

Test Report No. 7191271569-MEC21/02-JV
dated 26 Nov 2021



PSB Singapore

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SUBJECT:

Non-combustibility test on Brand: "Lightherm" Model: "Lightherm Drymix – Lightweight Thermal Insulation Material" insulation material submitted by Eco Building Solutions Pte Ltd on 12 October 2021.

TESTED FOR:

Eco Building Solutions Pte Ltd
1 Sunview Road
#05-46, Eco Tech @ Sunview
Singapore 627615

DATE OF TEST:

21 Nov 2021

PURPOSE OF TEST:

To determine the non-combustibility performance of products, under specified conditions, according to the test specified in BS EN ISO 1182 : 2010 "Reaction to fire tests for products – Non-combustibility test".

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



LA-2007-0380-A
LA-2007-0381-F
LA-2007-0382-B
LA-2007-0383-G
LA-2007-0384-G
LA-2007-0385-E
LA-2007-0386-C
LA-2010-0464-D
LA-2018-0702-B
LA-2018-0703-G
LA-2020-0747-L

The results reported herein have been performed in accordance with the terms of accreditation under the Singapore Accreditation Council. Inspections/Calibrations/Tests marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our inspection body/laboratory.

Laboratory:
TÜV SÜD PSB Pte. Ltd.
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Regional Head Office:
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TÜV SÜD @ IBP
Singapore 609937
TUV®

DESCRIPTION OF SPECIMEN:

10 pieces of specimen, said to be Brand: "Lightherm" Model: "Lightherm Drymix – Lightweight Thermal Insulation Material" insulation material, each of nominal size of 45 mm (diameter) x 50mm (thickness) were received. The area and bulk density of the specimen were measured to be 27.13 kg/m² and 522.1 kg/m³ respectively.

Details of the product, as provided by the sponsor of test, are as follows:

Brand	Lightherm
Model reference	Lightherm Drymix – Lightweight Thermal Insulation Material
Generic product name	Lightweight thermal insulation material
Material composition	Polystyrene aggregate and cement
Country of origin	Malaysia
Manufacturer	Vodapruf Pte Ltd
Nominal bulk density	522.1 kg/m ³
Nominal thickness	52mm
Fire retardant	N.A.

Photograph of specimen:



Vik *kan*

TEST PROCEDURES:

Test specimens were conditioned as specified in EN 13238. Afterwards, they were dried in a ventilated oven maintained at $(60 \pm 5)^{\circ}\text{C}$ for between 20 hours and 24 hours, and cooled to ambient temperature in a desiccator prior to test.

The furnace was calibrated in accordance to clause 7.3.1 and 7.3.2 of the standard with the following results:

Description	Result	Requirement
Average deviation of temperature on three vertical axes from average furnace wall temperature	0.4%	Less than 0.5%
Average deviation of temperature on three levels from average furnace wall temperature	0.4%	Less than 1.5%
Average wall temperature at level (+30mm)	781.2°C	Average wall temperature at level (+30mm) shall be less than average wall temperature at level (-30mm)
Average wall temperature at level (-30mm)	786.4°C	

Specimens were exposed to the specified heating conditions ($750 \pm 5^{\circ}\text{C}$) in a furnace conforming to clause 4.2 and illustrated in Figure B.1 and B.2 of the Standard. The furnace was heated and its temperature stabilised for at least 10 minutes at $750 \pm 5^{\circ}\text{C}$. One specimen was then inserted in the furnace, the whole operation was performed in less than 5 seconds. The temperatures of the furnace, the specimen centre and the specimen surface were measured by three separate Type K sheathed thermocouples continuously on the chart of a recorder until final temperature equilibrium of the furnace and specimen centre and specimen surface were established. The flaming time of the specimen was determined by a stop watch. The procedure was repeated for four other specimens, one at each time.



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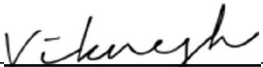
PSB Singapore

RESULTS:

Non-combustibility test	Specimen				
	1	2	3	4	5
Duration of sustained flaming, t_f (sec.)	0	0	0	0	0
Mean duration of sustained flaming, t_f (sec.)	0				
Maximum furnace temperature, T_{max} (°C)	791.2	794.5	782.6	780.4	783.7
Final furnace temperature, T_f (°C)	788.8	792.2	781.1	777.8	781.1
Furnace temperature rise, $\Delta T = T_{max} - T_f$ (°C)	2.4	2.3	1.5	2.6	2.6
Average furnace temperature rise, ΔT (°C)	2.3				
Maximum specimen surface temperature (°C)	718.9	710.0	723.9	723.5	726.8
Final specimen surface temperature (°C)	718.7	708.7	723.7	723.2	726.3
Specimen surface temperature rise, ΔT_c (°C)	0.2	1.3	0.2	0.3	0.5
Average specimen surface temperature rise, ΔT_c (°C)	0.5				
Maximum specimen centre temperature (°C)	777.6	785.2	801.3	817.3	815.1
Final specimen centre temperature (°C)	776.4	784.6	800.9	816.9	814.3
Specimen centre temperature rise, ΔT_s (°C)	1.2	0.6	0.4	0.4	0.8
Average specimen centre temperature rise, ΔT_s (°C)	0.7				
Mass loss, Δm (%)	19.70	20.82	19.92	19.31	18.66
Average mass loss, Δm (%)	19.68				
Observations	Nil				

REMARKS:

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


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Chan Lung Toa
Assistant Vice President
Fire Testing
Mechanical Centre

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Effective 26 January 2021

