

17 August 2018

Mr Clive Betts MP
Chairman of the Communities and Local Government Select Committee
House of Commons
SW1A 0AA

Dear Mr Betts,

Further to my note of 16 July, in response to the additional evidence submitted by Kingspan, we have now received the further data from the system test of the Vitracore G2 product and ROCKWOOL Duoslab insulation. It is not a complete test report, but nonetheless, we have conducted some further analysis, which we would like to share with the committee. We have also copied this letter to the Ministry for Housing, Communities and Local Government.

Our main conclusion remains that it is highly likely that the Vitracore G2 cladding used in that test was not A2 rated under the Euroclass system. It is therefore, based on this test, inaccurate to claim that systems containing A1 and A2 rated materials fail a properly conducted BS 8414 test. We would welcome clarification from both the manufacturer and test sponsor on this point.

Vitracore G2 Cladding

As highlighted in our original letter to the committee on this subject, we have, despite further research, found no evidence of European Conformity (CE) marking on Vitracore G2, which is required to allow it to be sold in the UK. The test conducted on the product at the BRE in 2016 does not in itself constitute a CE marking.

Earlier this year, ROCKWOOL Group obtained samples of Vitracore G2 through the open market, rather than directly from the manufacturer, Valcan. ROCKWOOL then commissioned SGS INTRON, a respected Dutch testing facility, to test the calorific content of Vitracore G2.

Those tests showed that Vitracore G2 would fail to meet the requirements for an A2 product. We have attached the result of these tests.

Discrepancies in Stated and Actual Fire Performance of Vitracore

These tests understandably raise concerns around the accuracy of fire ratings for individual products claimed by manufacturers.

Valcan has listed an A2 reaction to fire classification for Vitracore G2 cladding in the product brochure the committee have seen. That rating appears to be based on a test conducted at the BRE in 2016.

The BRE report notes that the sample tested was provided directly by the manufacturer itself. The BRE then explicitly acknowledges that it could not confirm whether that sample was the same as the product supplied to market.

The sample ROCKWOOL selected was sourced from the open market. This could suggest that there can be differences in the stated performance of the product and the actual performance of products sold to customers.

The Vitracore cladding in the Kingspan test also appears to burn when exposed to fire, similar to the sample tested by ROCKWOOL. It is then likely that it too was procured from the market, rather than directly from the manufacturer. We would welcome Kingspan's confirmation if they did indeed procure the sample from the market and if they conducted tests on that sample to confirm whether it was A2 or not.

These observations indicate that there can be significant differences in the fire performance of products provided by manufacturers and that which can be purchased on the market.

Enforcing Product Testing Standards and Transparency

The best way to ensure public safety is to ensure rigorous enforcement of individual product testing. Dame Judith Hackitt has already proposed re-testing individual products every three years, and we believe this element of the process should be brought forward to ensure public confidence in new regulations.

This needs to be supported with a comprehensive programme of market surveillance to test individual products independently as they are placed on the market. This will ensure that the actual fire performance of construction products matches that claimed by manufacturers.

Test houses should also be required to verify that the materials being tested on their premises are the same as those placed on the market and used on buildings. This should apply to products being submitted for individual testing and for any testing conducted on systems. The reports of all of these tests should be published proactively by the test houses, including full information on the reaction to fire classifications of the materials involved.

We are grateful for your consideration on this particular issue, and are happy to provide any additional clarification you may require.

Yours sincerely,



Mirella Vitale
Senior Vice President, ROCKWOOL Group



Rockwool B.V. / Rockpanel Group
att. Mr M. Baets
PO box 1160
6040 KD ROERMOND

Datum / Date
March 15th, 2018

Telefoon / Phone
046 - 4204204

Uw kenmerk / Your reference

Ons kenmerk / Our reference
A897140/BU20180251b/MKi

Betreft / Subject
Investigation of Vitracore and Vitrabond sandwich panels – final results

Dear Mr. Baets,

The Rockpanel Group has commissioned SGS INTRON to perform an investigation into the nature of the core of two sandwich panels. This concerns Vitrabond products and the motivation for this examination is the question if the composition of these panels can lead to a reduction of fire resistant properties. This letter informs you about the final results.

