



# REFRACTORY MATERIALS

DGC REFRACTORIES - A Division of DGC AFRICA  
ENGINEERED EXCELLENCE FOR INDUSTRIAL HEAT MANAGEMENT

## LEADING THE WAY

IN ASSET INTEGRITY MANAGEMENT & INDUSTRIAL SOLUTIONS

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SOUTH AFRICA

ZAMBIA

DEMOCRATIC REPUBLIC OF CONGO

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ZIMBABWE

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# AT DGC REFRACTORIES, WE BRING TOGETHER OVER A CENTURY OF INDUSTRIAL HERITAGE & DEEP MATERIALS EXPERTISE

TO PROVIDE PREMIUM REFRACTORY SOLUTIONS FOR HIGH-TEMPERATURE APPLICATIONS ACROSS AFRICA & BEYOND.

As part of the **Dickinson Group of Companies**, established in 1910, we have built a reputation for excellence in thermal process industries, combining technical knowledge with practical field experience to serve sectors such as non-ferrous metallurgy, cement, iron and steel, petrochemicals, power generation, and glass production.

Our offering goes beyond material supply. We deliver value through end-to-end technical collaboration, helping clients solve complex thermal challenges and optimise furnace performance, reliability, and lifespan. **DGC Refractories** partners with globally recognised refractory manufacturers, enabling us to offer access to an extensive portfolio of shaped and monolithic products, engineered for efficiency, safety, and longevity in the harshest of environments.



## OUR COMMITMENT

TO EXCELLENCE

**Uncompromising Quality. Trusted Performance. Global Capability.**

At **DGC Refractories**, we are uncompromising in our commitment to quality, consistency, and performance. Our reputation has been earned through decades of reliable delivery, technical excellence, and deep understanding of our clients' thermal processing requirements.

We believe that supplying refractory materials is not just about product – it's about partnership. From the moment of engagement, we work alongside clients to define the right solution for their specific application, ensuring performance across extreme temperatures, chemical exposures, and mechanical stress. Each product we supply meets stringent international quality standards and is supported by comprehensive technical specifications, traceability documentation, and, when required, third-party testing. Our quality assurance processes extend beyond the lab and into practical, results-driven performance in the field.

By aligning with select global manufacturing partners operating at world-class scale, we are able to offer:

- **High-purity raw materials**, consistently processed and tested
- **Precision manufacturing**, using automated and energy-efficient kiln systems
- **Batch-level quality control**, including chemical, physical, and thermal testing
- **Environmental stewardship**, with sustainable production practices embedded in the value chain

In short, our clients receive the technical backing and scale of a global supply chain, delivered through the accountable, relationship-driven ethos of a proudly African industrial company.

# FACILITIES & QUALITY CONTROL

**ADVANCED MANUFACTURING. RIGOROUS TESTING. RELIABLE DELIVERY.**

DGC Refractories supplies its extensive product range through a network of internationally accredited refractory production facilities. These plants employ advanced manufacturing processes, including high-efficiency tunnel kilns, automated batching systems, and environmentally optimised operations that meet or exceed ISO 9001 standards.

Every batch of refractory product is subject to rigorous in-process and final-stage testing. This ensures that the materials not only meet technical specifications on paper, but also perform under the extreme operating conditions of industrial furnaces, kilns, reactors, and vessels.

**Our Quality Control Protocols Include:**

- **X-ray fluorescence (XRF) and ICP-AES** for high-precision chemical analysis
- **Large-scale image analysis microscopes** for structural evaluation
- **Thermal dilatometry** to measure thermal expansion and contraction properties
- **High-temperature load testing and creep resistance** under simulated service conditions



- **Thermal shock resistance** testing using calibrated cyclic heating and quenching
- **Microscopy at elevated temperatures**, to monitor integrity and phase change behavior

We also offer inspection flexibility using independent third-party quality assurance agencies, such as Bureau Veritas, SGS, China Steel Test Group, and China Testing & Certification Group, depending on client preference and project requirements.

**THIS COMPREHENSIVE QUALITY ECOSYSTEM  
ENSURES DGC REFRACTORIES CAN  
CONSISTENTLY DELIVER HIGH-PERFORMANCE  
MATERIALS WITH TRACEABLE DATA  
& PEACE OF MIND.**



# STRATEGIC SUPPLY PARTNERSHIPS

**GLOBAL CAPABILITIES. LOCAL COMMITMENT.**

DGC Refractories operates through exclusive international supply agreements with world-class manufacturing partners who share our dedication to quality, consistency, and technical innovation.

