appendix 1. The weighted

sound absorption coefficient  $\alpha_w$  and the sound absorption class are presented also in Table 1.

*Table 1. Weighted sound absorption coefficient  $\alpha_w$  and sound absorption class of Decocoat-coated polyester sheets*

No.	Sample	Mounting type	Weighted sound absorption coefficient $\alpha_w$	Sound absorption class
1.	Decocoat-coated polyester sheets	A	0,85	B
2.	Decocoat-coated polyester sheets	E-200	0,95	A

Espoo, 21.6.2021

Mika Lojander  
Expert

**The report is electronically signed**

Eurofins Expert Services Oy is notified body No. NB 0809

FINAS Finnish Accreditation Service has accredited our laboratory (T001, Eurofins Expert Services Oy) to perform measurements according to standards listed below..

<b>References</b>	[1] <i>EN ISO 354:2003, Acoustics - Measurement of sound absorption in a reverberation room</i> [2] <i>ISO 11654:1997, Acoustics - Sound absorbers for use in buildings - Rating of sound absorption</i>
<b>Appendices</b>	3
<b>Distribution</b>	Customer, electronically approved

## Determination of sound absorption and classification

Client: Novus Aureus Oy

Order: VWZ0PT210054-01

Test place: Eurofins Expert Services Oy THI

Task: Determination of absorption coefficient (EN ISO 354)  
Octaves valuation and classification (ISO 11654:1997)

Test date: 1.6.2021

Sample: Decocoat-coated polyester sheets (coating 1-2 mm)

Board size: 6pcs (1510 x 1200 x 50 mm)

Surface mass: 1,55 kg/m<sup>2</sup> (2,82kg/board)

Arrangements: Type A

Volume of the rev. room: 201 m<sup>3</sup>

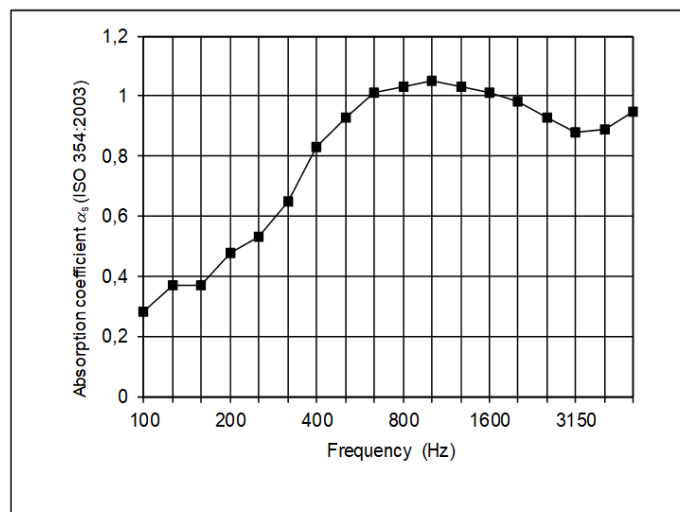
Area of the inner surf.: 209 m<sup>2</sup>

Sample size: 10,8 m<sup>2</sup>

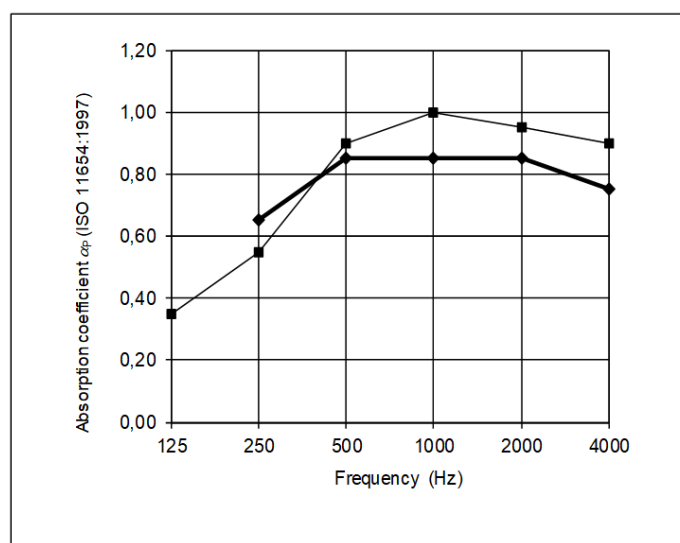
Temperature and relative humidity of rev. room

