

**Title:**

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

**Product Name:**

"Proteus SP"

**Report No:**

WF 503705

**Issue No:**

1

**Prepared for:**

**Proteus Facades**

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**Date:**

18<sup>th</sup> June 2021

## 1. Introduction

This classification report defines the classification assigned to "Proteus SP", a range of faced spandrel panel with Rockwool insulated core, in line with the procedures given in EN 13501-1: 2018.

## 2. Details of classified product

### 2.1 General

The product, "Proteus SP", is defined as being suitable for construction applications, excluding flooring and linear pipe thermal insulation.

### 2.2 Product description

The product, "Proteus SP", is fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description		Polyester powder coated steel/ceramic/polyester powder coated aluminium/glass faced spandrel panel with Rockwool insulated core structurally bonded to a lightweight metal rear skin to be used within a curtain wall system.
Product reference of system		"Proteus SP – PPC Steel", "Proteus SP – CX", "Proteus SP – PPC Aluminium", "Proteus SP – GL"
Overall thickness of composite		21.4mm - 210mm (stated by sponsor)
Overall weight per unit area of composite		8.26kg/m <sup>2</sup> – 76.76kg/m <sup>2</sup> (stated by sponsor)
Coating for Steel and Aluminium (Front face)	Product reference	"Interpon Polyester"
	Generic type	Polyester powder coating
	Name of manufacturer	Akzo Nobel Powder Coatings SNC
	Colour	"White"
	Number of coats	One
	Application thickness	60-90 microns
	Weight per unit area	0.15 kg/m <sup>2</sup>
	Application method	<b>See Note 1 below</b>
	Curing process	<b>See Note 1 below</b>
	Flame retardant details	<b>See Note 1 below</b>
Steel panel (facing type 1)	Product reference	"Zinc Galvanised Steel"
	Generic type	Hot-dip galvanised steel
	Name of manufacturer	<b>See Note 2 below</b>
	Thickness	0.7 - 3mm
	Weight per unit area	5.50 - 24kg/m <sup>2</sup>
	Flame retardant details	Inherently flame retardant

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Aluminium panel (facing type 2)		Product reference	“1050”
		Generic type	Aluminium
		Name of manufacturer	See Note 2 below
		Thickness	0.9 - 5mm
		Weight per unit area	2.47 – 13.5kg/m <sup>2</sup>
		Flame retardant details	Inherently flame retardant
Ceramic panel (facing type 3)		Product reference	“Kerlite”
		Generic type	Porcelain stoneware
		Name of manufacturer	Cotto D'Este
		Thickness	3mm
		Weight per unit area	6.9kg/m <sup>2</sup>
		Flame retardant details	Inherently flame retardant
Backcoated Glass Panel (facing type 4)	Glass	Product reference	“Lacobel T”
		Generic type	Toughened back painted glass
		Name of manufacturer	AGC
		Thickness	4mm
		Weight per unit area	10kg/m <sup>2</sup>
		Flame retardant details	Inherently flame retardant
	Backcoating	Product reference	“Lacobel T”
		Generic type	Toughened glass paint
		Name of manufacturer	AGC
		Colour	“Black”
		Thickness	≤ 1mm
		Weight per unit area	See Note 1 below
		Application rate	See Note 2 below
		Application method	See Note 2 below
		Curing process	Fired into glass surface during toughening process (temp ≥600°C)
		Flame retardant details	Inherently flame retardant
Adhesive for facing		Product reference	“Solfre 2”
		Generic type	Two-part polyurethane adhesive
		Name of manufacturer	Chemique Adhesives
		Thickness	<1mm
		Weight per unit area	200g/m <sup>2</sup>
		Curing process	Heat cured at 50°C
		Flame retardant details	See Note 1 below
Core		Product reference	“Fabrock Clad”
		Generic type	Rockwool
		Name of manufacturer	Rockwool
		Thickness	20 - 200mm
		Weight per unit area	2.4 - 24kg/m <sup>2</sup>
		Flame retardant details	See Note 2 below
Edging		Product reference	“Fabrock Hard”
		Generic type	Rockwool
		Name of manufacturer	Rockwool
		Thickness	20mm
		Weight per unit area	4kg/m <sup>2</sup>
		Flame retardant details	See Note 2 below