These partnerships enable us to offer a wide range of shaped refractory bricks that meet the highest global standards for thermal performance, corrosion resistance, and mechanical durability. Our supply chain is structured to ensure:

- **Product consistency and traceability**, supported by full technical documentation
- **Customisation options** tailored to client-specific operating conditions
- **Reliable lead times** for both routine replenishment and major shutdown projects
- **Access to advanced materials R&D** through ongoing technical collaboration

**BY COMBINING GLOBAL SOURCING STRENGTH WITH REGIONAL SERVICE & ACCOUNTABILITY, DGC REFRACTORIES DELIVERS NOT JUST MATERIALS, BUT SOLUTIONS THAT WORK IN THE REAL WORLD, WHERE DOWNTIME, PROCESS INTEGRITY, AND COST EFFICIENCY MATTER MOST.**

# INDUSTRY APPLICATIONS

PRECISION-ENGINEERED REFRACTORIES FOR DEMANDING INDUSTRIAL PROCESSES

## NON-FERROUS METALS INDUSTRY

Copper • Zinc • Aluminium • Nickel • Lead

## CEMENT INDUSTRY

Rotary Kilns • Calciners • Preheaters • Coolers • Tertiary Air Ducts

## IRON & STEEL INDUSTRY

Blast Furnaces • Ladles • Converters • Stoves • Tundishes • Coke Ovens

## GLASS INDUSTRY

Container Glass • Float Glass • Fibre Glass Furnaces • Regenerators

## THERMAL POWER, ELECTRICAL, PETROCHEMICAL & COAL CHEMICAL INDUSTRIES

Rotary Kilns • Incineration Units • Gasifiers • Boilers • Sulphur Recovery Plants

## FOUNDRY INDUSTRY

Iron • Steel • Aluminium • Copper • Zinc Casting Operations





# RELIABLE REFRACTORY SOLUTIONS



## HIGH-PURITY REFRACTORY MATERIALS MANUFACTURING EXCELLENCE



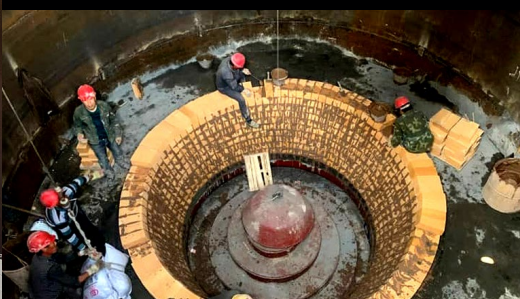
## WE WORK DIRECTLY WITH PLANT ENGINEERS & MAINTENANCE TEAMS TO ENSURE EVERY LINING MEETS PROCESS REQUIREMENTS & PRODUCTION GOALS

DGC REFRACTORIES  
– **TRUSTED**  
REFRACTORY  
SYSTEMS FOR  
A HIGH-PRECISION  
**CASTING**  
ENVIRONMENT





DGC REFRACTORIES  
 – ENGINEERED  
 MATERIALS FOR  
**RELIABILITY**  
**UNDER**  
**EXTREME**  
**CONDITIONS**



**ALL MATERIALS ARE TESTED TO INTERNATIONAL SPECIFICATIONS, ENSURING CONSISTENCY & TRACEABILITY**

LET US HELP YOU  
 STRENGTHEN  
 PERFORMANCE,  
 REDUCE RISK, &  
**OPTIMISE**  
 OPERATIONS,  
 BRICK BY BRICK



**HIGH-PURITY  
 REFRACTORY  
 MATERIALS  
 MANUFACTURING  
 EXCELLENCE**



# NON-FERROUS METALS INDUSTRY

*Copper • Zinc • Aluminium  
Nickel • Lead*

The smelting and refining of non-ferrous metals demands refractory materials capable of withstanding aggressive chemical attack, high thermal loads, and frequent thermal cycling.



DGC Refractories supplies specialised shaped refractories that deliver high corrosion resistance, excellent thermal stability, and mechanical strength across a range of process units including:

- Flash Furnaces
- Anode Furnaces
- Rotary Furnaces
- Slag Cleaning Units
- Electric Holding and Casting Furnaces



## TYPICAL MATERIALS USED IN THIS SECTOR INCLUDE:

- Fused-Rebonded Magnesita Chrome Bricks
- Semi-Rebonded and Direct-Bonded Magnesita Chrome Bricks
- Magnesita-Alumina and Magnesita Ferrum Spinel Bricks
- High Alumina Bricks and Silicon Carbide Series
- Fused-Cast and Corundum-Based Bricks for high-temperature and chemically aggressive zones



**OUR APPLICATION EXPERTISE ENSURES THE CORRECT SELECTION & CONFIGURATION OF REFRACTORY LININGS FOR OPTIMAL PROCESS EFFICIENCY, REDUCED MAINTENANCE FREQUENCY, & EXTENDED SERVICE LIFE**





# CEMENT INDUSTRY

***Rotary Kilns • Calciners Preheaters • Coolers • Tertiary Air Ducts***

The cement production process imposes some of the most extreme conditions on refractory linings, exposing them to abrasion, alkali attack, thermal shock, and mechanical stress. **DGC Refractories** provides a comprehensive selection of shaped refractory bricks engineered to extend campaign life and reduce downtime across all zones of the cement kiln line.

