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Testing. Advising. Assuring.

**Title:**

CLASSIFICATION OF  
REACTION TO FIRE  
PERFORMANCE  
IN ACCORDANCE WITH  
EN 13501-1: 2007

**Notified Body No:**

0833

**Product Names:**

Lindab roof and wall cladding  
systems

**Report No:**

309865

**Issue No:**

1

**Prepared for:**

Lindab S.A., Route  
D'Ettelbruck, P O BOX 152,  
L-90202 DIEKIRCH,  
Luxembourg

**Date:**

23<sup>rd</sup> August 2011

## 1. Introduction

This classification report defines the classification assigned to a family of products named, 'Lindab roof and wall cladding systems', in line with the procedures given in EN 13501-1:2007+A1: 2009.

## 2. Details of classified product

### 2.1 General

The family of products named, 'Lindab roof and wall cladding systems', are defined as Self-supporting metal sheet for roofing, external cladding and internal lining as defined in EN 14782, suitable for construction applications, excluding flooring and linear pipe thermal insulation.

### 2.2 Product description

The family of products named, 'Lindab roof and wall cladding systems', are fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description		A wall cladding system comprising a coated steel sheet fixed to a steel frame with thermal insulation.
Overall Thickness		200mm insulation
Coating (Internal, test face)	Generic type	Polyester, PVDF or none (AZ 185)
	Name of manufacturer	See Note 1 Below
	Colour	Any colour variation allowed
	Number of coats	Two
	Application thickness (total)	Between 15 and 35 microns Polyester 25 microns PVDF
	Application method	Rolled coating
	Curing process	30 seconds at a temperature of 245°C
	Flame retardant details	See Note 2 Below
Steel sheet	Generic type	Galvanized steel: Z140 to Z275 or AZ 150 to AZ 185 (in that case, no organic coating) or ZA130 to 255)
	Name of manufacturer	See Note 1 Below
	Thickness	Between 0.40 and 0.55 mm
	Weight per unit area	Between 3.15 and 4.26 kg/m <sup>2</sup>
	Preparation details	Roll forming
Perforation Details where appropriate	% open area	Up to 21%
	Shape of Holes	Round
	Diameter/ size of holes	5mm
	Hole Spacing (centre to centre)	8mm

In the case of the perforated panels, a scrim is placed between the steel sheet and the faced insulation which is described below.

Extruded polystyrene strip	Trade name	'Isoblock'
	Generic type	Extruded polystyrene
	Manufacturer	See Note 1 Below
	Thickness	Between 19 and 30 mm
	Dimensions	
	Density	40 kg/m <sup>2</sup>
	Flame retardant details	See Note 2 Below
Location of 'Isoblock'	Running horizontally in the long and short walls of the specimen at a distance of 500mm from the trolley floor, between the reverse face of the coated steel sheet and the insulation.	

With or without insulation, the possible facing being not directly behind the metal sheet (except if the sheet is perforated)

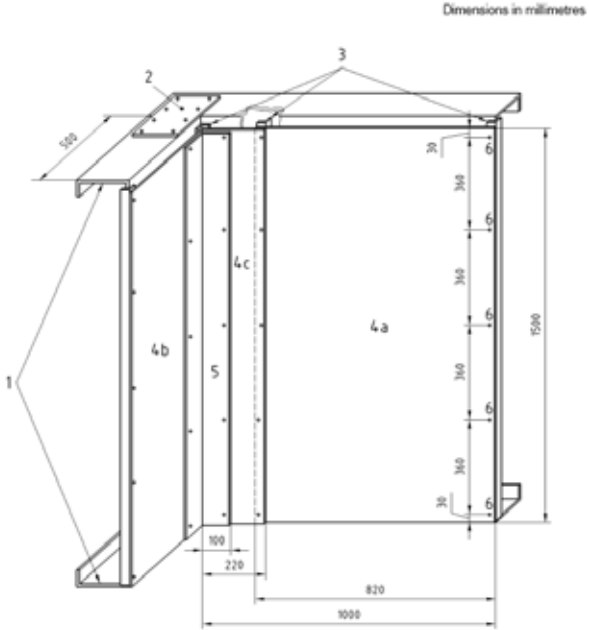
insulation	Insulation	Product reference	"ASTROTHERM"	
		Generic type	Glass wool insulation	
		Name of manufacturer	See Note 1 Below	
		Thickness	200 mm	
		Density	16 kg/m <sup>3</sup>	
		Flame retardant details	See Note 2 Below	
	And, in case of perforated panel only, with a tissue directly behind the steel sheet, then facing glued on the insulation :			
	Tissue face	Product reference	Black fibreglass Scrim	
		Generic type	See Note 3 Below	
		Name of manufacturer	See Note 3 Below	
		Thickness	See Note 3 Below	
		Weight per unit area	80 g/m <sup>2</sup>	
	Facing	Flame retardant details	See Note 2 Below	
		Product reference	"ASTROTHERM"	
		Generic type	ASA facing	
		Name of manufacturer	Option 1, Alcan	
		Density / weight per unit area	110 gr /m <sup>2</sup>	
		Thickness	About 1 mm	
		Colour	grey	
	Adhesive	Flame retardant details	See Note 2 Below	
		Product reference	"INSULATION GLUE"	
		Generic type	Supplier code number 48267	
		Name of manufacturer	Option 1, National Starch	
		Application rate	Less than 70 gr/m <sup>2</sup>	
		Application method	Continuous application	
	Flame retardant details	Flame retardant included		