Goal

The goal of this examination is to determine the composition of the core product of the sandwich panels and to obtain an impression about the reaction to fire classification of these products.

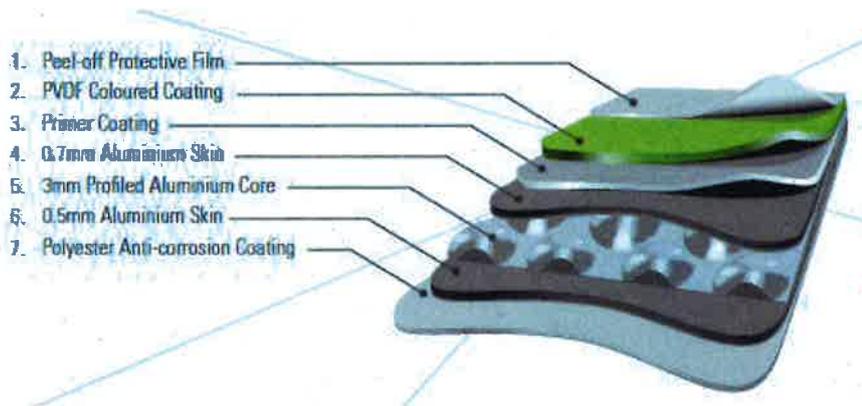
Test set up

The composition of the core material has been examined with stereomicroscopy and analysed with infra-red spectrometry (ATR/FTIR) and with scanning electron microscopy combined with a micro element analysis system (SEM/EDXA). The calorific value of the core material is indicatively estimated by applying loss on ignition to one of the samples and by bomb calorimetry (ISO 1716) to the other one.

Samples

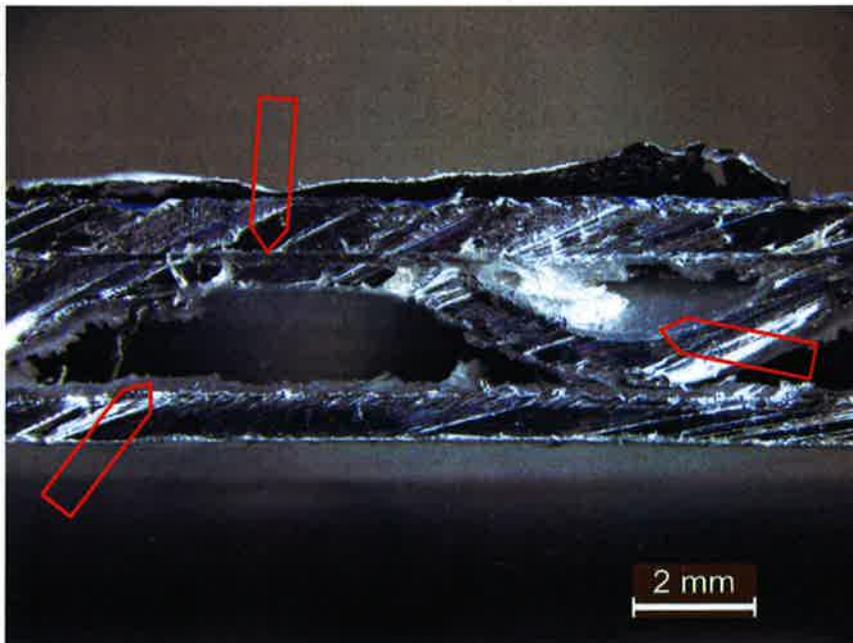
The examination is performed on two panel samples: Vitracore G2 and Vitrabond A2. The description of these products is as follows:

1. Vitracore G2 panel consists of aluminium panels with an undulating inner surface with a greyish coating which also bonds both sides of the sandwich panel. The next sketch explains the product construction (https://selector.com/media/files/Product%20Range%20Brochure_email_W2Xnush.pdf).