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Adhesive for facing		Product reference	“Solfre 2”
		Generic type	Two-part polyurethane adhesive
		Name of manufacturer	Chemique Adhesives
		Thickness	<1mm
		Weight per unit area	200g/m <sup>2</sup>
		Curing process	Heat cured at 50°C
		Flame retardant details	See Note 2 below
Backing Type 1 (PPC Steel, Ceramic Glass)	Coating	Product reference	“Greencoat Hirac”
		Generic type	Epoxy
		Name of manufacturer	SSAB
		Number of coats	Two
		Application thickness	12µm
		Application method	See Note 1 below
		Curing process	See Note 1 below
	Flame retardant details	See Note 1 below	
	Panel	Product reference	“Greencoat Hiarc”
		Generic type	Zinc galvanised steel with PVDF coating
		Name of manufacturer	SSAB
		Thickness	0.7mm
		Weight per unit area	5.50kg/m <sup>2</sup>
		Flame retardant details	Inherently flame retardant
	Coating	Product reference	“Greencoat Hiarc”
		Generic type	PVDF
		Name of manufacturer	SSAB
		Colour	“White”
		Number of coats	Two
		Application thickness	35 microns
		Application method	See Note 1 below
		Curing process	See Note 1 below
		Flame retardant details	See Note 1 below
Backing type 2 (PPC Aluminium)	Panel	Product reference	“1050”
		Generic type	Aluminium
		Name of manufacturer	See Note 1 below
		Thickness	5mm
		Weight per unit area	13.5kg/m <sup>2</sup>
		Flame retardant details	Inherently flame retardant
	Coating	Product reference	“Interpon Polyester”
		Generic type	Polyester powder coating
		Name of manufacturer	Akzo Nobel Powder Coatings SNC
		Colour	“White”
		Number of coats	One
		Application thickness	60-90 microns
		Application method	See Note 1 below
		Curing process	See Note 1 below
		Flame retardant details	See Note 1 below

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Backing type 3 (PPC Steel)	Panel	Product reference	“Zinc Galvanised Steel”
		Generic type	Hot-dip galvanised steel
		Name of manufacturer	See Note 2 below
		Thickness	3mm
		Weight per unit area	24kg/m <sup>2</sup>
		Flame retardant details	Inherently flame retardant
	Coating	Product reference	“Interpon Polyester”
		Generic type	Polyester powder coating
		Name of manufacturer	Akzo Nobel Powder Coatings SNC
		Colour	“White”
		Number of coats	One
		Application thickness	60-90 microns
		Application method	See Note 1 below
Curing process		See Note 1 below	
Flame retardant details	See Note 1 below		
Backing type 4 (PPC Aluminium)	Coating	Product reference	“Eurabuild Polyester”
		Generic type	Epoxy-polyester backcoat
		Name of manufacturer	Euramax Coated Products BV
		Colour	Grey
		Number of coats	One
		Application thickness	5 microns
		Application method	See Note 1 below
		Curing process	See Note 1 below
		Flame retardant details	See Note 1 below
	Panel	Product reference	“Eurabuild Polyester Coated Aluminium Sheet”
		Generic type	Aluminium
		Name of manufacturer	Euramax Coated Products BV
		Thickness	0.9mm
		Weight per unit area	2.55kg/m <sup>2</sup>
		Flame retardant details	Inherently flame retardant
	Coating	Product reference	“Eurabuild Polyester”
		Generic type	Polyester
		Name of manufacturer	Euramax Coated Products BV
		Colour	“White”
		Number of coats	Two
		Application thickness	23 microns
		Application method	See Note 1 below
		Curing process	See Note 1 below
	Flame retardant details	See Note 1 below	
Mounting and fixing details		<p>Products have been tested with an 80mm ventilated cavity as well as no ventilated cavity. The lack of a ventilated cavity was a result of testing the maximum possible thickness of insulation.</p> <p>Where a cavity was in situ, the cavity was situated between the reverse face of the specimens and the calcium silicate substrate as defined in EN 13238:2010.</p>	
Brief description of manufacturing process of panel		Adhesive is applied to a preformed steel front skin and a preformed steel rear skin and sandwich assembled with insulation core and hard insulation perimeter frame. Panel is then bonded under pressure at 55°C.	

