

Date August 2015

Replaces New

*Protective Finishes*

## Formwall Hygienic Wall Cladding

### Fire Test Reports

- **Formwall Nuplex house brand – manufacturers brand Bioclad**

Page 5 – Material Group Number = Group 1

**All other test reports are available on request by contacting**

**Nuplex Construction Products email: [ncpsales@nuplex.com](mailto:ncpsales@nuplex.com)**

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**Test Report No: ICL/H12/1630 Rev 1**

**AS/NZS 3837:1998**

**Method of test for heat and smoke release rates for materials and products  
using an oxygen consumption calorimeter**

**Sponsored By**

**BIOCLAD LIMITED  
Unit A1  
Greengate  
Harrogate  
HG3 1GY**

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**Purpose of Test**

To determine the performance of a specimen of a polymeric sheet when it is subjected to the conditions of test specified in AS/NZS 3837: 1998 Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter and to use the data to calculate values to determine the BGA Group Classification- according to Specification A 2.4 of the Building Code of Australia.

**Scope of Test**

AS/NZS 3837: 1998 details a test procedure to determine the rate of heat release, smoke production and mass loss. The heat release values are expressed on area bases and smoke and mass loss values are expressed on mass bases.

**Description of Test Specimen**

The description of the product given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

The specimens tested consisted of a 2.5mm thick white polymeric sheet referenced "Bioclad 2.5mm antimicrobial extruded PVC sheet".

The sponsor of the test did not supply further details relating to the composition of the material that was tested.

The specimens were received on 19 September 2012.

**Conditioning of Test Specimens**

The test specimens were conditioned to constant mass at a temperature of  $23 \pm 2^{\circ}\text{C}$  and a relative humidity of  $50 \pm 5\%$ .

**Date of Test**

The test was performed on 27 September 2012.

## Test Procedure

The test was performed in accordance with the procedure specified in AS/NZS 3837:1998 at 50kW/m<sup>2</sup> and this report should be read in conjunction with that Standard.

## Exposed Face

One face was exposed to the heating conditions 50kW/m<sup>2</sup> of the test.

## Test Results

The test results relate only to the behaviour of the 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.

The test results relate only to the specimens of the product in the form in which they were tested. Small differences in the composition or thickness 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 are given in table below:

Parameter	Test 1	Test 2	Test 3	Average
Specimen thickness (mm)	2.5	2.5	2.5	2.5
Specimen Initial mass (g)	34.74	34.74	34.15	34.5
Time to ignition (s)	118	116	129	121.0
Total heat release (MJ/m <sup>2</sup> )	22.0	20.89	19.52	20.8
Mass loss between Ign & Ext (g)	18.7	18.56	16.36	17.9
TSR (m <sup>2</sup> /m <sup>2</sup> )	2565.35	2640.16	2673.85	2626.5
pK HRR (kW/m <sup>2</sup> )	188.71	168.12	176.26	177.7
pk Effective heat of combustion (MJ/kg)	76.04	75.48	61.01	70.8
pK Specific ext area (m <sup>2</sup> /kg)	3607.74	2993.70	2761.86	3121.1
<b>Average values HRR</b>				
over Ign 60 sec from ign	154.23	154.23	140.70	149.7
HRR (kW/m <sup>2</sup> ) over Ign 120 sec from ign	152.80	147.23	136.96	145.7
HRR (kW/m <sup>2</sup> ) over Ign 180 sec from ign	117.52	113.79	104.83	112.0
HRR (kW/m <sup>2</sup> ) over Ign 300 sec from ign	76.91	74.79	71.52	74.4

