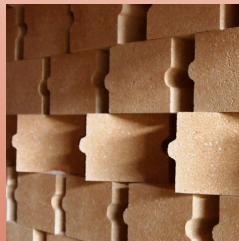




**REFRACTORIES**

GLASS INDUSTRY



REFRACTORY & LINING  
**PRODUCTS**  
FOR HIGH TEMPERATURE  
APPLICATIONS

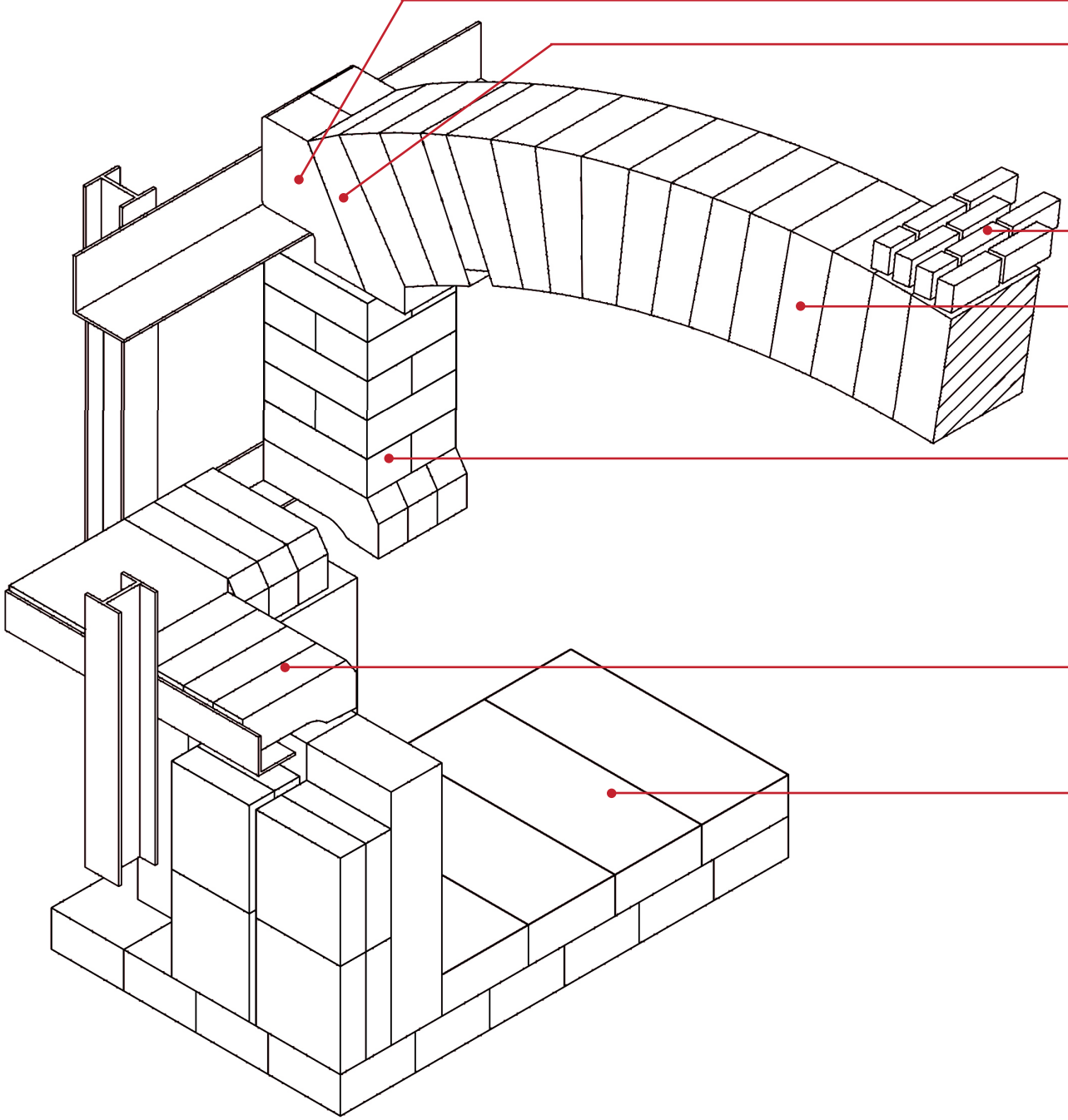


BELREF REFRACTORIES operates out of Saint-Ghislain (Mons - Belgium) and is a world player in the supply of refractory products to the glassmaking, iron and steel, non-ferrous metal, cement, incinerator, chemical and petrochemical industries. The BELREF brand is historically renowned for manufacturing quality in dense products based on silica, aluminosilicate, andalusite, bauxite, high-alumina, zircon and silicon carbide. BELREF also manufactures clay and silica insulating products. The company has a wide range of fused silica products used for maintenance service in the glass and coking sector. We are able to provide maintenance solutions by ceramics welding.

