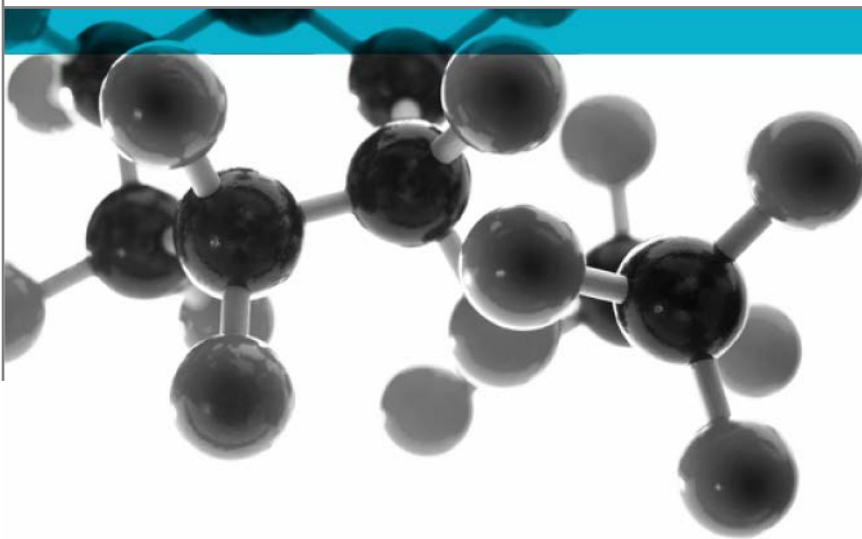


BS EN ISO 1716: 2018



Determination Of The Heat Of Combustion For Building Products

A Report To: Silevon Ltd

Document Reference: 424694

Date: 26th March 2020

Issue No.: 1

Page 1



Executive Summary

Objective To determine the performance of the following material when tested in accordance with BS EN ISO 1716: 2018.


Generic Description	Product reference	Thickness	Application rate
Polyvinylidene fluoride (PVDF) based top coat	"PVDF-25"	20 microns	0.038 kg/m ²
Please see page 5 of this test report for the full description of the product tested			

Test Sponsor Silevon Ltd, 3 Tak Me Doon Road, Larbert, FK5 4GY


Test Results: **Gross Calorific Value** = **13.4268 MJ/kg**

Date of Test 6th and 7th February 2020

Signatories



Responsible Officer
 C Jacques*
 Senior Technical Officer



Authorised
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 Senior Technical Officer

* For and on behalf of [Warringtonfire](#).

Report Issued: 26th March 2020

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Test Details

Purpose of test	<p>To determine the calorific potential of a building material during combustion when it is tested in accordance with the test specified in BS EN ISO 1716:2018 “Reaction To Fire Tests For Building Products – Determination Of The Heat Of Combustion”.</p> <p>The test was performed in accordance with the procedure specified in BS EN ISO 1716:2018 and this test report should be read in conjunction with that European Standard.</p>
Scope of test	<p>BS EN ISO 1716 specifies a method of test for determining the heat of combustion of building materials at constant volume in a bomb calorimeter. Results are reported as individual values which may be interpreted by reference to other documents; e.g. EN 13501-1:2018 “Fire Classification of Construction Products and Building Elements Part 1 Classification using Test Data from Reaction to Fire Tests.</p> <p>The test is intended for materials or products whether composite products or coated products. The results reported here relate to one individual component of a composite product and can be used in combination with other results to provide the classification in accordance with BS EN 13501, within a classification report.</p>
Fire test study group/EGOLF	<p>Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.</p>
Instruction to test	<p>The test was conducted on the 6th and 7th February 2020 at the request of Silevon Ltd, the sponsor of the test.</p>
Provision of test specimens	<p>The specimens were supplied by the sponsor of the test. Warringtonfire was not involved in any selection or sampling procedure.</p>
Conditioning of specimens	<p>The specimens were received on the 3rd February 2020. Prior to test the prepared specimens were conditioned for at least 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and a relative humidity of $50 \pm 5\%$, in accordance with BS EN 13238:2010.</p>
Test procedure	<p>The specimens were tested using an additional combustible substance of known and high calorific value which for this test was paraffin oil. The specimens were tested using the crucible method in an isoperibol bomb calorimeter.</p> <p>The water equivalent (E) of the bomb calorimeter was 0.1012MJ/K.</p>

Description of Test Specimens

The description of the system given below has been prepared from information provided by the sponsor of the test. This information has not been independently verified by Warringtonfire. All values quoted are nominal, unless tolerances are given.

Generic type	Polyvinylidene fluoride (PVDF) based top coating
Product reference	"PVDF-25"
Name of manufacturer	Sherwin Williams
Application thickness	20um
Density	1.90 g/ml 1900 kg/m ³
Application rate	0.038 kg/m ²
Colour reference	"Anthrazitgrau (1729-20)"
Curing process	Oven
Flame retardant details	See Note 1 below

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

Specimen preparation

The specimens were homogeneous and were prepared by selecting portions of the material from the sample submitted for test to give a total mass of 50g. These were then ground and reduced to a fine powder prior to conditioning for test.

Test Results

Results of test

The results are detailed in Table 1.

The test results relate only to the specimens of the product in the form in which they were tested. Small differences in the composition of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product which is supplied or used is fully represented by the specimens which were tested.

The test results relate to the behaviour of the test specimen 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 material in use.

For the product tested, the following results relating to the gross calorific potential were obtained.

Gross Calorific Value per Unit Mass MJ/kg	Gross Calorific Value per Unit Area MJ/m ²
13.4268	0.5102

Validity

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

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Table 1

Bomb Calorimeter Calculations

The specimen, "PVDF-25", is homogeneous

End use thickness of specimen:- 0.02 mm

Gross Calorific Potential Per Unit Mass

<u>Test 1:-</u>	sample weight =	0.7152	g			
	calorific value =	13.5065	MJ/kg	=	13506.5	kJ/kg
	temperature rise =	2.4456	°C			
<u>Test 2:-</u>	sample weight =	0.7122	g			
	calorific value =	13.3418	MJ/kg	=	13341.8	kJ/kg
	temperature rise =	2.4969	°C			
<u>Test 3:-</u>	sample weight =	0.7059	g			
	calorific value =	13.4321	MJ/kg	=	13432.1	kJ/kg
	temperature rise =	2.3665	°C			
				Average =	13426.8	kJ/kg
					<u>13.4268</u>	<u>MJ/kg</u>

Revision History

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