

# CLASSIFICATION OF REACTION TO FIRE PERFORMANCE IN ACCORDANCE WITH BS EN 13501-1:2018

## Test Sponsor:

Mitrex Inc.  
41 Racine Rd, Etobicoke,  
Ontario, Canada  
T: +1 416 497 7120  
Website: [www.mitrex.com](http://www.mitrex.com)

## Test Material / Assembly:

'Mitrex A' Solar Panel



**THOMAS BELL-WRIGHT  
INTERNATIONAL CONSULTANTS**

Issue Date: 31-Aug-22

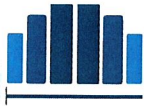
Classification Report Reference No: WE022-3

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

DOHA

RIYADH



## Memberships

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

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

Member of Association for Specialist Fire Protection

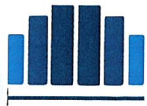
[www.asfp.org.uk](http://www.asfp.org.uk)

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 under the accreditations of **ISO 17025 UKAS**.



## Table of Contents

1. INTRODUCTION .....	4
2. SPONSOR .....	4
3. TESTING LABORATORY .....	4
4. DETAILS OF CLASSIFIED PRODUCT .....	4
4.1. Product Description .....	4
5. SPECIMEN PREPARATION PROCEDURE .....	5
6. REPORT & TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION .....	6
6.1. Reports .....	6
6.2. Results .....	6
7. CLASSIFICATION & FIELD OF APPLICATION .....	7
7.1. Reference of classification .....	7
7.2. Classification .....	7
7.3. Field of application .....	7
8. LIMITATIONS .....	8
9. ANNEXURE A .....	9



## 1. INTRODUCTION

This classification report defines the classification assigned to 'Mitrex A' Solar Panel in accordance with the procedures given in BS EN 13501-1:2018: Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests.

## 2. SPONSOR

Name: Mitrex Inc.  
Address: 41 Racine Rd, Etobicoke,  
Ontario, Canada  
T: +1 416 497 7120  
Website: www.mitrex.com

## 3. TESTING LABORATORY

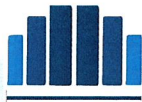
Name: Thomas Bell-Wright International Consultants (TBWIC)  
Address: Corner of 46th and 47th Streets,  
Jebel Ali Industrial Area 1  
Dubai, UAE  
T: T: +971 04 821 5777  
Website: www.bell-wright.com

## 4. DETAILS OF CLASSIFIED PRODUCT

### 4.1 Product 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>		Solar Panel - Frame Glass Module*	
<b>Product Reference</b>		Mitrex A*	
<b>Manufacturer</b>		Mitrex Inc.*	
<b>Thickness of the Solar panel</b>		7.1mm (measured by TBWIC)	
<b>Area Weight</b>		16.4 kg/m <sup>2</sup> * (stated)	
<b>Product Details</b>	<b>Top Glass (Fire side)</b>	Material	Glass with ceramic texturing*
		Manufacturer	DN New Energy: Xiamen, China*
		Thickness	
		Area Weight	
		Density	
	<b>Glue</b>	Material	ethyl vinyl acetate (EVA) film*
		Manufacturer	Lushan*
		Thickness	
Area Weight			



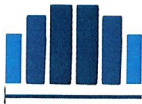
		Density	[REDACTED]
<b>Solar Cell</b>	Material	Aluminium backing surface with monocrystalline Silicon solar cells *	
	Manufacturer	United Renewable Energy: Ningbo, China	
	Thickness	[REDACTED]	
	Area Weight	[REDACTED]	
	Density	[REDACTED]	
	<b>Bottom Glass</b>	Material	Glass*
Manufacturer		DN New Energy: Xiamen, China*	
Thickness		[REDACTED]	
Area Weight		[REDACTED]	
Density		[REDACTED]	
<b>PIB</b>	Material	Polyisobutene*	
	Manufacturer	Tremco: Toronto, Canada*	
	Thickness	[REDACTED]	
	Area Weight	[REDACTED]	
	Density	[REDACTED]	
<b>Sealant</b>	Material	1527 silicone sealant *	
	Manufacturer	Tonsan / HB Fuller: China*	
	Thickness	[REDACTED]	
	Area Weight	[REDACTED]	
	Dry Density	[REDACTED]	

## 5. SPECIMEN PREPARATION PROCEDURE

TBWIC Testing Laboratory has not been involved in the selection or design of the specimen. However, the samples were selected, marked, and signed by Mr. Deepesh Srivastava from Intertek Certification (Certification Body) on 21-Jun-22 as shown below. The results apply to the samples 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.*