<b>Average values EHC (MJ/kg)</b>				
EHC (MJ/kg ) over Ign 60 sec from ign	7.47	6.55	6.55	6.9
EHC (MJ/kg ) over Ign 120 sec from ign	9.66	9.00	9.71	9.5
EHC (MJ/kg ) over Ign 180 sec from ign	10.69	10.07	10.72	10.5
EHC (MJ/kg ) over Ign 300 sec from ign	11.28	10.67	11.66	11.2
<b>Average values Specific ext area (m<sup>2</sup>/kg)</b>				
SEA (m <sup>2</sup> /kg) over Ign 60 sec from ign	836.34	813.87	895.57	848.6
SEA (m <sup>2</sup> /kg) over Ign 120 sec from ign	985.15	1019.39	1098.30	1034.3
SEA (m <sup>2</sup> /kg) over Ign 180 sec from ign	957.14	999.90	1067.69	1008.2
SEA (m <sup>2</sup> /kg) over Ign 3000 sec from ign	926.21	966.67	1024.09	972.3

### Conclusion


From the above results following the procedure specified in Building Code of Australia—Volume One—SPECIFICATION A2.4 clause 3. Predicting a material's group number we have determined that the material tested satisfy the criteria for Group 1.

Prepared by



**C. B. Chong**  
Fire Scientist

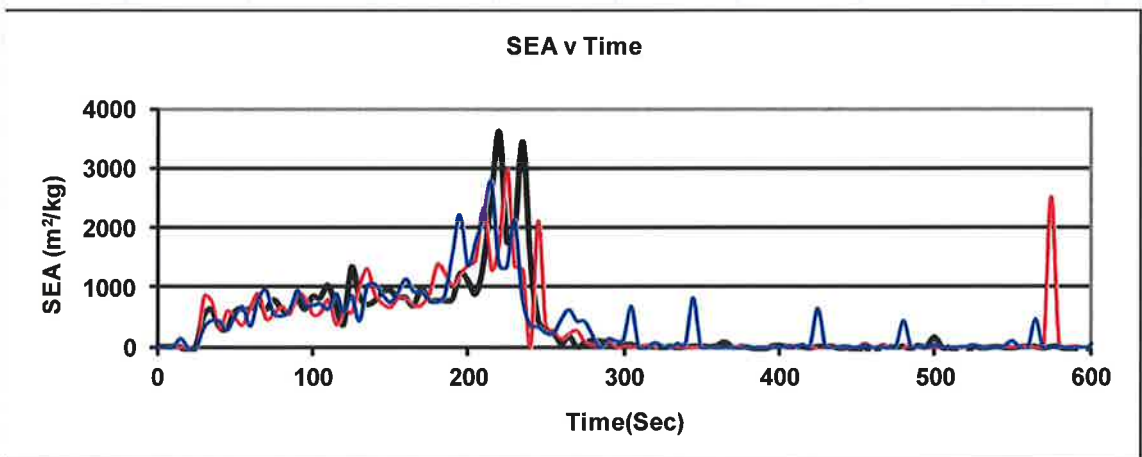
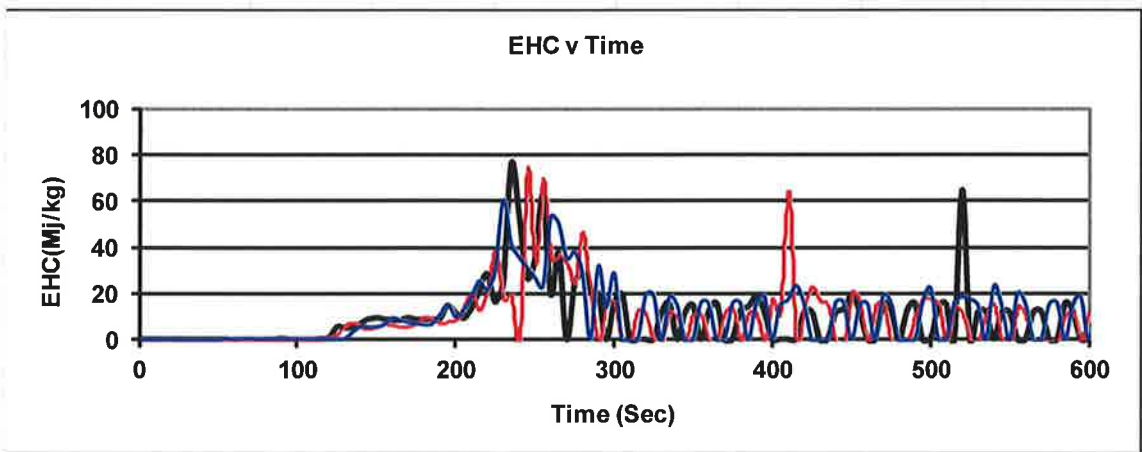
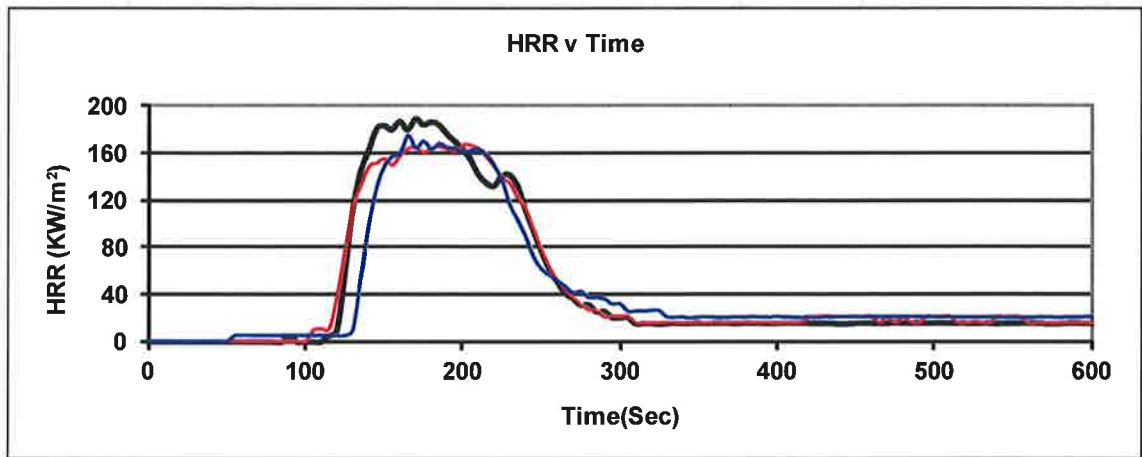
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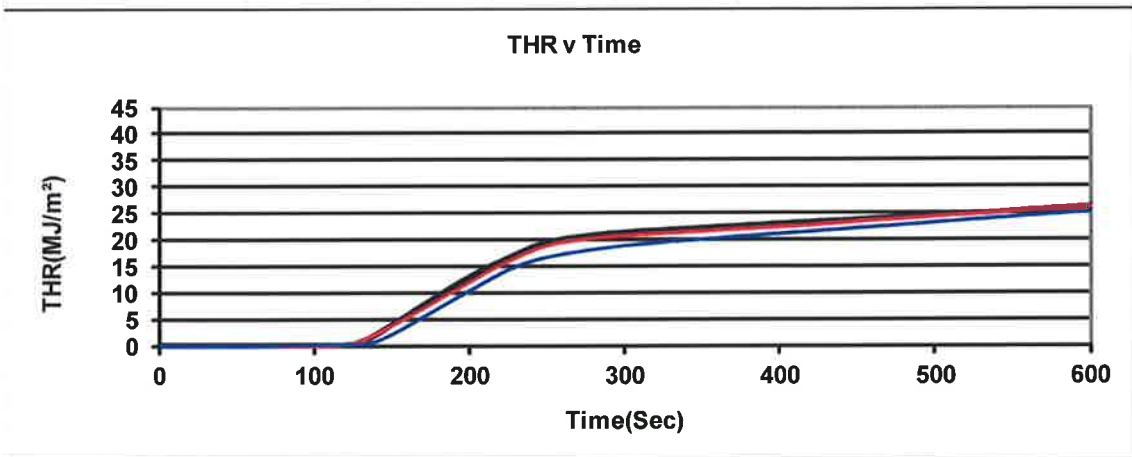
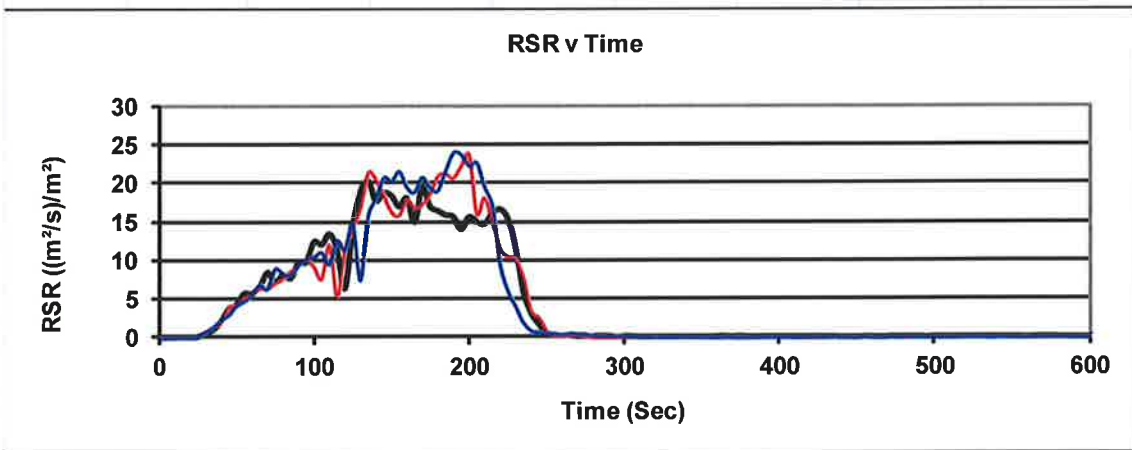
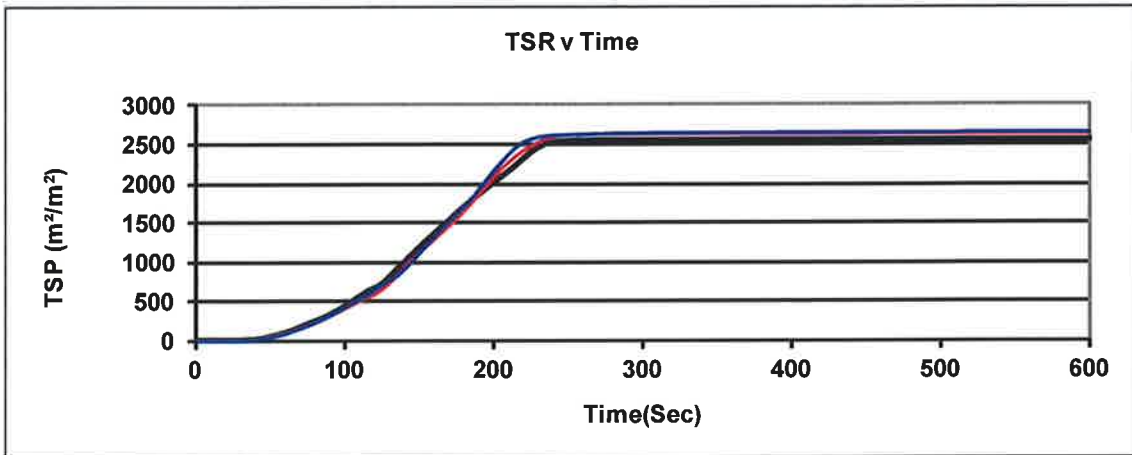