BELREF REFRACTORIES also has a fully automated production capacity for refractory concretes and prefabricated parts. Customers are then able to take advantage of an extended range of BELREF monolithic products. This range consists of grout, cement, dense castable and gunning concretes, low and ultra-low cement content concretes, dry ramming clays, and special products, with or without cement.

The satisfaction of customer requirements is at the heart of BELREF REFRACTORIES quality program which was awarded ISO certification in 1986 and is currently ISO 9001:2008 certified.

# GLASS FURNACE VIEW



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**SKEWBACK**

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**DIAMOND SHAPED**

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**INSULATING**

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**VAULT**

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**JAMB**

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**TUCKSTONE**

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**BOTTOM**

NEXT PAGE, YOU CAN DISCOVER ALL RANGE OF  
BELFREF PRODUCTS FOR GLASS FURNACES

# DENSE PRODUCTS

	NAME	% Al <sub>2</sub> O <sub>3</sub>	BULK DENSITY (g.cm <sup>-3</sup> )	OPEN POROSITY (%)	CCS (MPa)	RUL (°C)
<b>ALUMINO-SILICATE</b>	Arbel 42	42	2,2	18	45	1430
	Verroc 40	41	2,17	20	30	1300
	Verrax 40	41	2,12	21,5	40	1400
<b>ANDALUSITE</b>	Silumite 50	51	2,33	18	45	1570
	Verrax 60	60	2,45	19,5	50	1680
	Silumite 60	60,5	2,5	16	65	1660
	Silumite 66	65	2,56	16	75	1650
<b>HIGH-ALUMINA</b>	Mubel F	75	2,65	18	80	> 1700
	Belcor 97	96	3,15	16	120	1680

	NAME	% SiO <sub>2</sub>	BULK DENSITY (g.cm <sup>-3</sup> )	OPEN POROSITY (%)	CCS (MPa)	RUL (°C)
<b>SILICA</b>	Hepsil VMA	96	1,87	18	40	1675
	Hepsil VRC	94	1,75	21	20	1630

	NAME	% COMPONENT	BULK DENSITY (g.cm <sup>-3</sup> )	OPEN POROSITY (%)	CCS (MPa)	RUL (°C)
<b>ZIRCON</b>	Mubel ZV	21% ZrO <sub>2</sub> - 54% Al <sub>2</sub> O <sub>3</sub>	3	19	65	1600
	Zirconul	20% ZrO <sub>2</sub> - 68,5% Al <sub>2</sub> O <sub>3</sub>	3,2	18	115	> 1700
	Alzir CT	6,5% ZrO <sub>2</sub> - 87,5% SiO <sub>2</sub>	3,1	17	120	> 1700
	Zirbel DS	64% ZrO <sub>2</sub> - 32,5% SiO <sub>2</sub>	3,5	22	70	1670

	NAME	% SiO <sub>2</sub>	BULK DENSITY (g.cm <sup>-3</sup> )	OPEN POROSITY (%)	CCS (MPa)	RUL (°C)
<b>SILICA</b>	Porodina MV	92	1,25	min 45	4	1600
	Porodina L	92	0,95	min 45	2	1550
	Porodina SL	93	0,75	min 45	1	1550

	NAME	% Al <sub>2</sub> O <sub>3</sub>	BULK DENSITY (g.cm <sup>-3</sup> )	OPEN POROSITY (%)	CCS (MPa)	RUL (°C)
<b>ALUMINO- SILICATE</b>	Isoref C140	48,2	1,2	min 45	24	1400
	Isoref A150	62,7	1,18	min 45	12	1600
	Isomul DN	74	1,15	min 45	4	> 1700

	NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
<b>MORTAR</b>	Belcim 2S	Silica	93,6% SiO <sub>2</sub>	1600	0,5
	Belcim 40M	Chamotte	40,5% Al <sub>2</sub> O <sub>3</sub>	1500	0,5
	Belcim 40S	Chamotte	38% Al <sub>2</sub> O <sub>3</sub>	1500	0,5
	Belcim 44M	Chamotte	44% Al <sub>2</sub> O <sub>3</sub>	1500	0,5
	Belcim 44S	Chamotte	43% Al <sub>2</sub> O <sub>3</sub>	1500	0,5
	Belcim 48M	Chamotte	47% Al <sub>2</sub> O <sub>3</sub>	1550	0,5
	Belcim 48S	Chamotte	46,8% Al <sub>2</sub> O <sub>3</sub>	1700	0,3
	Belcim 50S	Chamotte	53% Al <sub>2</sub> O <sub>3</sub>	1650	0,5
	Belcim 55M	Kyanite	55% Al <sub>2</sub> O <sub>3</sub>	1600	0,5
	Belcim 55P	Kyanite	55% Al <sub>2</sub> O <sub>3</sub>	1600	0,5
	Belcim 70S	Bauxite	78% Al <sub>2</sub> O <sub>3</sub>	1700	0,5
	Belcim 72M	Kyanite	66% Al <sub>2</sub> O <sub>3</sub>	1650	0,5
	Belcim 72P	Kyanite	63,5% Al <sub>2</sub> O <sub>3</sub>	1650	0,5
	Belcim 72S	Mullite	67% Al <sub>2</sub> O <sub>3</sub>	1700	0,5
	Belcim 90M	Corundum	91,3% Al <sub>2</sub> O <sub>3</sub>	1700	0,2
	Belcim 90P	Corundum	86,5% Al <sub>2</sub> O <sub>3</sub>	1700	0,2
	Belcim 90S	Corundum	86,7% Al <sub>2</sub> O <sub>3</sub>	1800	0,5
	Belcim Corindon M	Corundum	88,5% Al <sub>2</sub> O <sub>3</sub>	1700	0,5
	Belcim HDM	Silica	95% SiO <sub>2</sub>	1650	0,3
	Belcim HTVM	Silica	98% SiO <sub>2</sub>	1650	0,5
Belcim Zircon S	Zircon	61% ZrO <sub>2</sub>	1700	0,5	
Belcim ZMS	Zircon	23% ZrO <sub>2</sub>	1700	0,5	
Belcim ZRM	Zircon	61% ZrO <sub>2</sub>	1700	0,5	

	NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
<b>READY FOR USE MORTAR</b>	Belcim WP70	Mullite	70% Al <sub>2</sub> O <sub>3</sub>	1650	3
	Belcim WS 2M	Silica	87% SiO <sub>2</sub>	1450	0,2
	Belcim WS 46	Kerphalite	51% SiO <sub>2</sub>	1700	0,2
	Belcim WS 48M	Kyanite	47% Al <sub>2</sub> O <sub>3</sub>	1770	0,5
	Belcim WS 5A	Tabular Alumina	88% Al <sub>2</sub> O <sub>3</sub>	1800	0,3
	Belcim WS 90	Tabular Alumina	81% Al <sub>2</sub> O <sub>3</sub>	1800	0,3



	NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
<b>CONCRETE</b>	Belcast 406	Chamotte	40% Al <sub>2</sub> O <sub>3</sub>	1400	6
	Belcast 4010	Chamotte	40% Al <sub>2</sub> O <sub>3</sub>	1475	10
	Belcast 410S	Chamotte	48% Al <sub>2</sub> O <sub>3</sub>	1450	10
	Belcast 526	Chamotte	47% Al <sub>2</sub> O <sub>3</sub>	1500	6
	Belcast 585	Chamotte	58% Al <sub>2</sub> O <sub>3</sub>	1650	5
	Belcast 586A	Mullite	60% Al <sub>2</sub> O <sub>3</sub>	1600	6
	Belcast 6010S	Mullite	64% Al <sub>2</sub> O <sub>3</sub>	1600	10
	Belcast 961	White corundum	97% Al <sub>2</sub> O <sub>3</sub>	1800	1
	Belcast 973	Tabular Alumina	94% Al <sub>2</sub> O <sub>3</sub>	1750	4
	Belcast 976	Tabular Alumina	93,5% Al <sub>2</sub> O <sub>3</sub>	1750	6
	Belcast H	Silica	71% SiO <sub>2</sub>	500	1
	Belcast HT	Silica	65% SiO <sub>2</sub>	1300	0,5

	NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
<b>LOW CEMENT CONCRETE</b>	Belcast LC 456F	Chamotte	46% Al <sub>2</sub> O <sub>3</sub>	1500	6
	Belcast LC 606F	Mullite	58% Al <sub>2</sub> O <sub>3</sub>	1600	6
	Belcast LC 956F	Tabular Alumina	95% Al <sub>2</sub> O <sub>3</sub>	1750	6
	Belcast LC ZM	Zircon	26% ZrO <sub>2</sub>	1500	5
	Belcast LM 456F	Chamotte	44% Al <sub>2</sub> O <sub>3</sub>	1500	6
	Belcast LM 546F	Chamotte	53% Al <sub>2</sub> O <sub>3</sub>	1600	6
	Belcast LM 585 AF	Andalusite	59,4% Al <sub>2</sub> O <sub>3</sub>	1650	5
	Belcast LM 596AF	Mullite	58% Al <sub>2</sub> O <sub>3</sub>	1600	6
	Belcast LM 605 AF	Andalusite	61% Al <sub>2</sub> O <sub>3</sub>	1700	5
	Belcast LM 606F	Mullite	58% Al <sub>2</sub> O <sub>3</sub>	1600	6
	Belcast LM 806F	Bauxite	77% Al <sub>2</sub> O <sub>3</sub>	1600	6

	NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
<b>ULTRA LOW CEMENT CONCRETE</b>	Belcast UL 596 AF	Mullite	60% Al <sub>2</sub> O <sub>3</sub>	1650	6
	Belcast UL 616F	Mullite	60% Al <sub>2</sub> O <sub>3</sub>	1700	6
	Belcast UL 60F	Mullite	61% Al <sub>2</sub> O <sub>3</sub>	1700	6
	Belcast UL 866F	Corundum	91,5% Al <sub>2</sub> O <sub>3</sub>	1750	6
	Belcast UL 956 F	Tabular Alumina	94% Al <sub>2</sub> O <sub>3</sub>	1800	6
	Belcast UL ZC50	Alumina	57% Al <sub>2</sub> O <sub>3</sub>	1500	5

**GUNNING  
CONCRETE**

NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
Belgun 405	Chamotte	40% Al <sub>2</sub> O <sub>3</sub>	1350	5
Belgun 425	Chamotte	44% Al <sub>2</sub> O <sub>3</sub>	1400	6
Belgun 455	Chamotte	49% Al <sub>2</sub> O <sub>3</sub>	1425	6
Belgun 525	Chamotte	48,2% Al <sub>2</sub> O <sub>3</sub>	1500	5
Belgun 975	Tabular Alumina	92,2% Al <sub>2</sub> O <sub>3</sub>	1700	6

**FREE FLOWING  
CONCRETE**

NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
Belflow AC716F	Mullite	71,5% Al <sub>2</sub> O <sub>3</sub>	1700	6
Belflow 605 AF	Andalusite	60,9% Al <sub>2</sub> O <sub>3</sub>	1750	5

**INSULATING  
CONCRETE**

NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
Belisol 1	Light chamotte	40% Al <sub>2</sub> O <sub>3</sub>	1350	6
Belisol 1G	Light chamotte	39% Al <sub>2</sub> O <sub>3</sub>	1350	6
Belisol 1LP	Light chamotte	39% Al <sub>2</sub> O <sub>3</sub>	1250	5
Belisol 1SPV	Insulating chamotte	58% Al <sub>2</sub> O <sub>3</sub>	1375	3
Belisol 2	Light chamotte	38% Al <sub>2</sub> O <sub>3</sub>	1300	6
Belisol 2G	Light chamotte	42% Al <sub>2</sub> O <sub>3</sub>	1250	6
Belisol 2LP	Light chamotte	36% Al <sub>2</sub> O <sub>3</sub>	1300	5
Belisol 3	Vermiculite	35% Al <sub>2</sub> O <sub>3</sub>	1000	3
Belisol 5	Vermiculite	48% SiO <sub>2</sub>	950	10
Belisol R	Globular corundum	88% Al <sub>2</sub> O <sub>3</sub>	1700	5
Belisol R2V	Globular corundum	88% Al <sub>2</sub> O <sub>3</sub>	1700	3
Belisol TP2SF	Light chamotte	32% Al <sub>2</sub> O <sub>3</sub>	1150	4
Belisol TP2VFC	Light chamotte	43% Al <sub>2</sub> O <sub>3</sub>	1250	4
Belisol TP3SF	Vermiculite	23% Al <sub>2</sub> O <sub>3</sub>	900	4

	NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
<b>GRANULAR</b>	Granular Silice FGS 0-2	Fused silica	99% SiO <sub>2</sub>	1600	2
	Granular Special RCNA	Fused silica	98% SiO <sub>2</sub>	1550	5
	Granular Zircon 1280P	Alumina & Zircon	24% ZrO <sub>2</sub>	1650	4
	Granular Zircon P	Zircon	61% ZrO <sub>2</sub>	1700	4

	NAME	MAIN COMPONENT	CONTENT OF	MAXIMUM SERVICE TEMPERATURE (°C)	GRAIN SIZE DIMENSION (mm)
<b>RAMMING</b>	Belram Hydrosil	Fused silica	93% SiO <sub>2</sub>	1600	5
	Belram Special RC	Fused silica	96% SiO <sub>2</sub>	1600	5

BELREF REFRACTORIES HAS THREE SISTERS COMPANIES IN THE REFRACTORY FIELD :



Alumina bricks made with raw materials from its own quarry, recognized worldwide in the Aluminium industry and for fire proof housing applications.



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All these companies offer optimum solutions by providing high quality products and technical services adapted to customer's needs.



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