Note 1 : The sponsor of the test has provided this information but at the specific request of the sponsor, these details have been omitted from the report and are instead held on the confidential file relating to this investigation.

Note 2 : The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the product / component.

Note 3 : The sponsor was unwilling to provide this information.

Tested configuration

<p>Construction of specimens</p>	<p>According to EN 14782, annex C as per diagram below :</p>  <p>Key</p> <p>1 Metal channel support (160 x 50 x 2) mm on the bottom and on the top  2 Metal flat sheet to maintain the two channels (minimum thickness 2 mm)  3 Metal corner (30 x 30 x 1,5) mm to maintain the flat sheet along the side and the vertical joint  4 Flat metal sheet thickness x (4a 1500 x 820; 4b 1500 x 500; 4c 1500 x 220) mm  5 Corner metal flashing inside (100 x 100 x d) mm  6 Screw or pop rivet, every 360 mm vertically (beginning with 30 mm from the bottom)</p> <p>Note : The sponsor of the test has providing further drawings detailing the specimen construction, and these drawings are held on the confidential file relating to this investigation.</p>
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**3. Test reports/extended application reports & test results in support of classification**

**3.1 Test reports/extended application reports**

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
Bodycote warringtonfire	Lindab S.A.	WF 168296, 168297	EN ISO 11925-2
Bodycote warringtonfire	Lindab S.A.	WF 167639, 167640, 167641, 167642	EN 13823
Bodycote warringtonfire	Lindab S.A.	WF 171686	EN/TS 15117

The reports listed here are originally in the name of Astron Building S.A. The name of the company has been changed to Lindab S.A.

### 3.2 Test results

Test method & test number	Parameter	No. tests	Results	
			Continuous parameter - mean (m)	Compliance parameters
EN ISO 11925-2 (30s exposure - surface)	F <sub>s</sub>	6, 6	0, 0	Compliant
	Flaming droplets/ particles		None	Compliant
EN ISO 11925-2 (30s exposure – edge)	F <sub>s</sub>	6, 6	0, 0	Compliant
	Flaming droplets/ particles		None	Compliant
EN 13823	FIGRA <sub>0.2MJ</sub>	3, 3, 3, 1	2.14, 4.08, 47.33, 7.00	Compliant
	THR <sub>600s</sub>		0.64, 0.91, 2.08, 1.14	Compliant
	LFS		N, N, N, N	Compliant
	SMOGRA		0.41, 6.17, 22.40, 0.00	Compliant
	TSP <sub>600s</sub>		36.92, 57.41, 121.27, 46.5	Compliant

## 4. Classification and field of application

### 4.1 Reference of classification

This classification has been carried out in accordance with clause 8 of EN 13501-1:2007

### 4.2 Classification

The family of products named, 'Lindab roof and wall cladding systems', in relation to their reaction to fire behaviour are classified:

**B**

The additional classification in relation to smoke production is:

**s2**

The additional classification in relation to flaming droplets / particles is:

**d0**

**Reaction to fire classification: B – s2, d0**

#### 4.3 Field of application

This classification is valid for the following end use applications:

- i) Self-supporting metal sheet for roofing, external cladding and internal lining.

This classification is also valid for the following product parameters based on the direct field of application as defined in EN 14782:

Product construction	No variation from approved product description
Nominal thickness of steel sheet	Valid for any nominal thickness > 0.4 mm
Colour	Valid for all colours
Type of coating	Valid for polyester coating with thickness $\leq 35 \mu\text{m}$ Valid for PVDF coating with thickness $\leq 25 \mu\text{m}$
Other individual components	No variation from approved product description

“The classification assigned to the product in this report is appropriate to a declaration of conformity by the manufacturer within the context of system 3 attestation of conformity and CE marking under the Construction Products Directive. Following Table ZA.3 of EN 14782 the manufacturer has concluded that system 3 attestation of conformity is appropriate. The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested.”

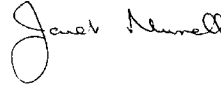
**SIGNED**



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**APPROVED**



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Technical Manager  
Technical Department  
on behalf of **Exova warringtonfire**

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