

# Euroclasses and reaction to fire

A product's reaction to fire gauges its contribution to the propagation of flames in a fire and covers flammability, flame propagation, heat value, smoke and flaming droplets. There are currently two systems for gauging the PANEL's reaction to fire:

UNE-23727:	M	Measures flammability only.
UNE-EN 13501:	Euroclasses	Defines reaction to fire (flammability, flame propagation, heat value, smoke and flaming droplets).

In accordance with the standards laid down by the European Union, the Member States have unified the systems for testing and classifying the reaction and resistance to fire of building materials, including PIR, PUR and rock wool coldroom panels. The Euroclasses indicate the speed with which fire spreads in contact with the product and the time to flashover. The new reaction-to-fire tests have been designed to maintain the correlation with the large-scale test results as per the ISO 9705 standard.

The classification is as follows:

<b>Classification</b>	<b>Sub-class</b>	<b>Test methods</b>
A1	-	EN ISO 1182 and EN ISO 1716
A2	S: smoke	EN ISO 1182 or EN ISO 1716 + EN 13823
B	D: particles	EN 13823 (SBI) + EN ISO 11925-2
C		
D		
E	D: particles	EN ISO 11925-2
F	Unclassified	

**CLASSIFICATION**

- A1, A2, B Non-combustible and not very combustible products. Over 20 minutes to flashover.
- C Moderately combustible products. Between 10 and 20 minutes to flashover.
- D Moderately combustible products. Between 2 and 10 minutes to flashover.
- E Moderately combustible products.
- F Highly combustible products (or products whose reaction to fire has not been assessed).

**SUB-CLASS**

- S1 Low smoke production.
- S2 Medium smoke production.
- S3 High smoke production.

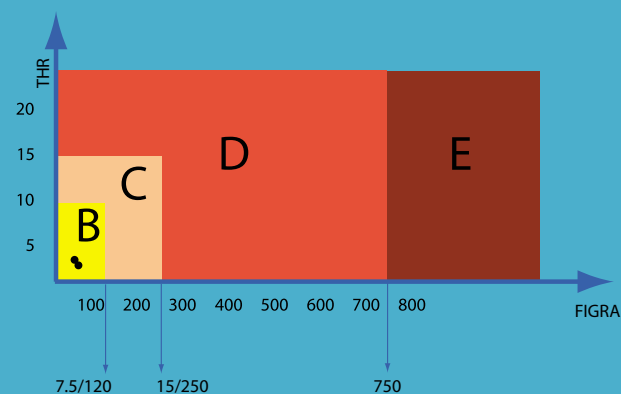
**FLAMING DROPLETS SUB-CLASSIFICATION**

- D0 No flaming droplets.
- D1 Flaming droplets that persist for less than 10 s.
- D2 Flaming droplets.

The KOXKA PIR panel is classified B, s2, d0.

**EUROCLASS**

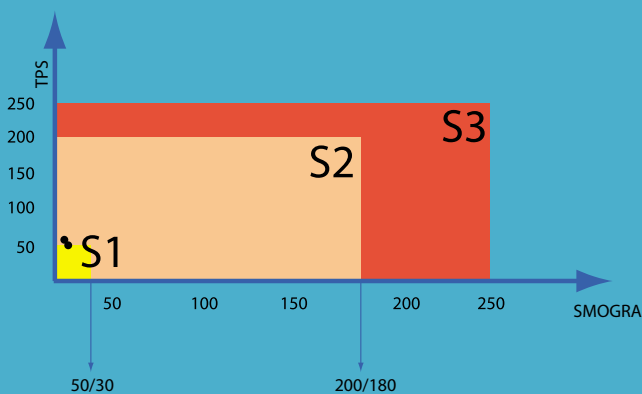
FIGRA (MJ) - THR600S ( $W s^{-1}$ )



FIGRA: Fire growth rate  
THR600S: Total heat release

**SUB-CLASS (SMOKE)**

SMOGRA ( $M^2 S^{-2}$ ) - TPS600S ( $M^2$ )



FIGRA: Fire growth rate  
SMOGRA: Smoke growth rate