

# TEST REPORT

## REACTION TO FIRE TEST

### Test Sponsor:

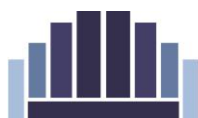
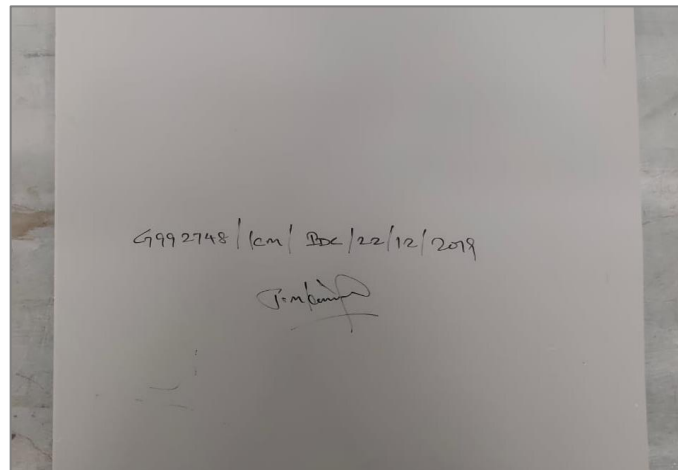
International Development Company Metal Industries – Sole Proprietorship L.L.C. (IDCMI)  
Al Mafraq  
P.O. Box 2621  
Abu Dhabi, United Arab Emirates  
T: T: +971 2 505 6300 | F: +971 2 582 3088  
Website: [www.idcuae.com](http://www.idcuae.com)

### Test Material/Assembly:

4mm thick Aluclad Aluminium Composite Panel with PVDF Coating

### Test Standard:

ASTM D 1929-16: Standard Test Method for Determining Ignition Temperature of Plastics



**THOMAS BELL-WRIGHT  
INTERNATIONAL CONSULTANTS**

Test Date: 27-Jan-20  
Issue Date: 26-Feb-20  
Test Reference No.: TF180-7

PO BOX 26385, DUBAI UAE

T +971 (0)4 821 5777

[fire@bell-wright.com](mailto:fire@bell-wright.com)

[www.bell-wright.com](http://www.bell-wright.com)

DUBAI

ABU DHABI

DOHA



## Accreditation

ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories with:

United Kingdom Accreditation Service (UKAS) - Testing Laboratory: **4439**  
[www.ukas.com](http://www.ukas.com)



## Memberships

Members of European Group of Organization for Fire Testing, Inspection and Certification

[www.egolf.org.uk](http://www.egolf.org.uk)

Member of International Trade Council

[www.thetradecouncil.com](http://www.thetradecouncil.com)

Member of Association for Specialist Fire Protection

[www.asfp.org.uk](http://www.asfp.org.uk)

Member of Centre for Window and Cladding Technology

[www.cwct.co.uk](http://www.cwct.co.uk)



The work which is the subject of this report falls wholly or partly under the accreditations of **ISO 17025 UKAS**.



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## 1. INTRODUCTION

Determination of the flash ignition temperature and spontaneous ignition temperature of 4mm thick Aluclad Aluminium Composite Panel with PVDF Coating using hot-air ignition furnace as per ASTM D 1929-16; Standard Test Method for Determining Ignition Temperature of Plastics.

## 2. SPONSOR

Name: International Development Company Metal Industries – Sole Proprietorship L.L.C  
(IDCMI)  
Address: Al Mafraq  
P.O. Box 2621  
Abu Dhabi, United Arab Emirates  
T: T: +971 2 505 6300 | F: +971 2 582 3088  
Website: [www.idcuae.com](http://www.idcuae.com)

## 3. TESTING LABORATORY

Name: Thomas Bell-Wright International Consultants (TBWIC)  
Address: Corner of 46th and 47th Streets,  
Jebel Ali Industrial Area 1  
Dubai, United Arab Emirates  
T +971 (0)4 821 5777  
Website: [www.bell-wright.com](http://www.bell-wright.com)

## 4. DATE OF TEST

Sample received: 13-Jan-20  
Test date: 27-Jan-20

The test was not witnessed by the Sponsor.