**Note 1: The sponsor was unable to provide this information.**

**Note 2: The sponsor was unwilling to provide this information.**

### 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
Warringtonfire	Proteus Facades	WF 398914 (issue 2),	EN ISO 1716: 2010 Composite Report
Warringtonfire	ame Facade Engineering Limited	WF 193845	EN ISO 1716: 2002
Warringtonfire	Proteus Facades	WF 502584	EN ISO 1716: 2018
MPA	Rockwool	231001026-2	EN ISO 1716: 2018
CSTB	AkzoNobel Powder Coatings	RA 18-0083	EN ISO 1716:2013
VTT Expert Services Ltd	Rautaruukki Oyj	VTT-S-2032-14	EN ISO 1716: 2010
Warringtonfire	Proteus Facades	WF 435960 (Issue 2) (full) WF 435089 (Issue 2), 435090, 435091 (Issue 2), 435092 (Issue 2), 435957 (Issue 2), 435958, 435961 (Issue 2), 435962 (Issue 2), 435963 (Issue 2), 435964 (Issue 2), 435965 (Issue 2)	EN 13823: 2020
Bodycote	Euramax Coated Products BV	WF 177459, WF 180158	EN ISO 1716: 2002
Warringtonfire	Proteus Facades	WF 503706	EN 15725:2010 and EN/TS 15117:2005

### 3.2 Test results

Test method & test number	Parameter	No. tests	Results	
			Continuous parameter - mean (m)	Compliance parameters
EN 13823: 2020	FIGRA <sub>0.2MJ</sub>	Indicative 1 – PPC Alu WF 435089	34.57 W/s	Compliant
		Indicative 2 – PPC Alu WF 435090	0.00 W/s	
		Indicative 3 – PPC Alu WF 435091	41.99 W/s	
		Indicative 4 – PPC Alu WF 435092	4.44 W/s	
		Indicative 5 – PPC Steel WF 435957	76.72 W/s	
		Indicative 6 – PPC Steel WF 435958	0.00 W/s	
		Indicative 7 – PPC Steel WF 435961	5.75 W/s	
		Indicative 8 – CX WF 435962	16.22 W/s	
		Indicative 9 – CX WF 435963	49.56 W/s	
		Indicative 10 – GL WF 435964	22.42 W/s	
		Indicative 11 – GL WF 435965	0.00 W/s	
		Formal test average WF 435960	49.78 W/s	
	FIGRA <sub>0.4MJ</sub>	Indicative 1 – PPC Alu WF 435089	0.00 W/s	Compliant
		Indicative 2 – PPC Alu WF 435090	0.00 W/s	
		Indicative 3 – PPC Alu WF 435091	0.00 W/s	
		Indicative 4 – PPC Alu WF 435092	4.44 W/s	
		Indicative 5 – PPC Steel WF 435957	45.54 W/s	
		Indicative 6 – PPC Steel WF 435958	0.00 W/s	
		Indicative 7 – PPC Steel WF 435961	5.75 W/s	
		Indicative 8 – CX WF 435962	14.91 W/s	
		Indicative 9 – CX WF 435963	0.00 W/s	
		Indicative 10 – GL WF 435964	0.00 W/s	
		Indicative 11 – GL WF 435965	0.00 W/s	
		Formal test average WF 435960	37.09 W/s	

	THR <sub>600s</sub>	Indicative 1 – PPC Alu WF 435089	0.65 MJ	Compliant
		Indicative 2 – PPC Alu WF 435090	0.39 MJ	
		Indicative 3 – PPC Alu WF 435091	0.95 MJ	
		Indicative 4 – PPC Alu WF 435092	0.68 MJ	
		Indicative 5 – PPC Steel WF 435957	1.28 MJ	
		Indicative 6 – PPC Steel WF 435958	0.49 MJ	
		Indicative 7 – PPC Steel WF 435961	1.10 MJ	
		Indicative 8 – CX WF 435962	0.89 MJ	
		Indicative 9 – CX WF 435963	0.98 MJ	
		Indicative 10 – GL WF 435964	0.78 MJ	
		Indicative 11 – GL WF 435965	0.52 MJ	
		Formal test average WF 435960	1.07 MJ	
	LFS	Indicative 1 – PPC Alu WF 435089	None	Compliant
		Indicative 2 – PPC Alu WF 435090	None	
		Indicative 3 – PPC Alu WF 435091	None	
		Indicative 4 – PPC Alu WF 435092	None	
		Indicative 5 – PPC Steel WF 435957	None	
		Indicative 6 – PPC Steel WF 435958	None	
		Indicative 7 – PPC Steel WF 435961	None	
		Indicative 8 – CX WF 435962	None	
		Indicative 9 – CX WF 435963	None	
		Indicative 10 – GL WF 435964	None	
		Indicative 11 – GL WF 435965	None	
		Formal test average WF 435960	None	
	SMOGRA	Indicative 1 – PPC Alu WF 435089	0.00 m <sup>2</sup> /s <sup>2</sup>	Compliant
		Indicative 2 – PPC Alu WF 435090	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Indicative 3 – PPC Alu WF 435091	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Indicative 4 – PPC Alu WF 435092	0.00 m <sup>2</sup> /s <sup>2</sup>	