**S. Kumar**  
Technical Manager

**Date of Issue: 15 November 2012.**

**Date of issue of Rev 1: 2 September 2013.**





## BioClad

### PROPERTIES PHYSICAL DATA

Physical Characteristics	Specific Gravity	ASTM 0792	g/cm <sup>3</sup>	1.4
	Rockwell Hardness	ASTM 0785	R-Scale	RI15
Mechanical Properties	Tensile Strength	ASTM 0638	Kgf/cm <sup>2</sup>	600
	Elongation	ASTM 0638	%	100
	Bending Strength	ASTM 0790	Kgf/cm <sup>2</sup>	1,000
	Youngs Modulus of Elasticity	ASTM 0790	Kgf/cm <sup>2</sup>	34,000
	Impact Resistance (Izod)	ASTM 0256	Kgfc/cm <sup>2</sup>	5.0
Thermal Properties	Heat Distortion Temperature	ASTM 0648	°C	60
	Coefficient of Linear Expansion	ASTM 0696	cm/cm °C	7.0x10-5
	Dielectric Breakdown Voltage	ASTM DI49	kv/mm	22-35

### CHEMICAL RESISTANT PROPERTIES

NAME OF CHEMICAL	TEMP C	NAME OF CHEMICAL	TEMP C
Hydrochloric Acid 35%	20 40 60	Petrol	20 40 60
Sulphuric Acid 60%	V V V	Glycerine Nitric Acid	V V V
Nitric Acid 70%	V V V	Solution of Spraying Paint	P P P
Formic Acid	V G P	Chlorine Gas	P P P
Lactic Acid	V V V	Ammonia/Other Waste Gases	V V G
Caustic Soda	V V V	Natural Gas	V V -
Ammonia Water	V V V	Coal Gas	G G -
Sodium Disulphide	V V P	Bleaching Solution	V V -
Acetone	P P P	Electro-Plating	V V G
Ethyl Alcohol	V V G	Developing (Liquid for Photog)	V V -
Butyl Alcohol	V G G	Sea Water / Salt Water	V V V
Benzene	P P -	Fermented Alcohol	V G
Formalin	V V G	Starch (Carbohydrate) Solution	V V V
Carbon Disulphide	P P -	Brewing Water	V V V
REMARKS	V	Denotes safely applicable ( absolutely corrosion resistant)	
	G	Denotes applicable ( corrosion resistant)	
	P	Denotes inapplicable	

BioClad is suitable for cladding in food preparation areas such as dairies, abattoirs and bakeries. This has been confirmed by the Ministry of Food, Fisheries and Agriculture and also local Health Authorities.

BioClad meets the following regulations:

STATUTORY INSTRUMENTS 1172 – 1970 – Food Hygiene (General) Regulations 1920

STATUTORY INSTRUMENTS 2037 – 1992 – Fresh Meat Regulations 1992

Milk and Dairies Regulations 1959 No 277

ISO 22196:2011

ASTM E84, EN 13501-1:2007 + A1:2009 C-s1-d0, BS 476 part 6 class '0', part 7 class 'I', AS/NZS 3837:1998

BioClad: This material is impact resistant to a wide variety of shocks, offering resistance to a wide range of chemicals including alkalis, acids, alcohols etc. as well as powerful resistance to salt air and aggressive industrial environment. Minimal water absorption means that steam cleaning to a maximum temperature of 60 C and power hosing will have no effect, and micro organisms and rodents present no difficulty. The material has obtained a Fire rating "Class I" BS 476 Part 7 1971 "Surface Spread of Flame" and has also been tested in France "Class I" for all thicknesses from 0.8 to 6.00mm (LSTB-LNAMSTELF, PARIS).

The material should be cleaned by using warm soapy water, or stubborn stains and marks may cleaner such as Cif (Jif). PVC Cream of Solvent cleaners are also available if required.

BioClad contains silver phosphate glass antimicrobial technology to preserve the surface and prevent degradation caused by microbial growth. Biocide certified by ECHA, FDA and the EPA. BDR compliant. Antimicrobial is an additional line of defence beyond antibacterial with the power to kill fungi, microbes and protozoans as well as bacteria. BioClad's antimicrobial comes with a lifetime guarantee. BioClad's antimicrobial additive is HACCP registered.