Empty: 19,5 °C 57 %

Sample: 19,5 °C 57 %



Frequency (Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	$\alpha_s$
100	4,54	3,18	0,28
125	4,92	3,07	0,37
160	5,64	3,33	0,37
200	4,82	2,72	0,48
250	5,31	2,74	0,53
315	5,56	2,52	0,65
400	4,92	2,09	0,83
500	4,78	1,93	0,93
630	5,01	1,87	1,01
800	5,04	1,85	1,03
1000	5,12	1,84	1,05
1250	4,83	1,82	1,03
1600	4,39	1,77	1,01
2000	4,06	1,75	0,98
2500	3,67	1,72	0,93
3150	3,18	1,65	0,88
4000	2,70	1,50	0,89
5000	2,23	1,31	0,95



Octave values and classification - ISO 11654

Frequency (Hz)	Reference Curve	$\alpha_p$
125		0,35
250	0,65	0,55
500	0,85	0,85
1000	0,85	0,95
2000	0,85	0,90
4000	0,75	0,75

Weighted absorption coefficient,  $\alpha_w$ : 0,85

Sound absorption class: B

Absorption classes: A, B, C, D, E and no classification.

## Determination of sound absorption and classification

Client: Novus Aureus Oy

Order: VWZ0PT210054-01

Test place: Eurofins Expert Services Oy THI

Task: Determination of absorption coefficient (EN ISO 354)  
Octaves valuation and classification (ISO 11654:1997)

Test date: 1.6.2021

Sample: Decocoat-coated polyester sheets (coating 1-2 mm)

Board size: 6pcs (1510 x 1200 x 50 mm)

Surface mass: 1,55 kg/m<sup>2</sup> (2,82kg/board)

Arrangements: Type E-200

Volume of the rev. room: 201 m<sup>3</sup>

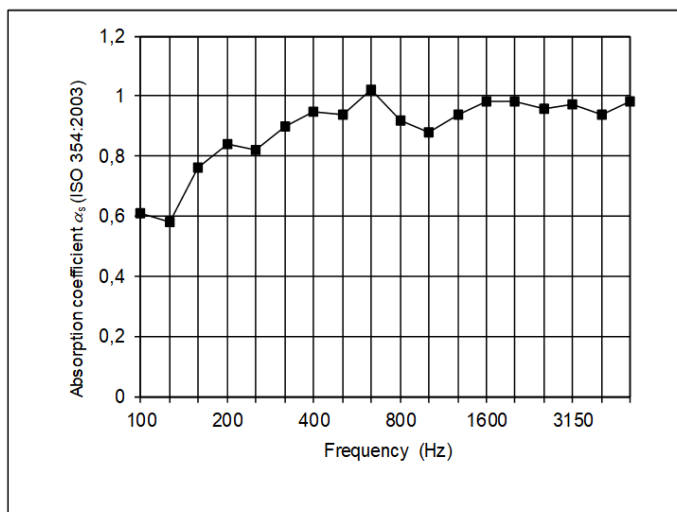
Area of the inner surf.: 209 m<sup>2</sup>

Sample size: 10,8 m<sup>2</sup>

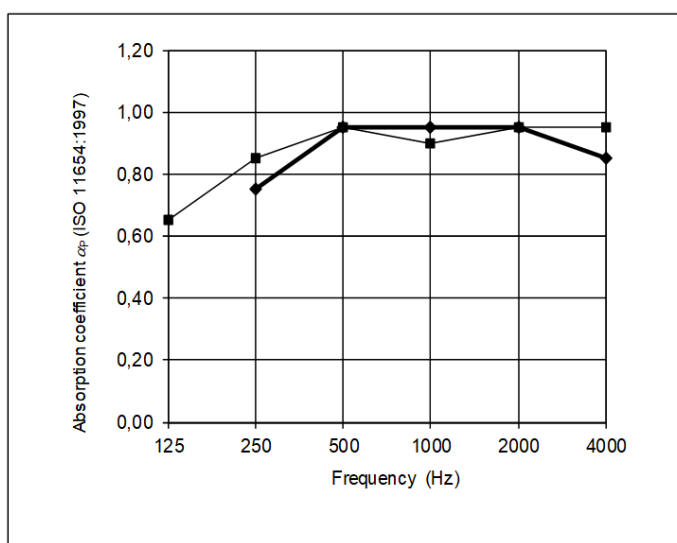
Temperature and relative humidity of rev. room

