

**bre**global

**BS EN ISO 1182: 2002 on  
the MgO mixture used in  
the manufacture of  
Green E-Board**

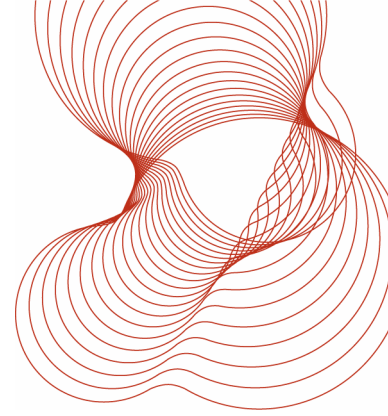
Prepared for:  
Southern Cross Technologies  
Inc.  
3461 High Ridge Road  
Boynton Beach  
FL33426  
USA

1<sup>st</sup> September 2008

Test report number 245299



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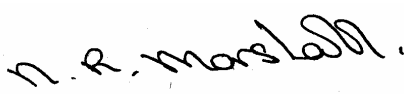


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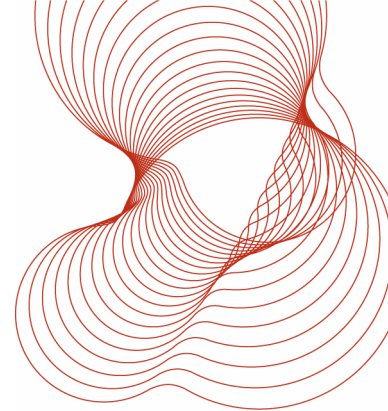
BRE Testing is not UKAS accredited to make opinions and interpretation. Any opinions and interpretations included as part of this report are clearly marked as such.



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## 1 Introduction

The requirement of the work was to assess the performance of the sample described in Section 2 of this report when subjected to the tests specified in BS EN ISO 1182:2002<sup>1</sup>.

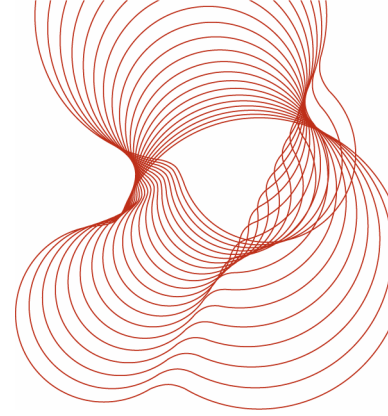
## 2 Sample

### 2.1 Sample details

Name and address of test Sponsor	Southern Cross Technologies Inc. 3461 High Ridge Road Boynton Beach, FL 33426 USA
Name/address of manufacturer of sample	Note 2
Place of manufacture	Note 2
Description of specimens (as received)	MgO board cylinders. There was a label on each of the test specimens with the following text:  SourceByNet Shanghai Name: MgO board cylinder w/o mesh Size: dia 45 * D 50mm Remark: 1 <sup>st</sup> sample for testing Date: 2008-4-18  A sample list supplied with the samples stated that the specimen was 'MgO board cylinder w/o mesh'
Description of specimens (manufacturer's declaration)	The test sponsor stated that the MgO board was a blend of magnesium oxide, magnesium chloride, recycled wood powder, perlite and a small percentage of other inert materials. Details of the raw materials used in the construction of the sample were supplied by the test sponsor and are held in confidence on laboratory file
Product/component tested	MgO mixture used in the manufacture of Green E-Board
Sponsor's specimen ID	Not declared
Type of product/component	MgO mixture/substantial component
Measured density/mass per unit area	1844.9 kg/m <sup>3</sup>
Nominal declared thickness	Not applicable
Sample receipt date(s)	23 <sup>rd</sup> May 2008
BRE Global sample number	E1184
Sample test date(s)	3 <sup>rd</sup> June 2008

All values quoted are nominal unless tolerances are given

Note 2: The test sponsor has supplied the information and it is held in confidence on laboratory test file



## 2.2 Sampling

The test sample was supplied by the test sponsor. BRE Global was not involved in the sampling process and therefore cannot comment upon the relationship between the samples supplied for test and the product supplied to market. The sample was supplied in the form of cylinders.