		Indicative 5 – PPC Steel WF 435957	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Indicative 6 – PPC Steel WF 435958	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Indicative 7 – PPC Steel WF 435961	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Indicative 8 – CX WF 435962	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Indicative 9 – CX WF 435963	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Indicative 10 – GL WF 435964	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Indicative 11 – GL WF 435965	0.00 m <sup>2</sup> /s <sup>2</sup>	
		Formal test average WF 435960	2.06 m <sup>2</sup> /s <sup>2</sup>	
	TSP <sub>600s</sub>	Indicative 1 – PPC Alu WF 435089	31.69 m <sup>2</sup>	Compliant
		Indicative 2 – PPC Alu WF 435090	10.86 m <sup>2</sup>	
		Indicative 3 – PPC Alu WF 435091	38.05 m <sup>2</sup>	
		Indicative 4 – PPC Alu WF 435092	7.11 m <sup>2</sup>	
		Indicative 5 – PPC Steel WF 435957	27.26 m <sup>2</sup>	
		Indicative 6 – PPC Steel WF 435958	19.51 m <sup>2</sup>	
		Indicative 7 – PPC Steel WF 435961	17.52 m <sup>2</sup>	
		Indicative 8 – CX WF 435962	21.13 m <sup>2</sup>	
		Indicative 9 – CX WF 435963	19.29 m <sup>2</sup>	
		Indicative 10 – GL WF 435964	20.78m <sup>2</sup>	
		Indicative 11 – GL WF 435965	10.10m <sup>2</sup>	
		Formal test average WF 435960	31.84 m <sup>2</sup>	

	Flaming of Fallen Particle Exceeding 10s?	Indicative 1 – PPC Alu WF 435089	None	Compliant
		Indicative 2 – PPC Alu WF 435090	None	
		Indicative 3 – PPC Alu WF 435091	None	
		Indicative 4 – PPC Alu WF 435092	None	
		Indicative 5 – PPC Steel WF 435957	None	
		Indicative 6 – PPC Steel WF 435958	None	
		Indicative 7 – PPC Steel WF 435961	None	
		Indicative 8 – CX WF 435962	None	
		Indicative 9 – CX WF 435963	None	
		Indicative 10 – GL WF 435964	None	
		Indicative 11 – GL WF 435965	None	
EN ISO 1716 (PPC Steel front face, PVDF coated steel backing)	PPC Coating - PCS (b)	3	3.1 MJ/m <sup>2</sup>	-
	Steel - PCS (a)	Deemed to satisfy (0.00)		-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Core - PCS (a)	3	1.3 MJ/Kg	-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Epoxy Coating – PCS (d)	3	0.35 MJ/m <sup>2</sup>	-
	Internal non substantial – PCS (d)		3.11 MJ/m <sup>2</sup>	-
	Steel - PCS (a)	Deemed to satisfy (0.00)		-
	PVDF Reverse coating - PCS (b)	3	0.86 MJ/m <sup>2</sup>	-
	For the product as a whole PCS (e)	Summary result	1.15 MJ/Kg	-
EN ISO 1716 (PPC Aluminium front face, PPC aluminium backing)	PPC Coating - PCS (b)	3	3.1 MJ/m <sup>2</sup>	-
	Aluminium - PCS (a)	Deemed to satisfy (0.00)		-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Core - PCS (a)	3	1.3 MJ/Kg	-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Aluminium - PCS (a)	Deemed to satisfy (0.00)		-
	PPC Reverse coating - PCS (b)	3	3.1 MJ/m <sup>2</sup>	-
	For the product as a whole PCS (e)	Summary result	0.98 MJ/Kg	-

