



Since 1919

IFB Refractories

13-11 range brochure



Focus on IFB's flagship range



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

Website: www.ifbgroup.fr
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IFB Refractories, your European insulating fire bricks partner !

Founded in 1919, IFB Refractories is a century-old company specialising in the manufacture of insulating fire bricks and other special insulating refractory parts.

Located in Buzançais, in the heart of France, IFB serves the major European and overseas industrial markets.

The quality of IFB Refractories products is based on more than a century of know-how and experience. It enables us to export more than 85% of our production to the most demanding international markets.

Our raw materials are French and most often local. They are carefully selected and are subject to permanent quality controls. Our production is 100% made in France and contributes to the respect of the environment in the same way as our products are designed to reduce the carbon footprint of our customers.

IFB 13-11 range



Classified temperature: **1350°**



French refractory clays & local organic filler

Presentation

IFB Refractories flagship brick and worldwide well known for its technical properties. The 13-11 has shaped more than 500 projects. IFB Refractories produces more than 1M of 13-11 bricks every year at its plant in Buzançais, in the centre of France.

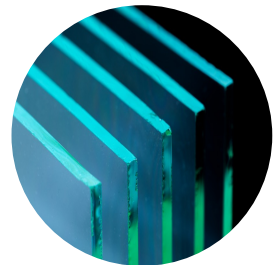
Rotary kilns



Lime



Glass



Aluminium



Key figures of the 13-11

The 13-11 brick is IFB Refractories' market reference for insulating fire bricks in heavy industrial applications for more than 30 years.



+ **1M** of 13-11 bricks manufactured every year



Sold to +**50** different clients



Used in more than +**500** projects



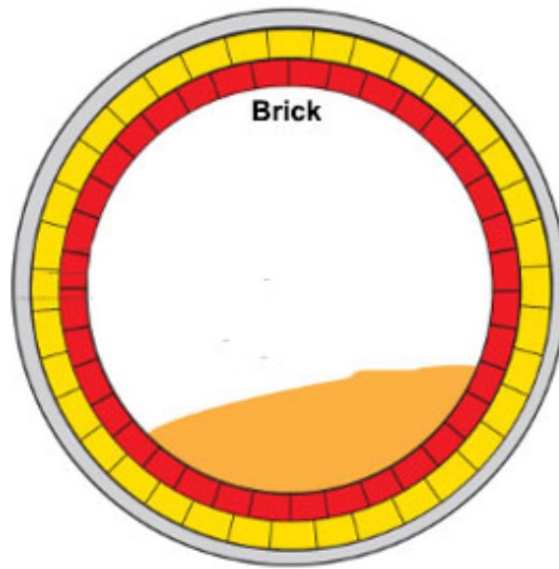
Industry standard for **more than 30 years**



100% Made in France

Curved 13-11 applications

Several applications like rotary kilns require curved bricks. IFB Refractories has a great experience in shaping the 13-11 for different curved application.



Example of a rotary kiln. The 13-11 range will cover the yellow part



Examples of applications (1/3)

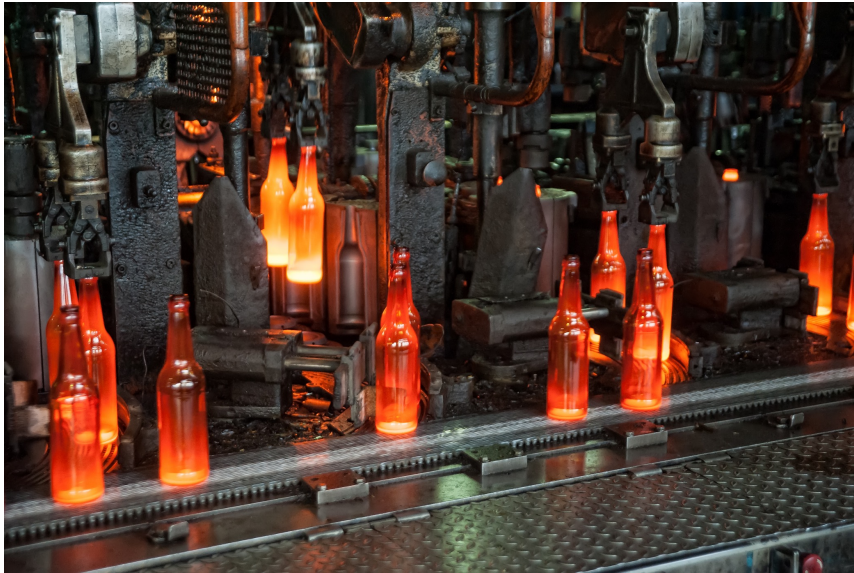


Aluminium

Insulating fire bricks are vital in aluminum production, especially during alumina electrolysis. Placed at the bottom of electrolysis pots, these bricks bear significant loads, requiring a notable cold crushing strength, as demonstrated by our ALU 13B brick designed specifically for aluminum applications.

