



PERFORMANCE CERAMICS & REFRACTORIES

# CARBON BLACK

SOLUTIONS FOR CARCASS AND TREAD REACTORS



**SAINT-GOBAIN  
TODAY**

**TOP 100**  
GLOBAL INNOVATORS

**1** product  
out of **4**

sold by Saint-Gobain  
today didn't exist 5  
years ago

Nearly

**400**

patents filed in 2017

**3700**

Researchers

One of the top

**100**

industrial groups  
in the world

Present in

**67** countries

2018 net sales

**€ 41.8**

Billion



## ***PERFORMANCE CERAMICS & REFRACTORIES***

Saint-Gobain Performance Ceramics & Refractories, leads the industry in the design, development and production of engineered ceramics and refractory products for extreme operating conditions and high temperature applications. Every product and material is designed to maximize performance and durability while minimizing environmental impact.

We strive to deliver value through our global technical expertise in material science, manufacturing technology, and design engineering. These efforts result in the establishment of long-term partnerships with our customers. Our employees are committed to delivering the best solutions and services to meet the unique material and engineering needs of our customers.

Our ability to deliver custom-made solutions for individual applications is further enhanced by our R&D centers, manufacturing plants, and application specialists positioned strategically across the globe.

**Together, we make the Material Difference**

# SOLUTIONS FOR CARBON BLACK REACTORS

Saint-Gobain Performance Ceramic & Refractories has been supplying complete refractory linings to carbon black reactors for over three decades and is a preferred supplier globally. Our custom engineered solutions for hot face and backup layers in tread and carcass black reactors include:



- Chromcor® fired or precast chrome-alumina shapes
- Alundum® AH199, AL100, Alfrax® 101 high-purity alumina bricks
- Thermal shock resistant Mullfrax® and AL 102 bricks
- Ziral™ and Zirnorite® zirconia bricks for the highest temperature capability
- Fused-cast Jargal M shapes for ultimate erosion resistance
- Insulating and dense castables

## YOUR BENEFITS



**EXTENDED LIFETIME**



**MINIMIZED MAINTENANCE**



**RESISTANT TO EROSION AND CORROSION**



**THERMAL SHOCK RESISTANT**



**INCREASED EFFICIENCY**

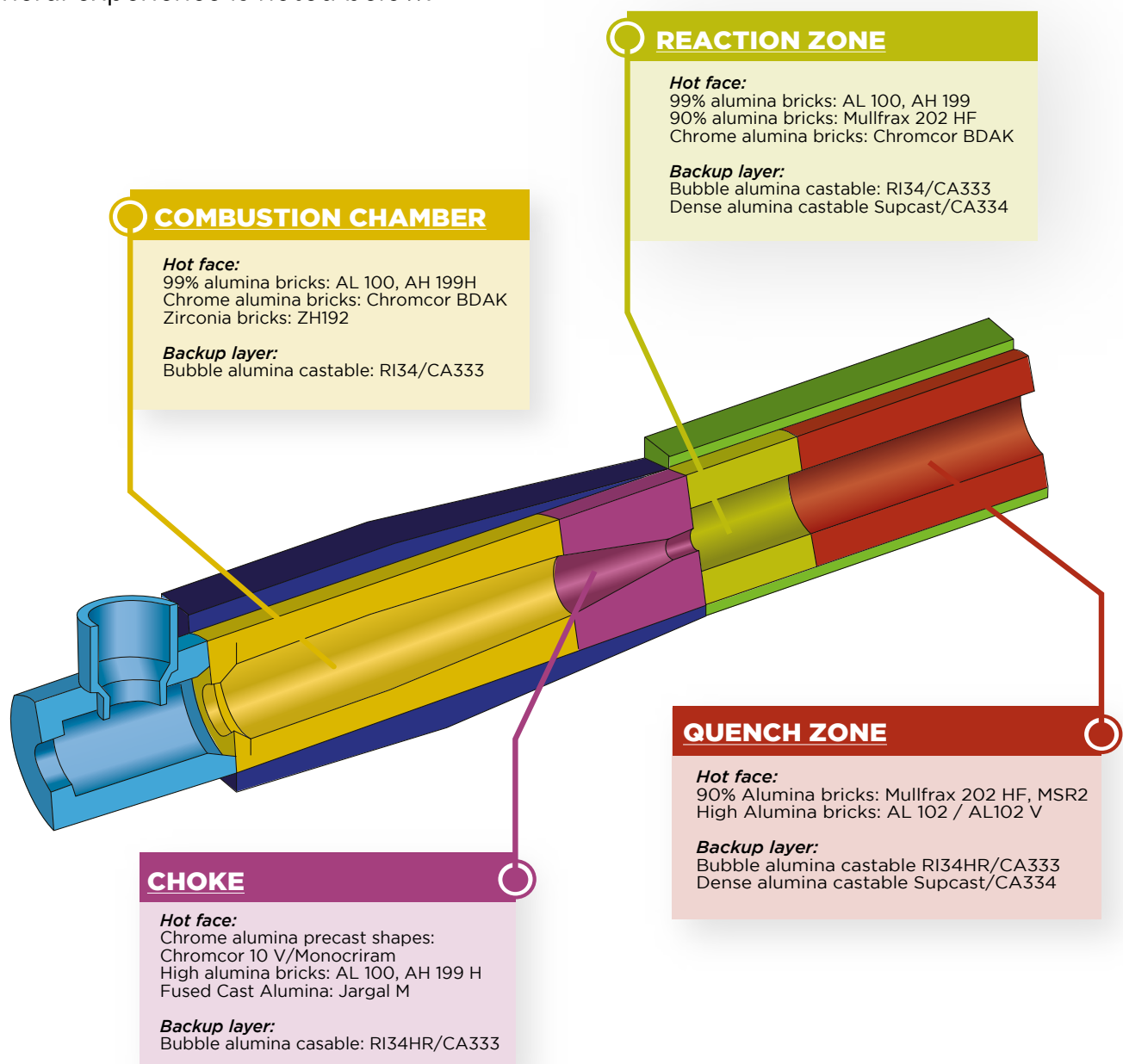
# Extreme temperature & highly erosion resistant refractories for Carcass and Tread Reactors

