Test Report No. 7191160130-MEC17/2-YWA
dated 08 May 2017

PSB Singapore

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SUBJECT:

Fire propagation test on on "Contego RFB-HS Blend" Fire Retardant coated on one face of an approximately 10mm thick plywood submitted by Asia Paint (Singapore) Pte Ltd on 30 Mar 2017.

TESTED FOR:

Asia Paint (Singapore) Pte Ltd
20, Tuas Avenue 8
Singapore 639235

DATE OF TEST:

27 Apr 2017

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 + A1 : 2009 "Method of test for fire propagation for products".

The test was conducted at TÜV SÜD PSB's fire test laboratory located at No. 10 Tuas Avenue 10, Singapore 639134.

TÜV SÜD PSB

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DESCRIPTION OF SPECIMENS:

Six pieces of specimen, said to be "Contego RFB-HS Blend" Fire Retardant coated on one face of an approximately 10mm thick plywood comprising of 1st coat – Fire Retardant Primer (40 micron) / 2nd coat – Contego RFB HS Blend (750 micron) / 3rd coat – Ekolac 1600 White (40 micron), each of nominal test size of 225mm x 225mm were submitted. The overall thickness of the coating (3 coats) was found to be approximately 0.9mm. The overall thickness and bulk density of the specimen were found to be approximately 11.2mm and 597kg/m^3 respectively.

TEST PROCEDURE:

Prior to test, the specimens were prepared and conditioned in accordance with paragraph 4.4 of the standard.

Three specimens, backed with calcium silicate board, were tested with the "Contego RFB-HS Blend" Fire Retardant 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, of the specification. The apparatus was calibrated prior to test and the actual calibration curve obtained is shown in Figure 1 of this report.

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.

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

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

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

Θ_c = 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.

RESULTS OF TEST:

The following test results were obtained for each specimen tested:

Specimen	Sub-Indices			Index of Performance
	s_1	s_2	s_3	S
A	1.7	1.8	0.9	4.4
B	2.6	1.5	0.8	4.9
C	1.6	1.8	0.8	4.2

CONCLUSION:

The test results obtained, as an average of the 3 samples tested are as follows:

Index of overall performance, I = 4.5
(Fire propagation index)

Sub-index, i_1 = 2.0

Sub-index, i_2 = 1.7

Sub-index, i_3 = 0.8

REMARKS:

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.

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Higher Associate Engineer

Ong Kian Huat
Senior Associate Engineer
Fire Property
Mechanical

PSB Singapore

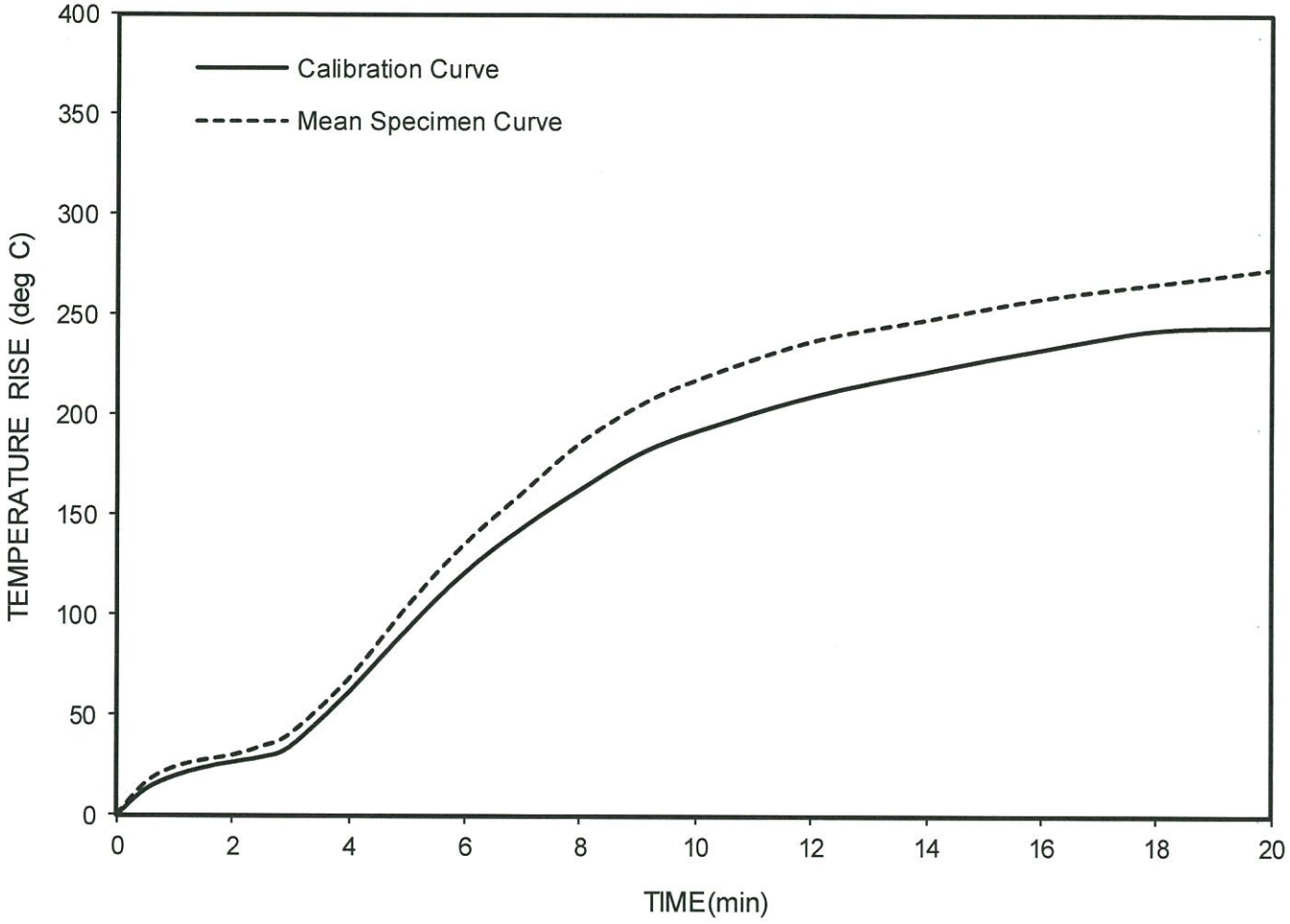

FIGURE 1 : COMPARISON OF MEAN SPECIMEN AND CALIBRATION CURVES

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July 2011