

TEST REPORT

Your Ref : Letter dtd 1997-11-19

Date 1997-12-23

Our Ref : G46788/2/HT
(Please quote our ref. no. in reply)

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DID 8701838

Fax 7763046



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SUBJECT:

Fire propagation test on "Super Polynum" pure aluminium foil incorporating 5mm thick polyethylene bubbles material submitted by Besco Building Supplies (SEA) Pte. Ltd. on 1997-11-24.

TESTED FOR:

Besco Building Supplies (SEA) Pte. Ltd.
26 Ubi Road 4, The Besco Building
(off Ubi Ave 2)
Singapore 408613

Attn : Mr Sam Chee

DATE OF TEST:

1997-12-12

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PURPOSE OF TEST:

To determine the Index of Performance of the material when it is exposed to the conditions of the test specified in British Standard 476, Part 6, 1989 "Method of test for fire propagation for products".

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DESCRIPTION OF SAMPLES:

6 pieces of sample, said to be "Super Polynum" pure aluminium foil incorporating 5mm thick polyethylene bubbles material, each of nominal size of 225mm x 225mm x 5.5mm (thick) were received. The sample was said to consist of 1st layer pure aluminium foil, 2nd layer polyethylene backing, 3rd layer 5mm thick polyethylene bubble pack, 4th layer polyethylene backing and 5th layer pure aluminium foil, and was said to be from Israel. The thickness of the aluminium finished layer and bulk area density of the sample were found to be 0.06mm and 0.22 kg/m² respectively.

TEST PROCEDURE:

Three specimens were tested with the smooth aluminium face exposed to the specified heating conditions, in an apparatus conforming to paragraph 5 and illustrated in Figures 1 to 3 of the Standard.

The calibration and test procedures were as defined in paragraphs 8 and 9 respectively, and appendix B clause (b) of the specification. The apparatus was calibrated prior to test and the actual calibration curve obtained is shown in Figure 1 of this report.

RESULTS OF TEST:

The mean temperature rise above ambient obtained from three specimens is also shown in Figure 1 (i.e. with the actual calibration curve). The mean temperature readings for the material and the calibration curve were obtained at the following intervals from the start of the test: at 1/2 minute intervals up to 3 minutes, at 1 minute intervals from 4 to 10 minutes, and at 2 minutes intervals from 12 to 20 minutes.

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RESULTS OF TEST: (Cont'd)

From these readings, the index of performance for the material was determined as follows:

$$s_1 = \sum_{t=0.5}^{t=3} \frac{\Theta_s - \Theta_c}{10t}; s_2 = \sum_{t=4}^{t=10} \frac{\Theta_s - \Theta_c}{10t}$$

and $s_3 = \sum_{t=12}^{t=20} \frac{\Theta_s - \Theta_c}{10t}$

$$S = s_1 + s_2 + s_3$$

where S = Index of performance for each of the specimens tested and s_1, s_2 and s_3 are sub-indices

t = Time in minutes from the origin at which readings are taken.

Θ_s = Temperature rise in deg. C for the specimen at time, t

= Temperature rise in deg. C for the calibration sheet at time, t

In computations only the positive value of $\frac{\Theta_s - \Theta_c}{10t}$ was used.

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RESULTS OF TEST: (Cont'd)

The following test results were obtained for each specimen tested:

Specimen	Sub-Indices			Index of Performance
	S ₁	S ₂	S ₃	S
A	5.5	2.3	0.9	8.8
B	4.6	2.2	0.8	7.6
C	3.7	2.3	1.0	7.0

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

CONCLUSION:

The test results obtained for the material tested are as follows:

Index of overall performance, =
(Fire propagation index)

Sub-index, i₁

Sub-index, i₂ = 2.3

Sub-index, i₃ = 0.9

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Mal
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Mal
Mah Poh Huat
Testing Officer

