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**ACOUSTICS LABORATORY**

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## TEST REPORT

**No. BPI2.7.6163-1**

Extension of Test Report B212.0.035 / Test Report no.2

### DETERMINATION OF ACOUSTIC ABSORPTION INDEX

#### Wall Covering

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**At the request of:** **Saint Gobain Technical Fabrics Europe**  
130, avenue des Follaz  
73 000 CHAMBERY

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130, avenue des Follaz  
73 000 CHAMBERY

**Written by:** **Amandine Maillet**

**Checked by:** **Thomas Decaestecker**

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**Number of pages: 7 pages including 2 pages of appendices**

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This Test Report attests only characteristics of the sample submitted for testing and does not concern the characteristics of similar products. It does not therefore constitute a product certification in the sense of Article L115-27 of Consumer Code and the Law dated 3rd June 1994.

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## 1 – PREFACE

### 1.1 – General

This report is an extension of the Test Report B212.0.035 no.2 dated 31st May 2000. Its purpose is to characterize the acoustic absorption index of the wall covering "Acoustiver", in compliance with the French standard **NF EN 20354** "Measuring of acoustic absorption in a reverberant chamber" dated September 1993 (standard currently applicable at the date of the test, but obsolete since September 2004), and the standard **NF EN ISO 11654** "Sound-absorbing materials for use in buildings – Evaluation of acoustic absorption" dated July 1997.

### 1.2 – Specificities of the protocol

The chosen measurement protocol uses the so-called "interrupted noise" method. The positions with respect to the microphone and the sound source are shown in Appendix 1.

The references of the equipment used are given in Appendix 2.

**2 – SUMMARY**

The table below summarizes all the characteristics of the tested element.

<b>Tested element: painted "Acoustiver" wall covering</b>			
<b>Delivery date</b>	<b>10 May 2000</b>	<b>Mounting date</b>	<b>unknown</b>
<b>Reception no.</b>	<b>47 206</b>	<b>Carried out by</b>	<b>CEBTP</b>
<b>Test date</b>	<b>17 May 2000</b>	<b>Reception date of the description</b>	<b>unknown</b>
<b>TECHNICAL DESCRIPTION</b>	Manufacturer	Saint Gobain Technical Fabrics	
	Nature	Wall covering	
	Thickness (mm)	3	
	Composition	Glass cloth of 180 g/m <sup>2</sup> laminated (40 g/m <sup>2</sup> ) on a viscose fleece (280 g/m <sup>2</sup> )	
	External appearance	Relief design	
	Surface density [kg/m <sup>2</sup> ]	0.5	
	Fabrication batch number	Not given	
	Surface tested [m <sup>2</sup> ]	12	
	Mounting type (as per NF EN ISO 354, Appendix B)	N/A	
	Mounting in the test chamber	1 x 3 meter strips of covering glued on 12.5 mm plasterboard, supported by the floor, using vinyl glue	
	Drying time before test	More than 24 hours	
<b>REMARKS</b>			
The mounting of the sample in the test chamber is shown schematically in Appendix 1.			

### 3 – RESULTS

Table 1 shows:

- average durations of reverberation  $T_1$  and  $T_2$  measured respectively before and after introduction of the tested element in the reverberant chamber, and the acoustic absorption index  $\alpha_S$  calculated from  $T_1$  and  $T_2$  for every third of an octave,
- values of the acoustic absorption coefficient  $\alpha_p$ , for every octave, rounded to the nearest multiple of 0.05.

Figure 1 shows the frequential evolution of the acoustic absorption index  $\alpha_S$  and gives the value of the weighted acoustic absorption index  $\alpha_W$  defined by the standard NF EN ISO 11654. The letter L, M or H shown in parentheses after the index value  $\alpha_W$  indicates the form of the curve in Figure 1.

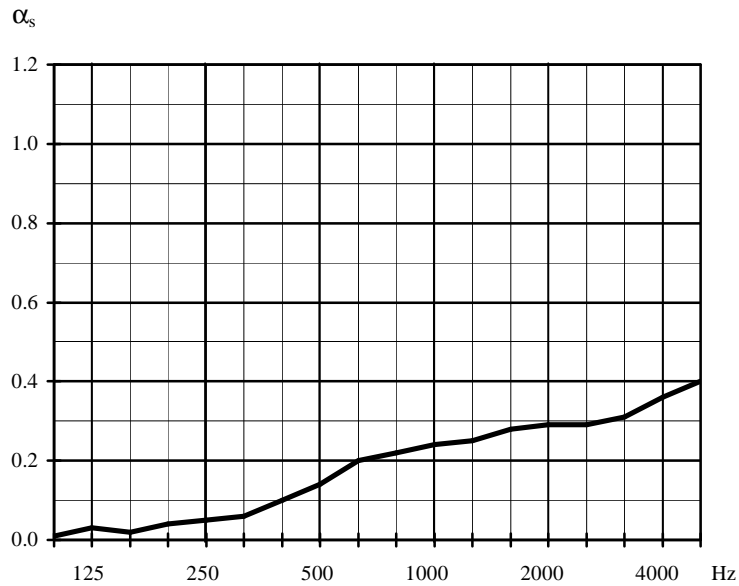
Painted "Acoustiver" wall covering				
Frequency (Hz)	$T_1$ chamber empty [s]	$T_2$ chamber with sample [s] $t_2 = 20^\circ\text{C}$ $h_2 = 68\%$	$\alpha_S$	$\alpha_p$
100	7.50	7.29	0.01	0.00
125	8.74	7.97	0.03	
160	8.72	8.11	0.02	
200	8.55	7.49	0.04	0.05
250	7.72	6.66	0.05	
315	7.88	6.59	0.06	
400	7.28	5.70	0.10	0.15
500	6.69	4.88	0.14	
630	5.82	4.02	0.20	
800	4.90	3.44	0.22	0.25
1000	5.24	3.51	0.24	
1250	5.13	3.42	0.25	
1600	4.82	3.18	0.28	0.30
2000	4.41	2.96	0.29	
2500	3.96	2.73	0.29	
3150	3.52	2.47	0.31	0.35
4000	3.02	2.12	0.36	
5000	2.61	1.86	0.40	

**Table 1:** Measured reverberation time and calculated absorption coefficients for 1/3 octave bands for the tested element.