Empty: 19,5 °C 57 %

Sample: 19,5 °C 57 %



Frequency (Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	$\alpha_s$
100	4,54	2,37	0,61
125	4,92	2,52	0,58
160	5,64	2,33	0,76
200	4,82	2,05	0,84
250	5,31	2,17	0,82
315	5,56	2,08	0,90
400	4,92	1,93	0,95
500	4,78	1,91	0,94
630	5,01	1,86	1,02
800	5,04	1,98	0,92
1000	5,12	2,05	0,88
1250	4,83	1,92	0,94
1600	4,39	1,81	0,98
2000	4,06	1,75	0,98
2500	3,67	1,69	0,96
3150	3,18	1,57	0,97
4000	2,70	1,46	0,94
5000	2,23	1,29	0,98



Octave values and classification - ISO 11654

Frequency (Hz)	Reference Curve	$\alpha_p$
125		0,65
250	0,75	0,85
500	0,95	0,95
1000	0,95	0,90
2000	0,95	0,95
4000	0,85	0,95

Weighted absorption coefficient,  $\alpha_w$ : 0,95

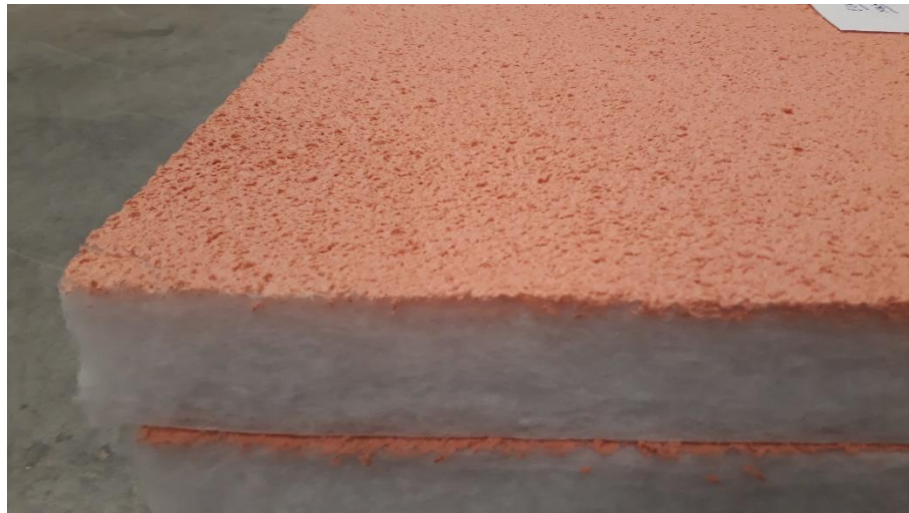
Sound absorption class: A

Absorption classes: A, B, C, D, E and no classification.

## Sample details

Polyester sheets with Decocoat acoustic coating:

- Size 1510 x 1200 x 50 mm
- Weight 1,55 kg/m<sup>2</sup> (2,82kg / sheet)
- Thickness of coating 1-2mm



Picture 1. Decocoat-coated polyester sheets



Picture 2. Sample installed to reverberation room

The results are only valid for the tested sample(s).

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## Measuring equipment and reverberation room dimensions

Measuring equipment	Name	Serial No.
Condenser microphone	B&K (Brüel & Kjær) 4134	2527717
Microphone preamplifier	B&K 2669	2554550
Rotating microphone boom	B&K 3923	2630663
Power amplifier	Yamaha MX-1000	
Loudspeakers	Sinmarc V121L	
Real-time analyser	Nor 121	31429
Sound calibrator	B&K 4228	3063558

Reverberation room dimensions:	Floor	Height	Volume
(KH 3)	5.95 m x 7.2m	4.7 m	201 m <sup>3</sup>

Thickness of the concrete wall, floors and ceiling of the reverberation room is 0,25 m

The results are only valid for the tested sample(s).

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