They also find essential use in anode baking furnaces, serving a primary insulating role within the walls. In the secondary aluminum transformation, these bricks utilize their inherent insulating properties to conserve energy and protect metallic casings.

Examples of applications (2/3)



Glass

The manufacturing of glass products involves an initial melting phase followed by a forming process. Melting tanks are substantial infrastructures in which extreme high levels of temperature are reached.

Insulating Fire Bricks are pivotal in focusing heat at the core of the process. Specifically, our types 13-11 and 13-11E are commonly applied at the melter's base or for tall vertical walls. Additionally, types 28, 26, 23, and PS complete the insulation throughout various stages of the global process, depending on the temperature requirements.

Examples of applications (3/3)



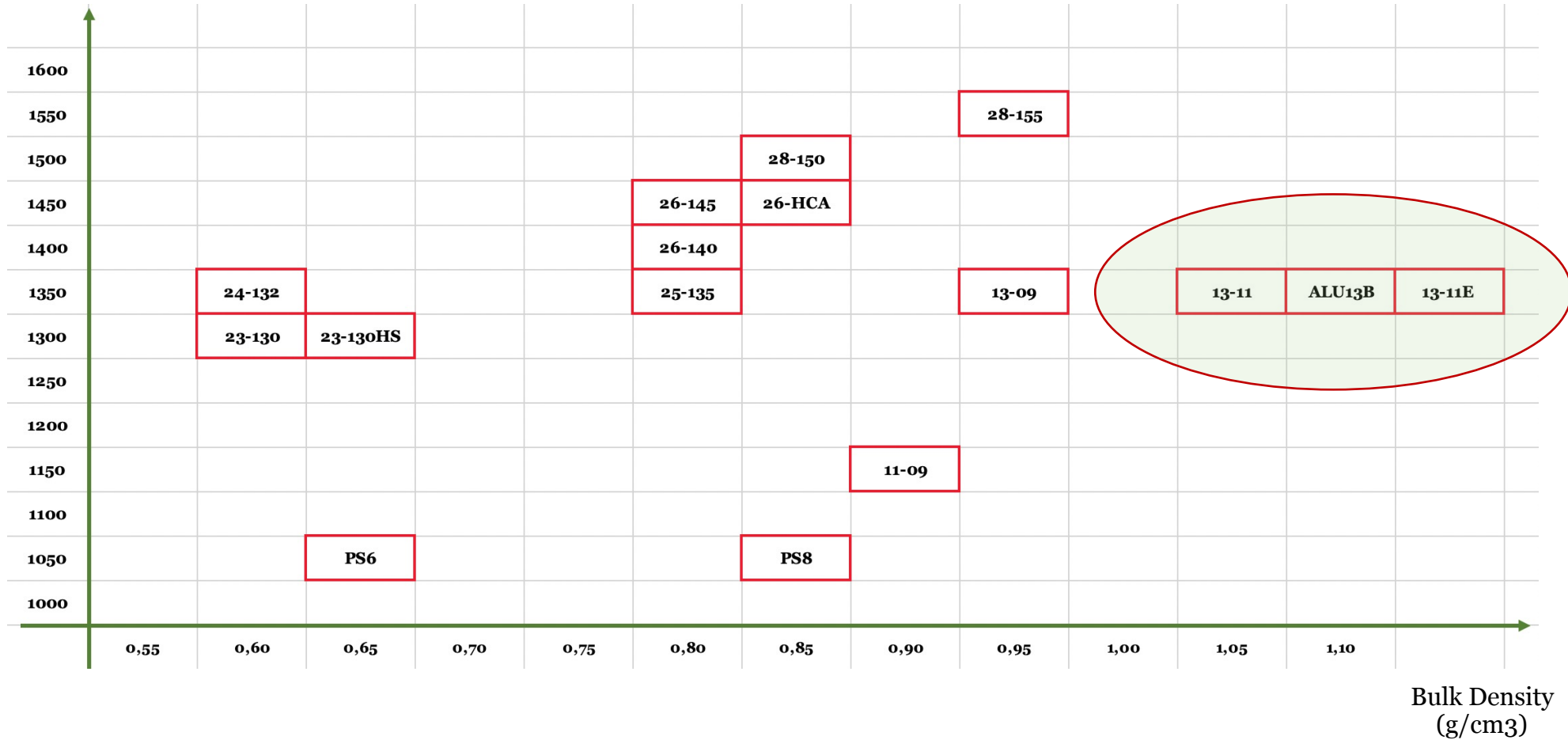
Lime & Rotary kilns

Rotary kilns demand outstanding insulation and mechanical properties due to their cylindrical shape and exposure to high heat. Positioned between the process lining and the external casing, insulating fire bricks not only serve the crucial role of thermal insulation but also endure significant mechanical stresses.