Manufacturer: Saint Gobain Technical Fabrics

Tested element: painted "Acoustiver" wall covering

Surface of the tested element: 12 m<sup>2</sup>



**Weighted acoustic absorption index  
according to the NF EN ISO 11654 standard**

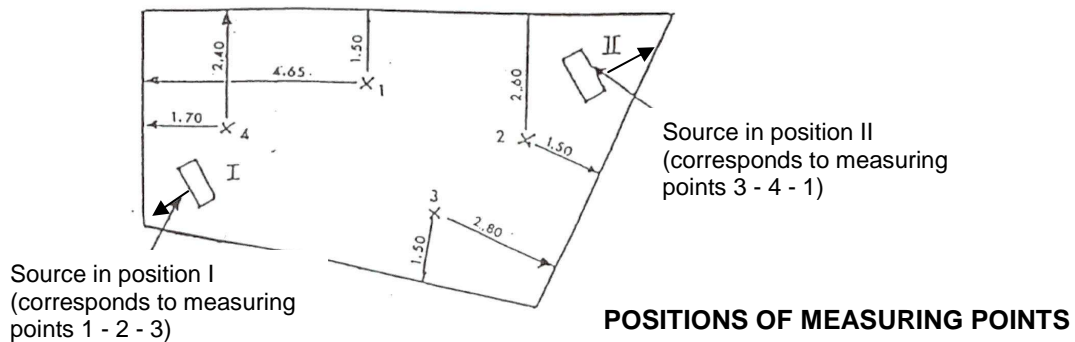
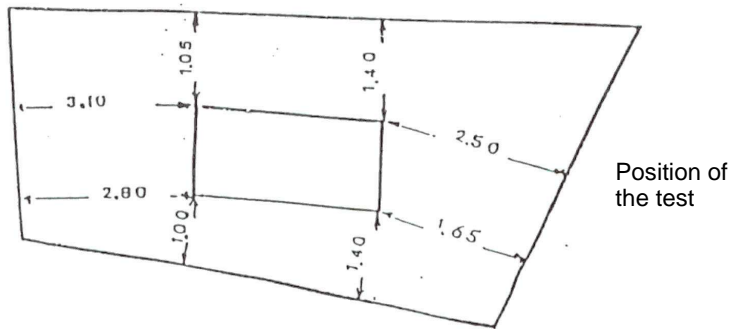
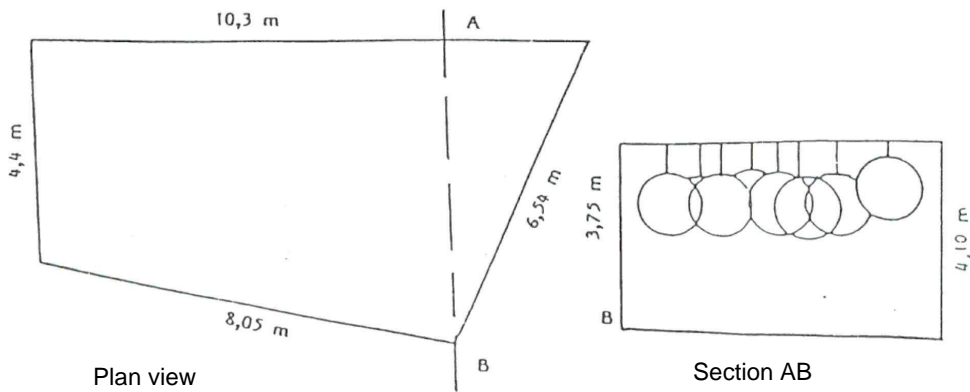
$$\alpha_w = 0.25 ( )$$

**Figure 1:** Curve of acoustic absorption index and the weighted acoustic absorption factor  $\alpha_w$  of the tested element.

**APPENDIX 1**

**Layout of the Reverberant Chamber**

This chamber of 192 m<sup>3</sup> volume has a total interior wall surface area of 212 m<sup>2</sup>. It contains 10 reflecting plaster spheres of 106 cm diameter, of total surface area 35 m<sup>2</sup> and occupying a total volume of 6.2 m<sup>3</sup>.

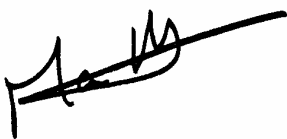


**APPENDIX 2**  
**Equipment References**

Cell	Designation	Manufacturer	Type	Serial number
Reception	Microphone and associated amplifier	Brüel & Kjaer	4144	-
	Amplifier	BOYER	-	-
	Speaker	CEBTP	-	-
	Equalizer	YAMAHA	Q1131	LK 01033
Control	Thermometer/ hygrometer probe	Hygro Clip	Hygro Clip	22418191
Acquisition	Analyzer	Brüel & Kjaer	2131	-
	Computer	Hewlett Packard	HP 9000	-


Written at Saint Rémy-Les-Chevreuse, 7th November 2007

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Checked by:

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Acoustics project manager



**- End of report -**