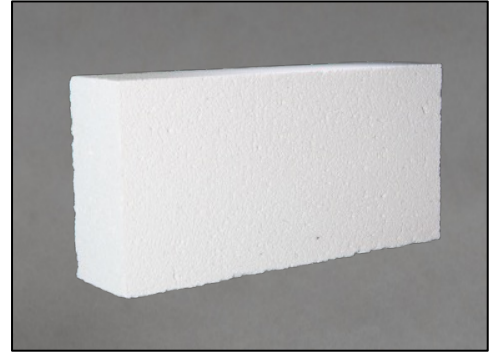


# 13-11 – Product data sheet

## Presentation:

One of IFB Refractories' iconic products, the 13-11 brick offers high mechanical properties with a cold crushing strength over 6.5 Mpa and a thermal conductivity at 0.44 W/m.K at 1000°C. It has become an industry standard for heavy operations like in the glass industry.



Maximum classified temperature: **1350°**.



French refractory clays & local organic filler.

Properties :	Standards	Units	Average $\mu$	Limits	
				Tl (low)	Th (high)
Classification	ISO 2245		135		
	ASTM C155				
Bulk density	EN 1094-4	g/cm <sup>3</sup>	1,06		1,18
Cold Crushing Strength (// to extrusion)	ISO 8895	Mpa	9	6,5	
Permanent Linear Change (12h at 1350°C)	ISO 2477	%	-0,5	-1,5	
Chemical Analysis : (XRF)	ISO 12677	%			
	Al <sub>2</sub> O <sub>3</sub>		38	36	
	SiO <sub>2</sub>		57		
	Fe <sub>2</sub> O <sub>3</sub>		1,4		1,6
	TiO <sub>2</sub>		1		
	CaO+MgO		0,5		
	Na <sub>2</sub> O+K <sub>2</sub> O		1,5		1,9
Thermal Conductivity : (through 114mm dimension)	ASTM C182	W/m.K			
	200°C		0,33		
	400°C		0,36		
	600°C		0,39		
	800°C		0,41		
	1000°C		0,44		
	1200°C		0,46		
Reversible Thermal Expansion : (20°C to 1000°C)	ISO 16835	%	0,5		
Pyroscopic Cone Equivalent :	ISO 528	°C	1730		

Dimensional tolerances:	Standard Pieces	Non-Standard Pieces
Length	±1.5mm	According to accepted drawings
Width	±1.5mm	
Thickness	±1.5mm	
Squaring	1mm / 100mm	

Other information :	C 1400 S or H	RL 13 S or H
Recommended mortar	C : Heat set	RL : Air set
	S : Dry / Powder	H : Ready to Use

Ref. 2023/02

Physical properties are based on averages of routine quality controls carried out on standard bricks. Averages and standard deviations are indicative values, limits (Tl and Th) are guaranteed values.



IFB Refractories bricks are 100% made in France, from local raw materials, with a special attention to the environment.

Website: [www.ifbgroup.fr](http://www.ifbgroup.fr)  
Email: [ifb-sales@ifbgroup.fr](mailto:ifb-sales@ifbgroup.fr)