## 5. SPECIMEN DESCRIPTION

*Note: The testing laboratory does not hold any responsibility for the information that has been provided by the test sponsor which could not be verified by the testing laboratory, as this could affect the validity of the test result. All information that could not be verified will be indicated by an asterisk (\*) mark.*

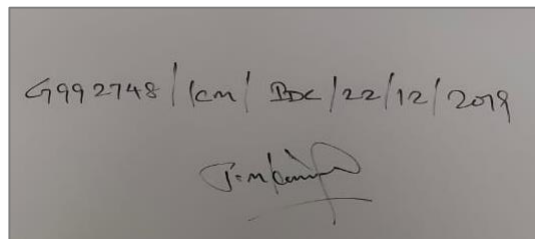
<b>Product Description</b>		4mm thick Aluclad Aluminium Composite Panel with PVDF Coating	
<b>Manufacturer</b>		International Development Company Metal Industries LLC	
<b>Thickness</b>		4mm (Measured by TBWIC)	
<b>Area Density</b>		8.37 kg/m <sup>2</sup> (Measured by TBWIC)	
<b>Product Details</b>	<b>Layer 1</b>	Product Description	Topcoat
		Material	Polyvinylidene flouride (PVDF)* (stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (stated)
		Colour	Silver* (stated)
		Thickness	0.02mm* (stated)
		Area Density	0.055 kg/m <sup>2</sup> * (stated)
	<b>Layer 2</b>	Product Description	Primer
		Material	Polyester* (stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (stated)
		Colour	White* (stated)
		Thickness	0.006mm* (stated)
		Area Density	0.007 kg/m <sup>2</sup> * (stated)
	<b>Layer 3</b>	Product Description	Top Skin
		Material	Aluminium* (stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (stated)
		Alloy Grade	3003-H16* (stated)
		Thickness	0.5mm* (stated)
		Density	2710 kg/m <sup>3</sup> * (stated)
		Area Density	1.355 kg/m <sup>2</sup> * (calculated from stated value)
	<b>Layer 4</b>	Product Description	Adhesive
		Material	Maleic Anhydride Modified Polyethylene* (stated)
Manufacturer		Emirates Panel Plastic Industries* (stated)	
Colour Code		Ivory* (stated)	
Thickness		0.08mm* (stated)	
Area Density		0.084 kg/m <sup>2</sup> * (stated)	
<b>Layer 5</b>	Product Description	Core	



		Material	Non-combustible Mineral-filled Core* (stated)
		Manufacturer	Alubotec* (stated)
		Thickness	3.1mm (Measured by TBWIC)
		Area Density	5.61 kg/m <sup>2</sup> (Measured by TBWIC)
	Layer 6	Product Description	Adhesive
		Material	Maleic Anhydride Modified Polyethylene* (stated)
		Manufacturer	Emirates Panel Plastic Industries* (stated)
		Colour Code	Ivory* (stated)
		Thickness	0.08mm* (stated)
		Area Density	0.084 kg/m <sup>2</sup> * (stated)
	Layer 7	Product Description	Bottom Skin
		Material	Aluminium* (stated)
		Manufacturer	Jiangsu Metcoplus* (stated)
		Alloy Grade	3003-H16* (stated)
		Thickness	0.5mm* (stated)
		Density	2710 kg/m <sup>3</sup> * (stated)
		Area Density	1.355 kg/m <sup>2</sup> * (calculated from stated value)
	Layer 8	Product Description	Service coat
		Material	Polyester* (stated)
		Manufacturer	Jiangsu Metcoplus* (stated)
		Colour Code	Grey* (stated)
Thickness		0.006mm* (stated)	
Area Density		0.007 kg/m <sup>2</sup> * (stated)	

## 6. SPECIMEN VERIFICATION

TBWIC testing laboratory has not been involved in the selection or design of the specimen. However, the panels were selected, marked, and signed by Mr. Kamil Mohamed from Intertek Certification (Certification Body) on 22-Dec-19 as shown below. The results apply to the sample as received.