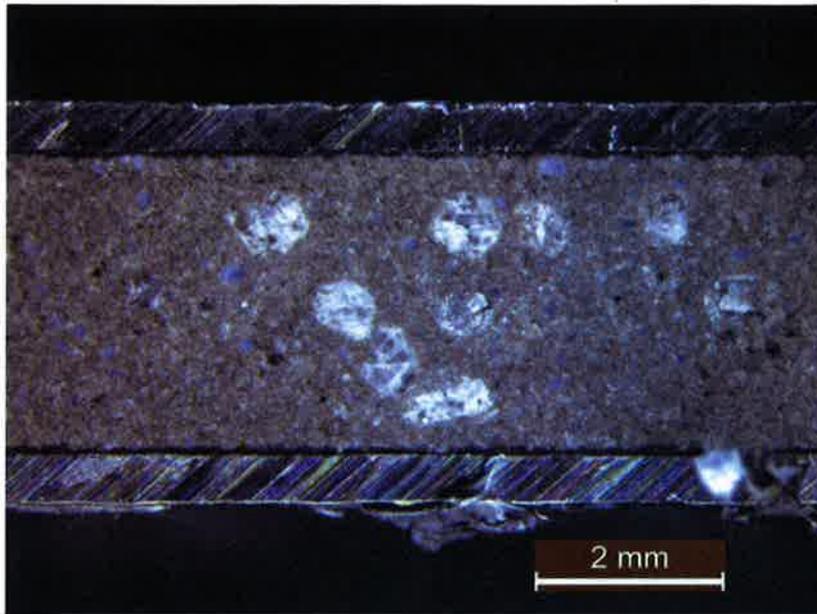
2. Vitrabond A2 panel consists also of aluminium panels with a flat inner surface with a core filled with greyish brown material.

The construction of both panels is illustrated with the following pictures.



Picture 1. Micro image taken from cut cross section of Vitracore G2 panel.

This panel consists of two flat and one undulated aluminium panels. The undulated panel is applied in the core of the sandwich panel which is bonded with a thin layer greyish coating (pointed at with arrows).



Picture 2. Micro image taken from the cut cross section of Vitrabond A2 panel.

This panel consists of aluminium panels with a greyish brown core with blue spots. The grainy core material is heterogeneous.

Results

1. Vitracore G2

Microscopic analysis shows that the core of this panel consists of an undulated aluminium panel, bonded with a soft, elastic and homogeneous material. Analysis of this coating with ATR/FTIR proves the main composition of polyethylene (PE). The test result is illustrated with the spectra below.

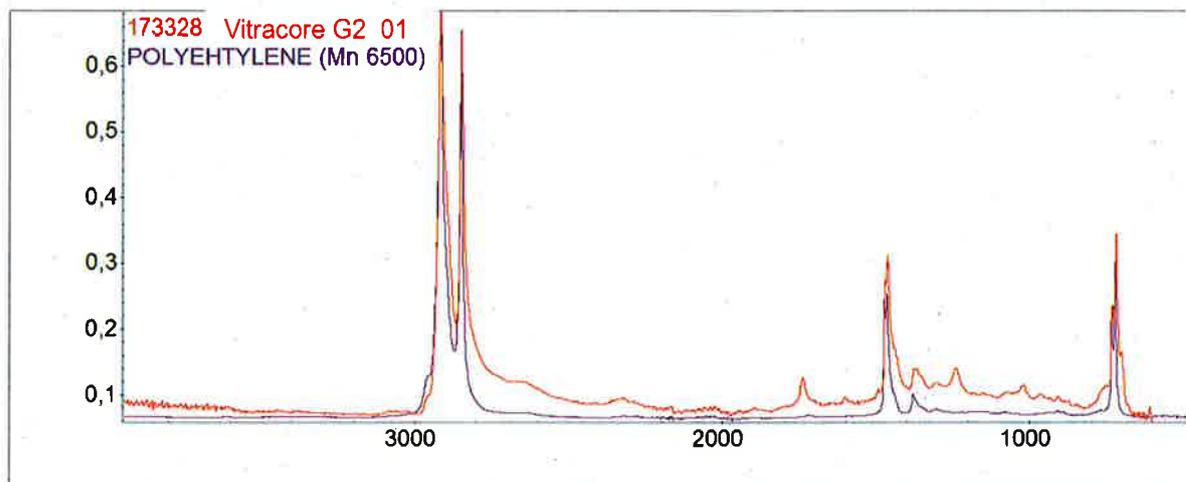


Figure 1. ATR/FTIR spectrum recorded from the Vitracore G2 bonding material and a PE reference spectrum.