## 6. REPORT & TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

### 6.1. Reports

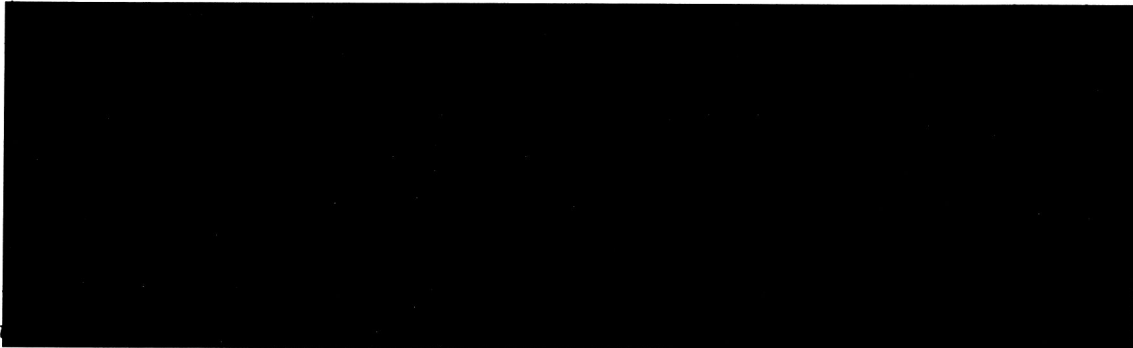
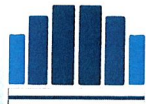
Name of Laboratory	Test Sponsor	Test Report No.	Test Method/Field of Application Rules
Thomas Bell-Wright International Consultants (TBWIC)	Mitrex Inc.	WE022-1	BS EN 13823:2020
		WE022-2	BS EN ISO-1716:2018

### 6.2. Results

Test Method	TEST PARAMETERS	No. of tests	TEST RESULTS	
			Continuous parameter-mean (m)	Compliance parameters
BS EN 13823:2020	FIGRA <sub>0.2</sub> MJ ≤ 120 W/s	3	3	Compliant
	THR <sub>600s</sub> ≤ 7.5 MJ	3	0.1	Compliant
	Lateral Flame Spread < Edge of Specimen	3	< Edge of Specimen	Compliant
	<b>CRITERIA for subclass "s1"</b>			
	SMOGR <sub>A</sub> ≤ 30 m <sup>2</sup> /s <sup>2</sup> <i>Note 1</i>	3	0	Compliant
	TSP <sub>600s</sub> ≤ 50 m <sup>2</sup> <i>Note 1</i>	3	2	Compliant
	<b>CRITERIA for subclass "d0"</b>			
	Flaming droplets/particles within 600s	3	Nil	Compliant

**Note 1:** Corrected value as per Annex A, Clause A.6.1.2 of BS EN 13823:2020.

Test Method	TEST PARAMETERS	No. of tests	TEST RESULTS		
			Continuous parameter-mean (m)	Compliance parameters	
BS EN ISO 1716:2018	Component 1: Top Glass Q <sub>PCS</sub> ≤ 3.0 MJ/kg (Substantial component)	3	0.0	Compliant	
	Component 2: (Internal non-substantial layers): Q <sub>PCS</sub> ≤ 4.0 MJ/m <sup>2</sup>	Adhesive	3	2.1	Compliant
		Solar Cell	3		
	Component 1: Bottom Glass Q <sub>PCS</sub> ≤ 3.0 MJ/kg (Substantial component)	3	0.0	Compliant	
Q <sub>PCS</sub> ≤ 3.0 MJ/kg (for Product as a Whole)	3	0.1	Compliant		



## 7. CLASSIFICATION & FIELD OF APPLICATION

### 7.1. Reference of classification

This classification has been carried out in accordance with clause 8 of EN 13501-1:2018.

### 7.2. Classification

The product, 'Mitrex A' Solar, Panel in relation to its reaction to fire behavior are classified;

Fire behavior		Smoke production				Flaming droplets	
A2	-	s	1	,	d	0	

**Reaction to fire classification: A2 – s1, d0**

### 7.3. Field of application

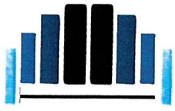
This classification is valid for the following end use applications:

- i. Construction applications

This classification is also valid for the following product parameters:

Product Thickness	No variation allowed
Product Density	No variation allowed
Product Composition	No variation allowed
Product Construction	No variation allowed
Mass per unit area of Silicone sealant and PIB	No variation allowed
Q <sub>PCS</sub> values of Silicon sealant and PIB	Better or equal <sup>*Note 1</sup>
Air Gap	Ventilated air gap not less than 40mm
Joints	Results valid for panels with or without vertical and horizontal joints ≤ 15 mm

*\*Note 1: In accordance with EGOLF recommendation 038-2019*



### 8. LIMITATIONS

This document does not represent type approval or certification of the product. Similarly, the fire tests and related work which are a subject of this classification report have been conducted under Thomas Bell-Wright International Consultant’s ISO 17025 UKAS accreditation scheme and quality management system. However, pursuant to UKAS Technical Bulletin *BS EN 13501 & BR 135 Classification Documents (Dated 02-Feb-2022)*, classification documents are completed on an unaccredited basis because they are not themselves test procedures. As such, this document is prepared on an unaccredited basis.