Saint Gobain supplies refractory solutions worldwide to all major carbon black processes. The furnace operator starts the dialogue by defining the operational conditions required to produce the grade of black desired. Reactor temperatures, reactor geometries, fuel source(s), feed source(s) are all significant starting factors. Operating conditions vary by furnace zone. The different zones have unique challenges in regards to their atmosphere (oxidizing or reducing), gas velocities, chemical interactions, and temperature fluctuations. Saint Gobain works closely with furnace operators to provide refractory solutions best suited to meet the performance and cost goals of the operator. Lining solutions are customized by material form and grade:

**Material forms:** bricks, specialty shapes, precast shapes, fused cast shape, and castables

**Material grades:** Aluminas, Zirconias and Chrome Aluminas.

General experience is noted below.



# MATERIAL DATA

## Alumina | Chrome Alumina | Zirconia Refractories for Carbon Black

	Al <sub>2</sub> O <sub>3</sub> [%]	Others (%)	Density g/cm <sup>3</sup> (lb/ft <sup>3</sup> )	Porosity (%)	Shape design	Benefits
<b>AL100</b>	99.50	<0.5	3.32 (207)	16	Standard and special design bricks	Excellent erosion resistance
<b>AH199H</b>	99.55	<0.4	3.30 (206)	16	Standard and special design bricks / blocks	Excellent erosion resistance
<b>AL102</b>	96	3.0 (ZrO <sub>2</sub> )	3.25 (203)	16	Standard and special design bricks	High thermal shock resistance
<b>Mullfrax 202</b>	87	<10 (SiO <sub>2</sub> )	2.80 (175)	18	Standard and special design bricks	High thermal shock resistance
<b>ZA95</b>	<0.3	>93 (ZrO <sub>2</sub> )	4.55 (284)	19	Standard and special design bricks	For temperatures >2000°C
<b>Monocriram</b>	98	<2.0	3.25 (203)	17	Preshaped block	Choke sections in single block shape
<b>Jargal M</b>	95	<4.0 (Na)	3.54 (221)	4	Fused cast preshaped block	Outstanding erosion and chemical resistance
<b>ZH 192</b>		92.66 (ZrO <sub>2</sub> )	4.43	22	Standard and special design	High temperature capability