Since the composition of the bonding material is homogeneous, a loss on ignition (LOI) at 500 °C, the gross calorific value for PE (which is 46.6 MJ/kg) and the panel density (determined at 4.46 kg/m²) are helpful to estimate the calorific value of this panel product. The LOI amounts 10.0 %m/m which brings the gross calorific value at 4.6 MJ/kg or approximately 21 MJ/m². A gross calorific value of 4.6 MJ/kg is an indication that Euroclass A2 classification can't be met for Vitracore G2 panel. The Euroclass A2 critical value for the gross calorific value is 3.0 MJ/kg.

2. Vitrabond A2

Microscopic analysis shows that the core of this panel consists of a heterogeneous mixture with a greyish brown color combined with bright and clear white mineral grains and smaller blue grains. The composition of these grains is analysed with SEM/EDXA. These test results show that the bright grains consist of pure calcium carbonate (calcite) and the blue grains of a sodium silicate. Aluminium is also present as a more diffuse component like in a flame retardant. Analysis with ATR/FTIR confirms the presence of carbonate and silicate which is probably a kind of clay mineral. The core material is very likely bonded with poly vinyl acetate while the aluminium content indeed seems to originate from aluminium trihydrate (ATH) which is a flame retardant. The ATR/FTIR test result is illustrated with the spectra below.

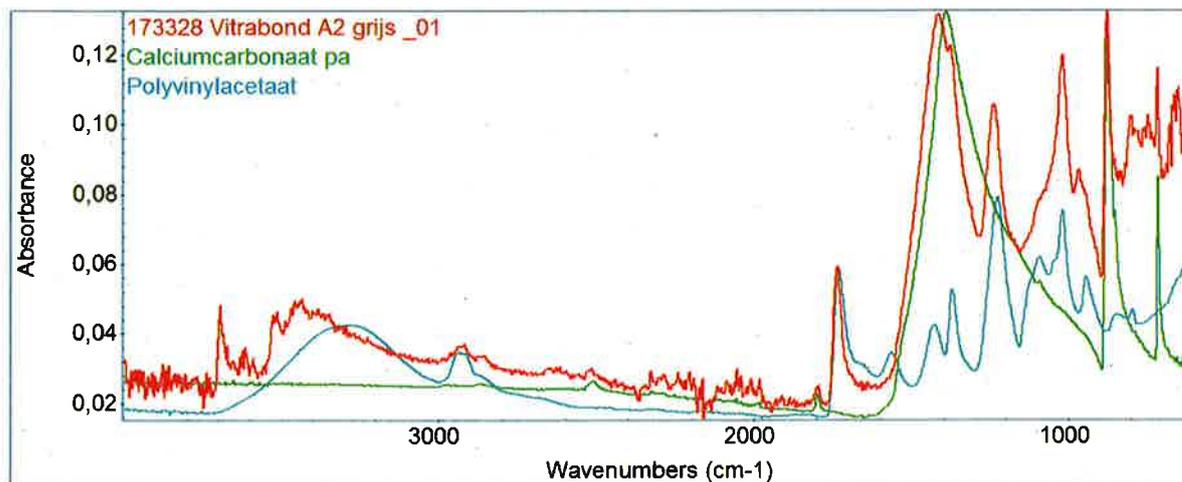


Figure 2. ATR/FTIR spectrum recorded from the Vitrabond A2 core material and different reference spectra.

For the rough estimation of the Euroclass classification, the gross calorific value of the core material is tested with bomb calorimetry. The applied test method follows the outlines of EN ISO 1716 but not all required conditions are met. The indicative gross calorific value for the core material amounts 2.4 MJ/kg which is well below the critical value of 3.0 MJ/kg for the Euroclass A2. Taking the mass of the inert aluminium panels into account, this value will even be lower. This property leads to probably fulfilling the A2 criterium for this product.

With best regards,



W.H.M. Klarenaar
senior consultant
SGS INTRON B.V.