

# REACTION TO FIRE PERFORMANCE In Accordance with EN-13501

## Flammability of Extruded Freefoam PVC Product



Freefoam is a leading manufacturer of a wide range of innovative PVC-U and PVC-UE roofline, rainwater and cladding products for the building industry in Ireland, the UK and Mainland Europe.

Tested by:  
Exova  
Warringtonfire  
Holmesfield Road,  
Warrington,  
WA1 2DS

Freefoam products have been independently tested to conform to rigorous fire resistance criteria when tested to EN 13501-1:2007 and EN 13245:2008.

Exova Fire Certificate Report Number	Product	Classification
331764	Hollow Soffit	D-s3.d2/AHM
337579	Roofline White and all Colours(8mm – 25mm)	D-s3.d2/AHM
341726	Foiled Roofline & Soffit	E
349834	Cladding (5mm-9mm)	D-s3.d2/AHM
346509	Foiled Cladding	E

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 **Freefoam**  
Building Products

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

# FIRE RESISTANCE

## European fire resistance classification explained.

Products are tested and measured against a series of classifications to gain a certain level of performance, namely A1, A2, B,C,D,E or F. Classifications are used and accepted throughout Europe. See chart below.

**Table 1 — 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>	$\Delta T \leq 30$ °C; and $\Delta m \leq 50$ %; and $t_f = 0$ (i.e. no sustained flaming)	-
	and 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</sup> <sup>d</sup> and $PCS \leq 2,0$ MJ/kg <sup>e</sup>	-
<b>A2</b>	EN ISO 1182 <sup>a</sup>	$\Delta T \leq 50$ °C; and $\Delta m \leq 50$ %; and $t_f \leq 20$ s	-
	or EN ISO 1716	$PCS \leq 3,0$ MJ/kg <sup>a</sup> and $PCS \leq 4,0$ MJ/m <sup>2</sup> <sup>b</sup> and $PCS \leq 4,0$ MJ/m <sup>2</sup> <sup>d</sup> and $PCS \leq 3,0$ MJ/kg <sup>e</sup>	-
	and EN 13823	$FIGRA \leq 120$ W/s and $LFS <$ edge of specimen and $THR_{600s} \leq 7,5$ MJ	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
<b>B</b>	EN 13823	$FIGRA \leq 120$ W/s and $LFS <$ edge of specimen and $THR_{600s} \leq 7,5$ MJ	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	and EN ISO 11925-2 <sup>h</sup> ; Exposure = 30 s	$F_s \leq 150$ mm within 60 s	
<b>C</b>	EN 13823	$FIGRA \leq 250$ W/s and $LFS <$ edge of specimen and $THR_{600s} \leq 15$ MJ	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	and EN ISO 11925-2 <sup>h</sup> ; Exposure = 30 s	$F_s \leq 150$ mm within 60 s	
<b>D</b>	EN 13823	$FIGRA \leq 750$ W/s	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	and EN ISO 11925-2 <sup>h</sup> ; Exposure = 30 s	$F_s \leq 150$ mm within 60 s	
<b>E</b>	EN ISO 11925-2 <sup>h</sup> ; Exposure = 15 s	$F_s \leq 150$ 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  $THR_{600s} \leq 4,0$  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 =  $SMOGRA \leq 30$  m<sup>2</sup>/s<sup>2</sup> and  $TSP_{600s} \leq 50$  m<sup>2</sup>; s2 =  $SMOGRA \leq 180$  m<sup>2</sup>/s<sup>2</sup> and  $TSP_{600s} \leq 200$  m<sup>2</sup>; 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.  
<sup>h</sup> Ignition of the paper in EN ISO 11925-2 results in a d2 classification.  
<sup>i</sup> Pass = no ignition of the paper (no classification);  
Fail = ignition of the paper (d2 classification).  
<sup>j</sup> Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.

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