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:

Reviewed and Authorized by:

Sam Sancho Thomas  
Fire Testing Engineer



Suketa Tyagi  
Manager – Reaction to Fire

Report Revision Tracking		
Revision No.	Date Issued	Notes & Amendments
Rev. 00	31-Aug-22	This is the first issue of the report. No revisions are included.





## 9. ANNEXURE A

Classes of reaction to fire performance for construction products excluding floorings and linear pipe thermal insulation products

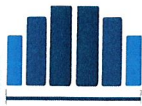
Class	Test method(s)	Classification criteria	Additional classification
<b>A1</b>	EN ISO 1182 <sup>a</sup> and	$\Delta T \leq 30$ °C; and $\Delta m \leq 50$ %; and $t_f = 0$ (i.e. no sustained flaming)	-
	EN ISO 1716	$PCS \leq 2,0$ MJ/kg <sup>a</sup> and $PCS \leq 2,0$ MJ/kg <sup>b,c</sup> and $PCS \leq 1,4$ MJ/m <sup>2,d</sup> and $PCS \leq 2,0$ MJ/kg <sup>e</sup>	-
<b>A2</b>	EN ISO 1182 <sup>a</sup> or	$\Delta T \leq 50$ °C; and $\Delta m \leq 50$ %; and $t_f \leq 20$ s	-
	EN ISO 1716 and	$PCS \leq 3,0$ MJ/kg <sup>a</sup> and $PCS \leq 4,0$ MJ/m <sup>2,b</sup> and $PCS \leq 4,0$ MJ/m <sup>2,d</sup> and $PCS \leq 3,0$ MJ/kg <sup>e</sup>	-
	EN 13823	FIGRA $\leq 120$ W/s and LFS < edge of specimen and THR <sub>600s</sub> $\leq 7,5$ MJ	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
<b>B</b>	EN 13823 and	FIGRA $\leq 120$ W/s and LFS < edge of specimen and THR <sub>600s</sub> $\leq 7,5$ MJ	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> ; Exposure = 30 s	Fs $\leq 150$ mm within 60 s	
<b>C</b>	EN 13823 and	FIGRA $\leq 250$ W/s and LFS < edge of specimen and THR <sub>600s</sub> $\leq 15$ MJ	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> ; Exposure = 30 s	Fs $\leq 150$ mm within 60 s	
<b>D</b>	EN 13823 and	FIGRA $\leq 750$ W/s	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> ; Exposure = 30 s	Fs $\leq 150$ mm within 60 s	
<b>E</b>	EN ISO 11925-2 <sup>i</sup> ; Exposure = 15 s	Fs $\leq 150$ mm within 20 s	Flaming droplets/particles <sup>h</sup>
<b>F</b>	No performance determined		

<sup>a</sup> For homogeneous products and substantial components of non-homogeneous products.

<sup>b</sup> For any external non-substantial component of non-homogeneous products.

<sup>c</sup> Alternatively, any external non-substantial component having a PCS  $\leq 2,0$  MJ/m<sup>2</sup>, provided that the product satisfies the following criteria of EN 13823: FIGRA  $\leq 20$  W/s, and LFS < edge of specimen, and THR<sub>600s</sub>  $\leq 4,0$  MJ, and s1, and d0.

<sup>d</sup> For any internal non-substantial component of non-homogeneous products.



<sup>e</sup> For the product as a whole.

<sup>f</sup> In the last phase of the development of the test procedure, modifications of the smoke measurement system have been introduced, the effect of which needs further investigation. This may result in a modification of the limit values and/or parameters for the evaluation of the smoke production.

**S1** = SMOGRA  $\leq 30\text{m}^2/\text{s}^2$  and TSP<sub>600s</sub>  $\leq 50\text{m}^2$ ; **s2** = SMOGRA  $\leq 180\text{m}^2/\text{s}^2$  and TSP<sub>600s</sub>  $\leq 200\text{m}^2$ ; **s3** = not s1 or s2

<sup>g</sup> **d0** = No flaming droplets/ particles in EN 13823 within 600 s;

**d1** = no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s;

**d2** = not d0 or d1.

Ignition of the paper in EN ISO 11925-2 results in a d2 classification.

<sup>h</sup> Pass = no ignition of the paper (no classification);

Fail = ignition of the paper (d2 classification).

<sup>i</sup> Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.

---- End of Classification Report ----