Depending on the cold crushing strength required our type 13-11 (min CCS>6.5MPa) and 13-11E (min CCS>8 Mpa) are particularly well suited. Both bricks are shaped (to be placed against the cylindric walls.

IFB bricks classification

Temperature (°C)



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 μ	Limits	
				Tl (low)	Th (high)
Classification	ISO 2245		135		
	ASTM C155				
Bulk density	EN 1094-4	g/cm ³	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 ₂ O ₃			38	36	
SiO ₂			57		
Fe ₂ O ₃			1,4		1,6
TiO ₂			1		
CaO+MgO			0,5		
Na ₂ O+K ₂ O			1,5		1,9
Thermal Conductivity :	ASTM C182	W/m.K			
(through 114mm dimension)					
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.



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13-11E – Product data sheet

Presentation :

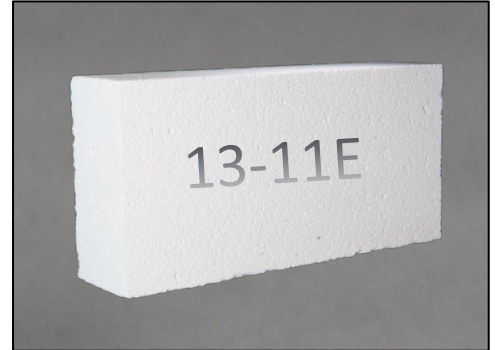
A variation of our iconic product 13-11, the 13-11-E brick is best in class in terms of mechanical properties with a cold crushing strength over 8 Mpa and a thermal conductivity of 0.46 W/m.K at 1000°C. It is particularly well suited for very heavy operations like for rotary kilns or in the aluminium industry for anode baking furnaces.



Maximum classified temperature: **1350°**.



French refractory clays & local organic filler.



Properties :		Standards	Units	Average μ	Limits	
					Tl (low)	Th (high)
Classification		ISO 2245		135		
		ASTM C155				
Bulk density		EN 1094-4	g/cm3	1,10		1,25
Cold Crushing Strength (// to extrusion)		ISO 8895	Mpa	10	8	
Permanent Linear Change (12h at 1350°C)		ISO 2477	%	-0,4	-1	
Chemical Analysis : (XRF)		ISO 12677	%			
Al ₂ O ₃				38	35	
SiO ₂				57		
Fe ₂ O ₃				1,3		1,6
TiO ₂				0,9		
CaO+MgO				0,6		
Na ₂ O+K ₂ O				2		2,3
Thermal Conductivity :		ASTM C182	W/m.K			
(through 114mm dimension)						
200°C				0,34		
400°C				0,38		
600°C				0,41		
800°C				0,43		
1000°C				0,46		
1200°C				0,48		
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 : Recommended mortar	C 1400 S or H	RL 13 S or H
	C : Heat set	RL : Air set
	S : Dry / Powder	H : Ready to Use

Ref. 2023/02

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ALU-13B – Product data sheet

Presentation:

The ALU-13B insulating brick complies with the specifications for aluminium pots applications. Also called BIR, it offers both high insulating and mechanical properties. As it might come in contact with aluminium or fluorinated sodium, its resistance to corrosion is good.



Maximum classified temperature: **1350°**.



French refractory clays & local organic filler.



Properties :		Standards	Units	Average μ	Limits	
					Tl (low)	Th (high)
Classification		ISO 2245		135		
		ASTM C155				
Bulk density		EN 1094-4	g/cm3	1,08	1	
Cold Crushing Strength (// to extrusion)		ISO 8895	Mpa	9,5	8	
Permanent Linear Change (12h at 1350°C)		ISO 2477	%	-0,5	-1	
Chemical Analysis : (XRF)		ISO 12677	%			
		Al ₂ O ₃		38	35	
		SiO ₂		57		
		Fe ₂ O ₃		1,4		1,6
		TiO ₂		1		
		CaO+MgO		0,5		
		Na ₂ O+K ₂ O		1,5		1,7
Thermal Conductivity :		ASTM C182	W/m.K			
(through 114mm dimension)	200°C			0,34		
	400°C			0,37		
	600°C			0,40		
	800°C			0,43		
	1000°C			0,46		
	1200°C			0,48		
Reversible Thermal Expansion : (20°C to 1000°C)		ISO 16835	%	0,5		
Pyroscopic Cone Equivalent :		ISO 528	°C	1700		

Dimensional tolerances:	Standard Pieces		Non-Standard Pieces
	Length	±1.0mm	According to accepted drawings
	Width	±1.0mm	
	Thickness	±1.0mm	
	Squaring	1mm / 100mm	

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

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.



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Thank You

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