## Chrom Alumina Refractories for Carbon Black

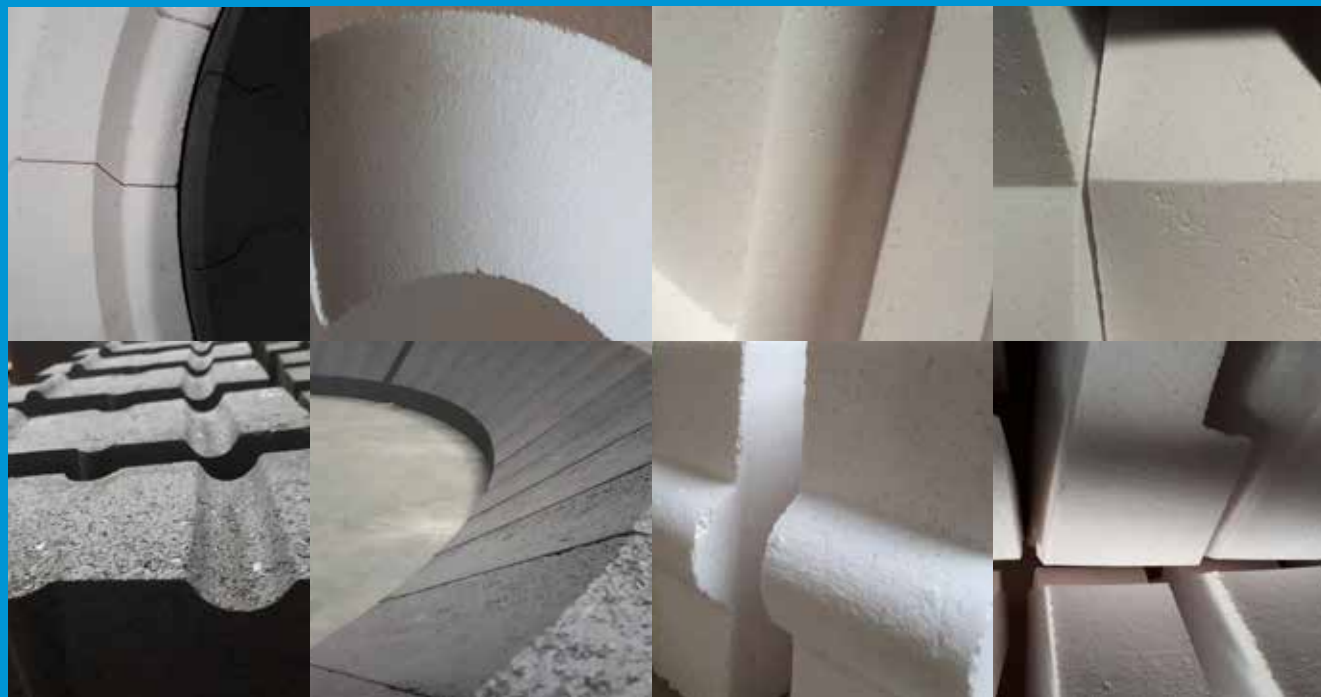
	Al <sub>2</sub> O <sub>3</sub> [%]	Cr <sub>2</sub> O <sub>3</sub> (%)	Density g/cm <sup>3</sup> (lb/ft <sup>3</sup> )	Porosity (%)	Shape design	Benefits
<b>Chromcor BDAK</b>	80.0	~10+4% ZrO <sub>2</sub>	3.55 (222)	12	Standard and special design bricks	Hot mechanical strength
<b>Chromcor B10</b>	85	~10	3.48 (217)	13	Standard and special design bricks / blocks	Hot mechanical strength
<b>Monochromcor10</b>	85	~10	3.25 (203)	13	Pre-shaped block	Erosion resistance

## Monolithics for Carbon Black

	Basis	Al <sub>2</sub> O <sub>3</sub> [%]	Fe <sub>2</sub> O <sub>3</sub> (%)	CaO (%)	Density g/cm <sup>3</sup>	Cold crushing strength Mpa (1)
<b>CA333</b>	Bubble alumina	95.68	0.13	3.9	1.6	20.7
<b>CA334</b>	Corundum	94.7	0.2	4.5	2.88	24
<b>SUPCAST</b>	Corundum	95	0.2	4	2.95	50

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# SAINT-GOBAIN'S OUTSTANDING PRODUCT QUALITY WILL HELP MEET THE DEMANDING NEEDS OF YOUR APPLICATION



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