## 2.3 Conditioning

The sample was conditioned in accordance with the test standard.

## 3 Test results

### 3.1 Tabulated data

Dated: 3<sup>rd</sup> June 2008 BRE specimen number: E1184

Operator: N R Marshall

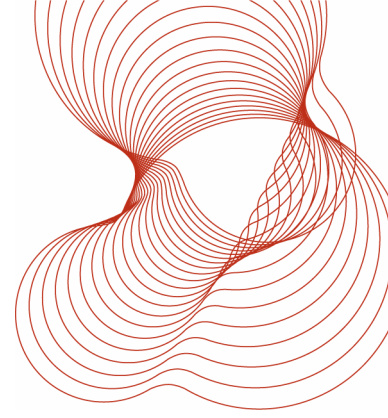
Deviations: There were no deviations from the test standard

**Table 1: Furnace temperature rise**

Run No.	T <sub>m</sub> (°C)	T <sub>f</sub> (°C)	ΔT (T <sub>m</sub> - T <sub>f</sub> ) (°C)
1	777.7	775.1	2.5
2	779.4	777.4	1.9
3	782.4	779.5	2.9
4	785.1	781.4	3.7
5	790.2	788.3	1.8
<b>Mean value</b>			<b>2.6</b>

**Table 2: Mass loss**

Run No.	Initial mass (g)	Final mass (g)	Δm (%)
1	170.03	108.60	36.13
2	171.65	109.50	36.21
3	172.33	110.17	36.07
4	171.56	109.59	36.12
5	172.52	117.10	32.12
<b>Mean value</b>			<b>35.33</b>



**Table 3: Duration of sustained flaming**

Run No.	Sustained( $t_f$ ) (s)
1	0
2	0
3	0
4	0
5	0

### 3.2 Observations

No sustained flaming was observed in these tests.

## 4 Conclusions

The mean temperature difference ( $\Delta T$ ) was 2.6 °C.

The mean mass loss ( $\Delta m$ ) was 35.33 %.

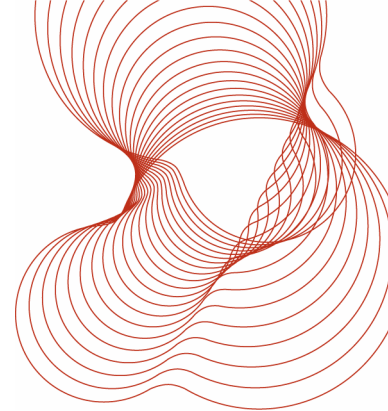
No sustained flaming was observed.

## 5 Validity

These test results relate to the behaviour of the sample in the form in which it was tested; the results do not necessarily relate to products produced as a result of further processing or refinement of the sample under test.

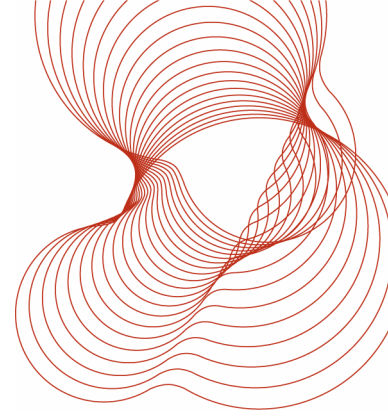
The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

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 and classification 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 or classification to ensure that they are consistent with current practices, and if required may endorse the report.



## 6 Reference

1. BS EN ISO 1182:2002. Reaction to fire tests for building products – Non–combustibility test. British Standards Institution, 389 Chiswick High Road, London, W4 4AL.