EN ISO 1716 (Ceramic front face, PVDF Steel backing)	Ceramic - PCS (a)	3	0.11 MJ/Kg	-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Core - PCS (a)	3	1.3 MJ/Kg	-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Epoxy Coating – PCS (d)	3	0.35 MJ/m <sup>2</sup>	
	Internal non substantial – PCS (d)		3.11 MJ/m <sup>2</sup>	i
	Steel - PCS (a)	Deemed to satisfy (0.00)		-
	PVDF Reverse coating - PCS (b)	3	0.86 MJ/m <sup>2</sup>	-
	For the product as a whole PCS (e)	Summary result	1.0 MJ/Kg	-
EN ISO 1716 (Glass front face, PVDF steel backing)	Glass - PCS (a)	Deemed to satisfy (0.00)		-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Core - PCS (a)	3	1.3 MJ/Kg	-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Epoxy Coating – PCS (d)	3	0.35 MJ/m <sup>2</sup>	
	Internal non substantial – PCS (d)	3.11 MJ/m <sup>2</sup>		i
	Steel- PCS (a)	Deemed to satisfy (0.00)		-
	PVDF Reverse coating - PCS (b)	3	0.86 MJ/m <sup>2</sup>	-
	For the product as a whole PCS (e)	Summary result	0.95 MJ/Kg	-
EN ISO 1716 (PPC Steel front face, PPC steel backing)	PPC Coating - PCS (b)	3	3.1 MJ/m <sup>2</sup>	-
	Steel - PCS (a)	Deemed to satisfy (0.00)		-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Core - PCS (a)	3	1.3 MJ/Kg	-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Steel - PCS (a)	Deemed to satisfy (0.00)		-
	PPC Reverse coating - PCS (b)	3	3.1 MJ/m <sup>2</sup>	-
	For the product as a whole PCS (e)	Summary result	0.79 MJ/Kg	-

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EN ISO 1716 (PPC Aluminium front face, Eurabuild aluminium backing)	PPC Coating - PCS (b)	3	3.1 MJ/m <sup>2</sup>	-
	Aluminium - PCS (a)	Deemed to satisfy (0.00)		-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Core - PCS (a)	3	1.3 MJ/Kg	-
	Adhesive - PCS (d)	3	2.76 MJ/m <sup>2</sup>	-
	Backcoat – PCS (d)	3	0.17 MJ/m <sup>2</sup>	-
	Internal non-substantial – PCS (d)	2.93 MJ/m <sup>2</sup>		-
	Aluminium - PCS (a)	Deemed to satisfy (0.00)		-
	Eurabuild Reverse coating - PCS (b)	3	0.894 MJ/m <sup>2</sup>	-
	For the product as a whole PCS (e)	Summary result	1.00 MJ/Kg	-
	Overall Product Range PCS (e)		0.79 – 1.15 MJ/kg	

#### 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: 2018.

##### 4.2 Classification

The products, "Proteus SP", a range of faced spandrel panel with Rockwool insulated core, in relation to their reaction to fire behaviour are classified:

**A2**

The additional classification in relation to smoke production is:

**s1**

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

**d0**

The format of the reaction to fire classification for construction applications, excluding flooring and linear pipe thermal insulation is:

Fire Behaviour		Smoke Production			Flaming Droplets	
<b>A2</b>	-	<b>s</b>	<b>1</b>	,	<b>d</b>	<b>0</b>

i.e. A2 – s1 , d0

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

### 4.3 Field of application

This classification is valid for the following end use applications:

- i) Free standing construction applications
- ii) Construction applications mounted with no airspace or with a minimum airspace of 80mm over any substrate with a density equal to or greater than  $870\text{kg/m}^3$ , having a minimum thickness of 9mm and a fire performance of A2-s1,d0 or better (excluding paper faced gypsum plasterboard).

This classification is also valid for the following product parameters:

Product thickness	21.4mm – 210mm
Insulation thickness	20mm – 200mm
Product weight per unit area	No variation allowed
Product colour/pattern	No variation allowed
Product composition	No variation allowed
Product construction	Permitted product variations: PPC steel front face (test face) with PVDF steel backing PPC aluminium front face (test face) with PPC aluminium backing Ceramic front face (test face) with PVDF steel backing Glass front face (test face) with PVDF steel backing PPC steel front face (test face) with PPC steel backing PPC aluminium front face (test face) with Polyester aluminium backing

### 5. Limitations

This document does not represent type approval or certification of the product.

#### SIGNED



**Katie Williams**  
Certification Engineer  
Technical Department

#### APPROVED



**Stacey Deeming**  
Principal Engineer  
Technical Department  
on behalf of **Warringtonfire**

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