

Refractory Solutions for Carbon Black

Energy & Chemicals

The carbon black industry plays a vital role in the global economy. Carbon black is a key raw material for the tire industry, plastics, coatings, inks, and many other industrial applications. Its production process, however, is one of the most demanding in the petrochemical sector.

Reactors used in carbon black plants must operate at **temperatures exceeding 2,000°C**, while at the same time enduring rapid cooling (quenching) that causes severe **thermal shock**. These extreme conditions place heavy demands on refractory linings, making material quality and reliability critical for safe and efficient production.



Scope
A-Z

Years of
experience
> 40

Dedicated
product
range

High-performance Materials for Extreme Conditions

At Gouda Refractories, we deliver **world-class refractory solutions** to carbon black processes around the globe.

Every grade of carbon black starts with precise furnace conditions; temperature, geometry, fuel, and feed. Each furnace zone brings its own challenge: shifting atmospheres, high gas velocities, complex chemical reactions, and extreme temperature swings.

That's where Gouda Refractories comes in. We work hand-in-hand with furnace operators to design custom refractory linings that boost performance while controlling costs.

The Challenge

- **High Operating Temperatures:** Reactors run at over 2,000°C.
- **Thermal Shock:** Quenching hot gases to low temperatures causes extreme stress.
- **Aggressive Environment:** Chemical reactions and gas flows attack the lining.
- **Reliability & Efficiency:** Any failure leads to costly downtime and maintenance.

Our Solutions - Tailored To Your Needs

At Gouda Refractories, we specialize in developing refractory materials tailored to the unique demands of carbon black reactors - bricks, specialty and precast shapes, fused cast shapes, and castables.

Our engineered grades are designed to ensure:

- **High thermal resistance:** Continuous performance in ultra-high temperature zones.
- **Thermal shock resistance:** Reliable protection against sudden cooling.
- **Durability:** Extended service life, reducing maintenance needs.
- **Customized performance:** Optimized solutions for combustion chambers, reactor walls, and quench zones.

References

- **Orion Engineered Carbons:** Kalscheuren (DE), Ravenna (IT), Malmö (SE), Port Elizabeth (ZA), Rotterdam (NL) [Plant closed]
- **Cabot:** Rozenburg (NL)
- **Imerys:** Willebroek (BE)
- **Continental Carbon:** Ponca City (US)
- **Birla Carbon:** Hannover (DE), Tiszaújváros (HU)
- **WRPC** (NG)
- **Epsilon Carbon** (IN)

Why Partner with Gouda Refractories?

- **Decades of experience** in the petrochemical industry.
- **Proven track record** with Carbon Black producers worldwide.
- **Technical expertise** and support from our specialists in Gouda, The Netherlands.
- **Comprehensive material overview** available for engineers and plant operators.

Material Properties								
Quality	Type	Max. Service Temperature	Bulk Density	ZrO ₂ +HfO ₂	Al ₂ O ₃	Cr ₂ O ₃	CaO	SiO ₂
		°C	kg/m ³	%	%	%	%	5
ZA 95	Dense Refractory Brick	>1,800	4,800	96			4	-
ZA 85	Dense Refractory Brick	>1,800	4,600	85	10		4	
ZA 95 L	Insulating Refractory Brick	>1,800	3,500	95			4	
ZC 85-10	Dense Refractory Brick	>1,800	4,950	85		10	4	
CA 80	Dense Refractory Brick	>1,800	4,150		19	80		
V 188	Dense Refractory Brick	1,800	3,100		>99		<0.5	<0.15
AK 99	Dense Refractory Brick	1,800	3,250		>99			<0.1
AK 94 MX	Dense Refractory Brick	1,760	3,100		90			9.5
Fi80-XX	Insulating Refractory Brick	1,800	1,300-1,500		99			1
GI 34	Insulating Refractory Brick	1,800	1,550		99			1
GI 32	Insulating Refractory Brick	1,760	1,230		84			14
Fi65-XX	Insulating Refractory Brick	1,650	1,200-1,300		84			14
GI 30	Insulating Refractory Brick	1,650	1,020		84			14
Vibron 180	Low Cement Castable	1,870	3,150		98			0.1
Flucon 180	Self Flowing Castable	1,800	3,000		97		2	0.1
Golite 250	Insulating Refractory Castable	>1,800	3,150	87	7		6	
Golite 180	Insulating Refractory Castable	>1,800	1,420		94			<0.5
Golite 170	Insulating Refractory Castable	1,700	1,300		80			10
Golite 160	Insulating Refractory Castable	1,600	1,400		59			33

Values are typical. Datasheets are available upon request.

Your Trusted Partner for Reliable, High-Performance Refractory Solutions in the Carbon Black Industry!