*Note: There are contexts where information has been provided by the sponsor and verification of information has been done through either technical datasheet or other document submission, or as*



indicated directly by the sponsor. For this reason, materials have been tested in an as-received condition and TBWIC bears no liability for the legitimacy of the submitted information.

## 7. SPECIMEN PREPARATION PROCEDURE

The Aluminium Composite Panel had a density greater than 100 kg/m<sup>3</sup> and hence the specimen was cut into pieces of weight 3 ± 0.2g as per Clause 7.2 of ASTM D1929-16.

## 8. METHOD OF TEST

### 8.1. Test Procedure

The prepared specimen was tested using hot air ignition furnace as prescribed in ASTM D1929-16. The electrically heated furnace was adjusted until the air temperature remained constant at the desired initial test temperature at a set air velocity of 25 mm/s, the test specimen was lowered to the approximate center of the tube furnace with a specimen holder while ensuring that thermocouples TC1 and TC2 are in their position. A cover was then placed over the top of the furnace, which contained a 25mm diameter hole in the center, through which excess furnace air and any gases given off by the specimen escaped.

Pilot flame was placed over the hole on the cover to ignite the gases, if an ignitable concentration occurs. Thermocouples TC1 measured the temperature, T<sub>1</sub>, of the specimen. It was located as close as possible to the center of the upper surface of the specimen when the specimen was in place within the furnace. Thermocouple (TC2) gave some indication of the temperature, T<sub>2</sub>, of the air traveling past the specimen and was located 10 ± 2 mm below the center of the specimen pan.

Flash Ignition Temperature (FIT) and Spontaneous Ignition Temperature (SIT) is then determined.

### 8.2. Conditioning

After delivery on 13-Jan-20, the specimen was stored in a conditioned space, for a minimum of 40 hours prior to the test, maintained between 21 to 25°C and 45 to 55% relative humidity.

## 9. TEST OBSERVATIONS

Observations	Results
<b>1. Flash Ignition:</b>	
Air flow rate, Q <sub>v</sub>	2.4
Flash Ignition at nozzle, min:sec	2:57
Flaming combustion of the specimen, min:sec	2:50
Glowing combustion of the specimen, min:sec	Not observed
Explosion, min:sec	Not observed
<b>Lowest Air Temperature, T<sub>2</sub>, at which flash observed, °C</b>	<b>509</b>
<b>2. Spontaneous Ignition:</b>	
Air flow rate, Q <sub>v</sub>	2.4
Flaming combustion of the specimen, min:sec	3:31
Glowing combustion of the specimen, min:sec	Not observed
<b>Lowest Air Temperature, T<sub>2</sub>, at which the specimen burns, °C</b>	<b>512</b>



## 10. SUMMARY OF RESULTS

The test specimen has been evaluated in accordance with ASTM D 1929-16: Standard Test Method for Determining Ignition Temperature of Plastics.

The test results are:

Flash Ignition Temperature (FIT), °C	509
Spontaneous Ignition Temperature (SIT), °C	512

Test results relate only to the specimen tested and there is no pass or fail criteria for ASTM D1929-16 standard.

## 11. LIMITATION

"These test results relate only to the behavior of test specimens under the particular conditions of the test. They are not intended to be used, and shall not be used, to assess the potential fire hazards of a material in use". - Clause 9.1.10 of ASTM D1929-16.

This report and all records of the test to which it relates may be not be retained by TBWIC further than 5 years from the date of testing.

This test report is respectfully submitted by: Thomas Bell-Wright International Consultants

Prepared by:

Sujana Haridas  
Fire Testing Engineer



Reviewed & Approved by:

Suketa Tyagi  
Reaction to Fire Manager

---- End of Test Report ----