## Annex A

### A.1 Calibration results of the furnace

#### Calibration of furnace used in Non-combustibility test EN ISO 1182 (IN 2579) In association with thermocouple IN 2727 and Logger IN 2724

This calibration was carried out in accordance with the requirements of Reaction to fire tests for building products. Non-combustibility test EN ISO 1182. Dated: 11/03/08

Vertical axis	1 at + 30 mm	2 at 0 mm	3 at – 30 mm
A	826.6 °C	830.5 °C	825.1 °C
B	829.2 °C	827.1 °C	826.6 °C
C	833.7 °C	828.3 °C	829.3 °C

**Average furnace wall temperature was:**

$$T_{\text{avg}} = 829.6 \text{ °C}$$

**Mean temperatures measured on the three horizontal axis of furnace:**

$$T_{\text{avg axis 1}} = 829.8 \text{ °C}$$

$$T_{\text{avg axis 2}} = 828.6 \text{ °C}$$

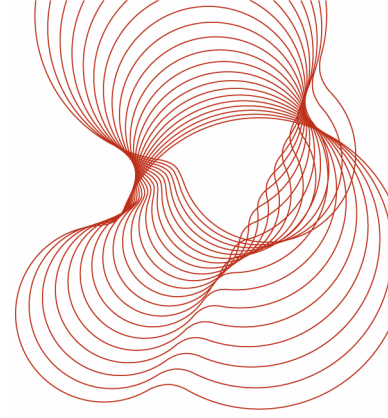
$$T_{\text{avg axis 3}} = 830.3 \text{ °C}$$

**Deviations of the temperatures measured on the three axis**

$$T_{\text{dev axis n}} = (T_{\text{avg}} - T_{\text{avg axis n}}) / T_{\text{avg}} \times 100$$

$$T_{\text{dev axis 1}} = 0.03 \%$$

$$T_{\text{dev axis 2}} = 0.12 \%$$



$$T_{\text{dev axis 3}} = 0.09 \%$$

**Average deviation of the average temperature measured on the three levels**

$$T_{\text{dev axis}} = (T_{\text{dev axis1}} + T_{\text{dev axis2}} + T_{\text{dev axis3}})/3$$

$$T_{\text{dev axis}} = 0.08 \text{ }^{\circ}\text{C}$$

**Average temperatures measured on the three levels**

$$T_{\text{avg level n}} = (T_{1a} + T_{2a} + T_{3a})/3$$

$$T_{\text{avg level a}} = 827.4 \text{ }^{\circ}\text{C}$$

$$T_{\text{avg level b}} = 831.0 \text{ }^{\circ}\text{C}$$

$$T_{\text{avg level c}} = 830.4 \text{ }^{\circ}\text{C}$$

**Deviations of mean wall temperatures on each of the three levels**

$$T_{\text{dev level n}} = (T_{\text{avg}} - T_{\text{avg level n}}) / T_{\text{avg}} \times 100$$

$$T_{\text{dev level a}} = 0.27 \%$$

$$T_{\text{dev level b}} = 0.16 \%$$

$$T_{\text{dev level c}} = 0.10 \%$$

**Average deviation of the average temperature recorded on each of the three levels:**

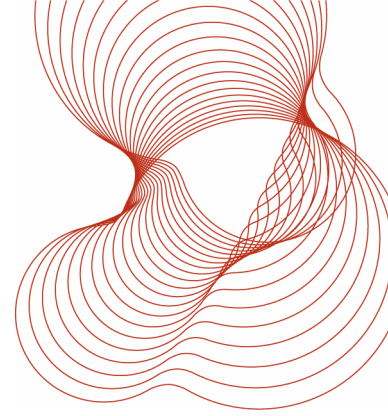
$$T_{\text{avg level n}} = (T_{\text{avg level a}} + T_{\text{avg level b}} + T_{\text{avg level c}})/3$$

$$T_{\text{avg level n}} = 0.18 \%$$

**The standard requires that the average furnace wall temperature to be:**

$$T_{\text{avg}} = 835 \pm 10 \text{ }^{\circ}\text{C}$$

Furnace gave:  $T_{\text{avg}} = 829.6 \text{ }^{\circ}\text{C}$



**The Standard also requires that:**

$T_{\text{dev axis}}$  shall be less than 0.5 %

Furnace gave:  $T_{\text{dev axis}} = 0.08 \%$

The standard also requires that  $T_{\text{avg level}}$  less than 1.5 %

Furnace gave:  $T_{\text{avg level}} = 0.18 \%$

**The vertical temperature profile measured along the central axis of the furnace was within the limits specified by the standard.**

It follows that the furnace (IN 2579) used for these tests complies with the 1182:2002 standard for Non-combustibility

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=====REPORT ENDS=====