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Report Number: FIR/01102/1

Test Dates: 23rd & 30th November 2000

Test Sample: Acou-stick Dampers:
self- adhesive acoustic dampers.

BS 6853: 1999
Annex D.8.4:

"Three metre cube smoke emission - panel test"

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Test Procedure.

The tests were carried out in accordance with the procedure specified in BS 6853: 1999 Annex D.8.4 .

Test Samples.

The test samples were conditioned for greater than 88 hours in a conditioning atmosphere of (50 ±5) %RH and (23 ±2) °C, and were restrained to prevent movement during the test.

The test samples were of dimensions 1000mm x 500mm x 2.5mm.

The test samples were described as:

Acou-stick Dampers (0.5mm thick self-adhesive aluminium sheet bonded to 2mm thick aluminium sheet)

The 0.5mm thick aluminium sheet was positioned towards the ignition source.

Ignition Source.

The ignition source used was to BS 6853: 1999 Annex D.4.1, Fire Source 1.

Test Results.

The transmitted luminous intensity was measured at 5 second intervals, and plots of %transmission ($\%T = 100 \times I_t / I_o$) versus time are shown in Figure 1 (page 4), where:

I_o = initial luminous intensity and
I_t = transmitted luminous intensity

The measured results of % Transmission are:

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$\%T_{(on)\,min}$ = 96.6% @ 17.4 minutes
$\%T_{(on)\,end}$ = 96.8 % @ 29 minutes
$\%T_{(off)\,end}$ = 96.3% @ 35.4 minutes

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$\%T_{(on)\,min}$ = 97.0% @ 21 minutes
$\%T_{(on)\,end}$ = 97.1 % @ 29 minutes
$\%T_{(off)\,end}$ = 96.8% @ 34.7 minutes

The measured optical density, A_m, is calculated as follows:

$$A_m = \log_{10}(I_o / I_t)$$

Hence:

$$A_m = \log_{10}(100 / \%T)$$

Figure 2 (page 4) shows plots of the variation of A_m versus time.

The value of A_m decreased from a maximum value during the "on" phase of the tests. Hence $A_{m(off)}$ is corrected according to the following equation:

$$A_{m(off)\ corr} = A_{m(off)\ end} + A_{m(on)\ max} - A_{m(on)\ end}$$

A_o is calculated as follows:

$$A_o = (A_m \times V) / (k \times l)$$

where:

V = volume of the apparatus ($27m^3$)
l = optical path length (3m)
k = number of samples tested (1)

The calculated results are as follows:

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$A_{o(on)} = 0.14\ m^2$/ "burn area"
$A_{o(off)} = 0.16\ m^2$/ "burn area"

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$A_{o(on)} = 0.12\ m^2$/ "burn area"
$A_{o(off)} = 0.13\ m^2$/ "burn area"

Mean Result

$A_{o(on)} = 0.13\ m^2$/ "burn area"
$A_{o(off)} = 0.14\ m^2$/ "burn area"

Observations.
(all timings are approximate and from ignition of the alcohol ignition source)

The surfaces of the samples progressively darkened during the test.

At the end of the tests it was noticed that the aluminium layers had separated, but not to the edges of the test panels.

The test results relate only to the behaviour of the specimens under the particular conditions of this test; they are not intended to be the sole criterion for assessing the potential smoke hazard of the product in use.

The test results relate only to the specimens of the product in the form in which they were tested. Small differences in the thickness or composition of the product may affect the performance of the material under test and will therefore invalidate the test results.

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Figure 1: %Transmission versus Time

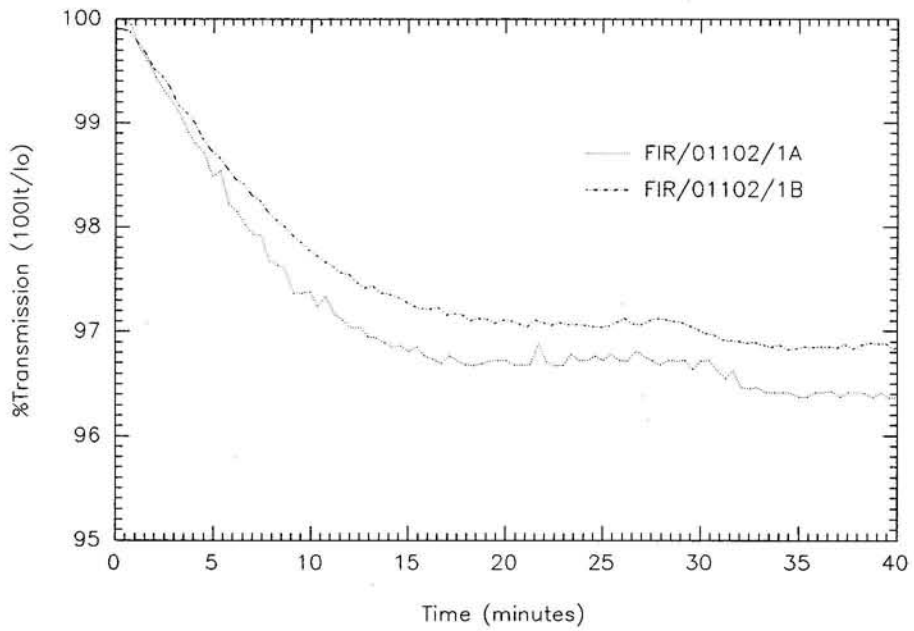

Figure 2: Measured Optical Density (A_m) versus Time

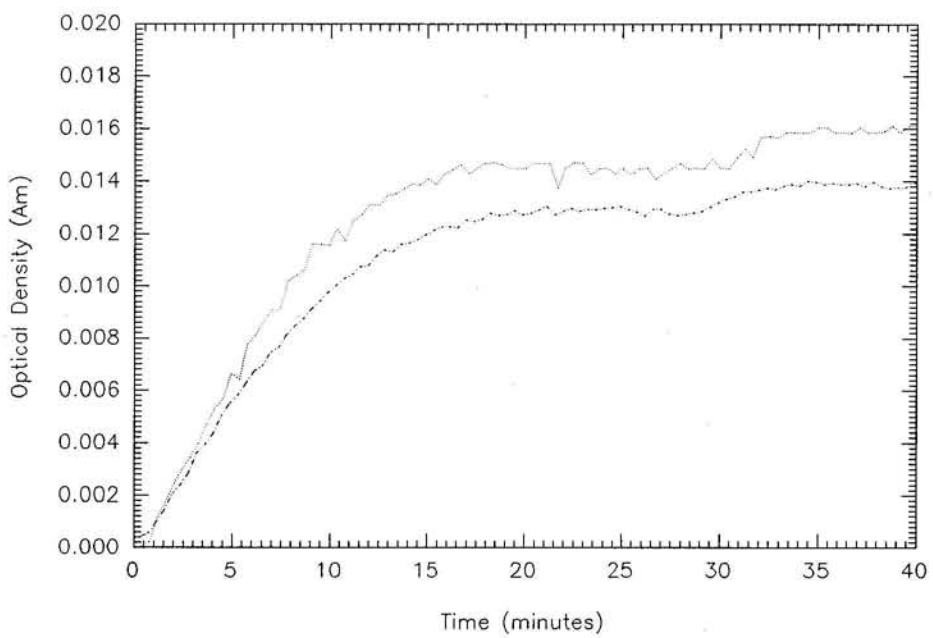

Figure 3: Sample FIR/01102/1A after test, front face.

Figure 4: Sample FIR/01102/1B after test, front face.