

Reaction to fire test report

Issuing laboratory: Warringtonfire Testing and Certification Limited

Test standard: EN ISO 1716: 2018
Test sponsor(s): Echo Facades Engineering Solutions Ltd.
Product(s): EcoBoard
Report number: 539309
Version: 1

Warringtonfire Testing and Certification Limited , accredited for compliance with ISO/IEC 17025:2017 – Testing



Approved Body Number 0833

Quality management

Version	Date	Summary of amendments including reasons	
1	15 February 2024	Description	Initial issue
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		*Signed for and on behalf of Warringtonfire Testing and Certification Limited	

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1. Introduction

This report documents the findings of the reaction to fire test of “EcoBoard” in accordance with EN ISO 1716: 2018.

Warringtonfire Testing and Certification Limited (Warringtonfire) performed the test on 13 December 2023 at the request of the test sponsor listed in Table 1.

Table 1 Test sponsor details

Entity	Address
Test sponsor	
Echo Facades Engineering Solutions Ltd.	Unit 10 Chruchill House 114 Windmill Road Brentford, TW8 9NB United Kingdom

2. Test specimens

The description of the test specimens is detailed in Table 2. Prior to conducting the test, Warringtonfire verified the conformity of the test specimens with the description of the test specimens provided by the sponsor. This verification consisted of the following:

1. Where possible, the construction of the test specimens was checked to ensure that it matched the description of the test specimens provided by the sponsor.
2. Where possible, the thickness, weight per unit area and density measurements of the test specimens were checked to ensure that they matched the description of the test specimens provided by the sponsor. Warringtonfire ensured that the measurements were within the manufacturing tolerances stated by the sponsor or within a tolerance of $\pm 10\%$ in the absence of a manufacturing tolerance.

Any areas of discrepancy identified by Warringtonfire during the verification process were resolved with the sponsor prior to starting the test.

Unless otherwise specified:

- The information including measurements was provided by the test sponsor.
- All measurements taken by Warringtonfire or the sub-contract laboratory as part of the verification process are clearly identified.
- Where a measurement is listed without a verification measurement by Warringtonfire, this indicates that it was not possible for that measurement to be verified and the information supplied by the sponsor has to be relied on.

Table 2 Test specimen description

Item	Detail
General description	Fibre cement board
Product reference	"EcoBoard"
Detailed description/composition details	Smooth double pressed and autoclave fibre cement flat sheet
Name of manufacturer	Echo Facades Engineering Solutions Ltd.
Thickness	6-20mm (stated by sponsor) 11.59mm (as tested by Warringtonfire)
Weight per unit area	8.4-28kg/m ² 16.8 kg/m ² at 12mm
Density	1549.33kg/m ³ (as tested by Warringtonfire)
Colour	Off white / light brown
Flame retardant details	See Note 1 below
Brief description of manufacturing process	See Note 2 below

Note 1: The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the product.

Note 2: The sponsor was unwilling to provide this information.

3. Test procedure

Table 3 details the test procedure for this reaction to fire test.

Table 3 Test procedure

Item	Detail
Test standard	The test was performed in accordance with EN ISO 1716: 2018.
Supplementary standard	EN 13501-1: 2018
Deviations from the test standard	None
Product standard and/or EAD	EN 12467:2012+A2:2018
EGOLF agreements and/or recommendations	None
Pre-test conditioning	<p>Test specimens were received on 05 December 2023.</p> <p>Before testing, the test specimens were conditioned in accordance with the requirements of EN 13238: 2010 at a temperature of 23 ± 2 °C and a relative humidity of $50 \pm 5\%$ for a minimum period of 48 hours, until constant mass was achieved.</p>
Sampling / test specimen selection	The test specimens were supplied by the test sponsor. Warringtonfire was not involved in any selection or sampling procedure.
Number of replicate tests	Three
Water equivalent	The water equivalent (E) of the bomb calorimeter was 0 MJ/K.
Product type	This report relates to the testing of an individual component. The results apply to a homogeneous product or can be used in combination with results from other components to determine the performance of a non-homogeneous product.
Method of test	Crucible method with a combustion aid

4. Test results and observations

4.1 Test results

Table 4 shows a summary of the results for the test specimens. A fully detailed overview of the measurements is given in the laboratory record sheet (see Appendix).

Table 4 Test results

Parameter	Unit	Detail
Average gross heat of combustion, Q_{PCS}	MJ/kg	0.5
Average gross heat of combustion per unit area at 8.4000 kg/m ² , Q_{PCS}	MJ/m ²	4.0
Average gross heat of combustion per unit area at 28.0000 kg/m ² , Q_{PCS}	MJ/m ²	13.3

4.2 Test observations

No significant observations were noted during the course of testing.

5. Application of test results

5.1 Validity

This document is the original version of this test report and is written in English. In case of doubt the original version prevails over a translation.

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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 criterion for assessing the potential fire hazard of the product in use, nor can the results be extrapolated and applied to other products.

Test reports are statements of fact prepared in accordance with the referenced version of the standards stated in Section 3 of this report. Test reports are based upon the information provided to Warringtonfire. Warringtonfire takes no responsibility for the accuracy or completeness of such information.

The results stated in this report apply to the sample as received. Any differences in composition, production process, thickness, density or colour of the product may significantly affect the performance and will therefore invalidate the application of the test results to the variant product. It is recommended that any proposed variation to the tested configuration or product should be referred to the test sponsor. The test sponsor should then obtain appropriate documentary evidence of compliance from Warringtonfire or another accredited testing authority. The supplier of the product is responsible for ensuring that the product which is supplied for use is identical to the test sample as received.

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5.2 Uncertainty of measurement

Because of the nature of reaction to fire testing and the consequent difficulty in quantifying the uncertainty of measurements obtained from a reaction to fire test, it is not possible to provide a stated degree of accuracy of the result.

Appendix A Test data

A.1 Criteria for the validity of test results

Gross heat of combustion	Acceptance criteria	Range of validity
Q _{PCS} (MJ/kg)	≤ 0,2 MJ/kg	From any negative value to 3,2 MJ/kg
	Within 5 % of the average of the 3 results	From 3,2 MJ/kg to 20,0 MJ/kg
	Within 10 % of the average of the 3 results	Greater than 20,0 MJ/kg
Q _{PCS} (MJ/m ²) ^a	≤ 0,1 MJ/m ²	From any negative value to 4,1 MJ/m ²
	Within 5 % of the average of the 3 results	From 4,1 MJ/m ² to 20 MJ/m ²
	Within 10 % of the average of the 3 results	Greater than 20 MJ/m ²

^a For non-substantial components only.

A.2 Laboratory record sheet

Parameter	Specimen 1	Specimen 2	Specimen 3	Mean
Test date	19/12/2023	19/12/2023	19/12/2023	-
Test specimen weight (g)	0.7097	0.7038	0.7027	0.7054
Q _{PCS} (MJ/kg)	0.4	0.5	0.5	0.5
Grinding	The test specimens were ground and reduced to a fine powder prior to conditioning for test.			



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