

Test Report No. S09MEC02136/OKH
dated 15 Apr 2009



PSB Singapore

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SUBJECT:

Large scale surface spread of flame test on "Recycle Facility for General Refuse Bin"
Fire-Proof Recycle Plastic material submitted by Research Engineering Development
Façade Consultants Limited on 23 Mar 2009.

TESTED FOR:

Wellun Environmental Protection Engineering Ltd
Rm 901-902, 9/F., Bank Centre
636 Nathan Road
Kowloon, Hong Kong

Attn: Mr Peter Tsang

DATE OF TEST:

08 Apr 2009

PURPOSE OF TEST:

To determine the tendency of the surface of a material or a combination of materials to support the spread of flame across its surface and to classify the surface according to the test given in British Standard 476 : Part 7 : 1997.

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



Laboratory:
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		LA-2007-0380-A LA-2007-0380-A-1 LA-2007-0381-F LA-2007-0382-B LA-2007-0383-G LA-2007-0384-G LA-2007-0385-E LA-2007-0386-C	The results reported herein have been performed in accordance with the laboratory's terms of accreditation under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme. Tests/Calibrations marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our laboratory.
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DESCRIPTION OF SPECIMENS:

Nine pieces of specimen, said to be "Recycle Facility for General Refuse Bin" (3.0mm – 3.5mm thick x 1.458g/cm³) Fire-Proof Recycle Plastic material comprising of Fire Retardant & HDPE 5502 plastic (with 11.11% Fire retardant) , each of nominal size of 885mm x 270mm were submitted. The ratio of the Fire Retardant to HDPE 5502 was said to be 1:8. The recycle plastic material was bonded onto cement board of thickness approximately 9mm with adhesive. The adhesive used was said to be Clear Epoxy Compound. The overall bulk density and thickness of the specimen was found to be approximately 1265kg/m³ and 13mm respectively.

TEST PROCEDURE:

Prior to test, the specimens were prepared and conditioned in accordance with paragraphs 5.3 to 5.6 of the standard and secured to a specimen holder as described in paragraph 6.3.

Six specimens, backed with calcium silicate board, were tested with the Recycle Plastic face exposed to the specified thermal radiation from the apparatus described in paragraph 6.1 of the standard. The intensity of the radiated heat incident on the specimen varies with distance from the hotter end, so that when the specified calibration panel is mounted in the place to be occupied by the specimen, the irradiance of the radiometer is as given in Table 1. The test was terminated when the flame front reached the 825mm reference line, or after 10 minutes has elapsed, whichever is the shorter.

Table 1 : Irradiance Along Horizontal Reference Line on the Calibration Board

Distance along reference line from inside edge of specimen holder mm	Irradiance kW/m ²		
	specified	min.	max.
75	32.5	32.0	33.0
225	21.0	20.5	21.5
375	14.5	14.0	15.0
525	10.0	9.5	10.5
675	7.0	6.5	7.5
825	5.0	4.5	5.5



RESULTS OF TEST:

Specimen No.	1	2	3	4	5	6
Spread of flame at first 1½ minutes (mm)	0	0	0	0	0	0
Distance (mm)	Time of spread of flame to indicated distance (minutes • seconds)					
Start of flaming	5.36	5.39	5.40	6.18	5.50	6.08
75	6.02	6.01	7.15	6.21	6.35	7.04
165	7.46	7.29	-	9.33	7.37	-
190	9.02	8.42	-	-	8.52	-
215	9.45	-	-	-	9.59	-
240	-	-	-	-	-	-
265	-	-	-	-	-	-
290	-	-	-	-	-	-
375	-	-	-	-	-	-
455	-	-	-	-	-	-
500	-	-	-	-	-	-
525	-	-	-	-	-	-
600	-	-	-	-	-	-
675	-	-	-	-	-	-
710	-	-	-	-	-	-
750	-	-	-	-	-	-
785	-	-	-	-	-	-
825	-	-	-	-	-	-
865	-	-	-	-	-	-
Time of maximum spread of flame (minutes • seconds).	10.00	10.00	10.00	10.00	10.00	10.00
Distance of maximum spread of flame (mm)	215-240	190-215	75-165	165-190	215-240	75-165
Comments	None					



Classification of Surface Spread of Flame


Classification	Spread of flame at 1.5 min.		Final spread of flame	
	Limit (mm)	Limit for one specimen in sample (mm)	Limit (mm)	Limit for one specimen in sample (mm)
Class 1	165	165 + 25	165	165 + 25
Class 2	215	215 + 25	455	455 + 45
Class 3	265	265 + 25	710	710 + 75
Class 4	Exceeding the limits for class 3			

CONCLUSION:

In accordance with the class definitions specified in the Standard, the test results show that the sample tested has a Class Two Surface Spread of Flame.

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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Chan Lung Toa
Product Manager
(Fire Safety & Security Products)
Mechanical Centre

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March 2009