Chan Lung Toa
Chan Lung Toa
Team Leader (Fire Technology)
Mechanical Test Centre

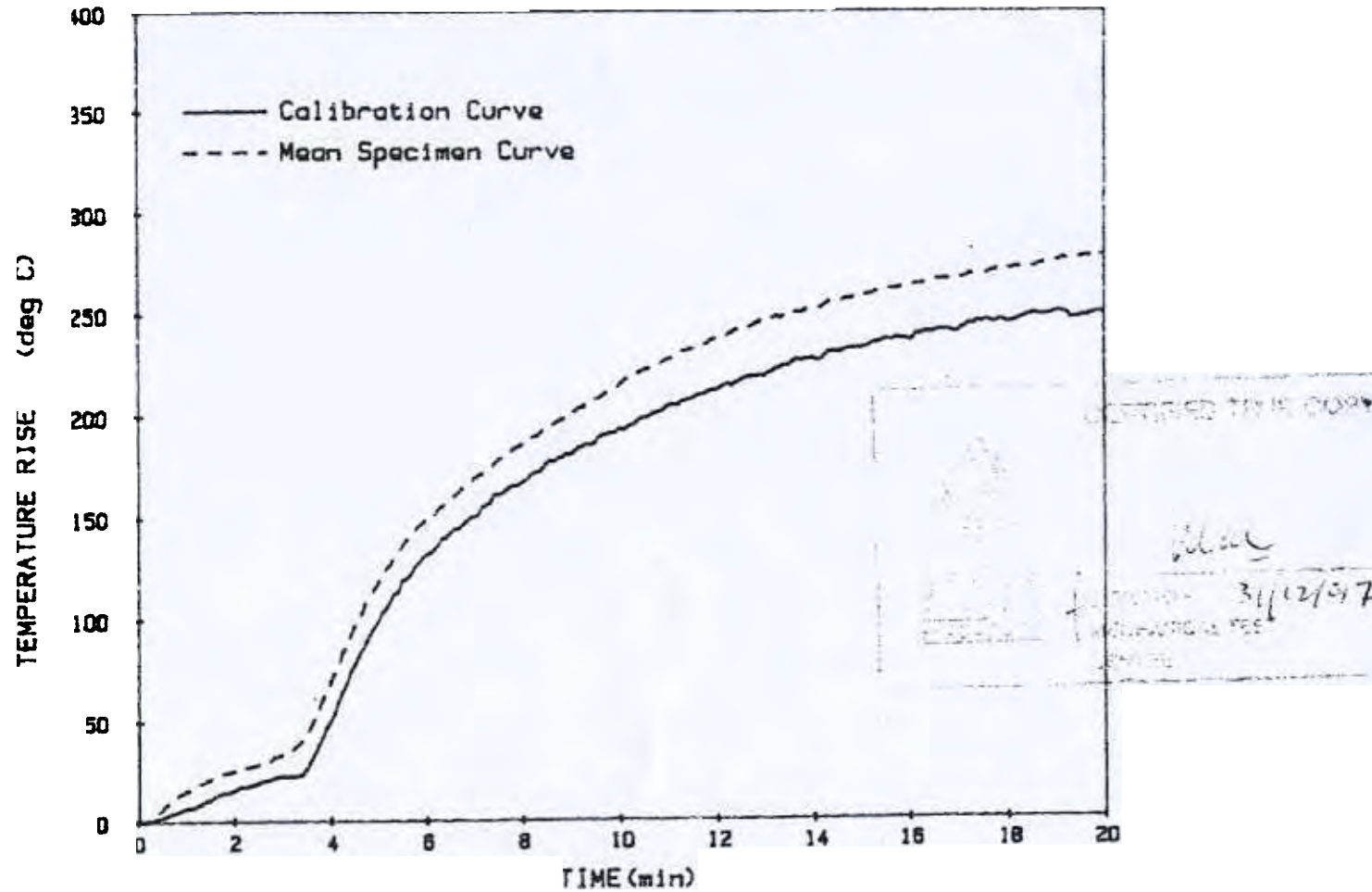


FIGURE 1: PLOT OF MEAN TEMPERATURE RISE ABOVE AMBIENT VERSUS TIME

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