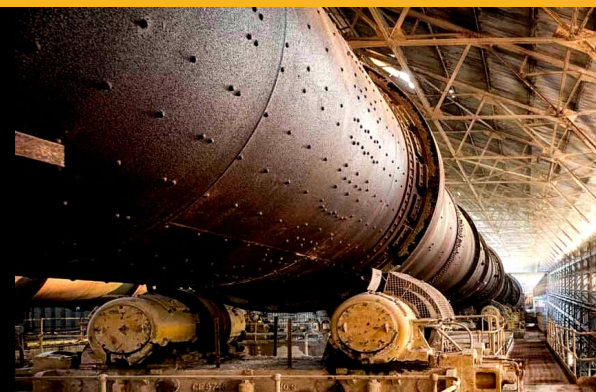
**OUR TAILORED MATERIAL SELECTION ENSURES DURABILITY ACROSS EACH EQUIPMENT ZONE, OPTIMISING THERMAL PERFORMANCE, REDUCING HEAT LOSS, & SUPPORTING STABLE KILN OPERATION.**

**Our solutions are specifically formulated for:**

- High Thermal Load Zones (Burning Zone, Transition Zone)
- Alkali and Sulphate-Rich Areas (Preheater, Calciner)
- Abrasion-Prone Equipment (Cooler, Kiln Hood, Tertiary Ducts)

**RECOMMENDED MATERIALS INCLUDE:**

- Magnesia-Hercynite and Magnesia-Spinel Bricks – Chrome-free alternatives with excellent thermal shock and chemical resistance
- Alkali-Resistant Bricks – For preheaters and calciners exposed to volatile salts
- Silicon Carbide-Mullite Bricks – For erosion resistance and low thermal conductivity
- Multi-Layer Mullite and Low Thermal Conductivity Bricks – Energy-efficient linings for outer shell protection
- High-Alumina and Andalusite Bricks – Suitable for cycling temperature areas requiring structural integrity



# IRON & STEEL INDUSTRY

*Blast Furnaces • Ladles • Converters • Stoves • Tundishes • Coke Ovens*

Steelmaking involves extreme thermal, mechanical, and chemical loads, each requiring precisely matched refractory materials to ensure reliability, safety, and extended campaign life.



## TYPICAL MATERIALS USED IN THIS SECTOR INCLUDE:

- Magnesia Bricks and Magnesia-Carbon Bricks
- Silica Bricks and Andalusite Bricks
- Mullite Cordierite and Alumina-Zirconia Series
- Nitride and Sialon Bonded SiC Bricks
- Alumina-SiC-C and Alumina Spinel Series



We offer specialist solutions for:

- **Blast Furnace Linings** – High-performance magnesia-carbon bricks with enhanced resistance to alkali and thermal cycling
- **Ladle & Converter Zones** – Alumina-carbon and alumina-spinel-carbon bricks designed for steel purity and structural durability
- **Hot Blast Stoves & Tundishes** – Silica and mullite series bricks for thermal storage and temperature uniformity
- **Coke Ovens** – Silica and high-alumina bricks tailored to high-volume carbonisation cycles

**BY ALIGNING REFRACTORY PERFORMANCE WITH THE THERMAL & MECHANICAL LOAD PROFILE OF EACH PROCESS ZONE, DGC REFRACTORIES ENABLES GREATER THROUGHPUT, LONGER CAMPAIGN INTERVALS, & ENHANCED SAFETY FOR STEEL PRODUCERS.**





# GLASS INDUSTRY

**Container Glass • Float Glass • Fibre Glass Furnaces  
• Regenerators**

Glass melting processes operate under continuous high-temperature loads with strong chemical aggression—demanding refractory materials that offer corrosion resistance, structural stability, and consistent insulation over extended periods.



**DGC Refractories provides high-specification shaped refractories engineered to perform across every critical area of the glass furnace and supporting systems, including:**

- Melting Tanks & Throats
- Forehearth & Working Ends
- Checker Chambers & Regenerators
- Tin Bath Bottoms (Float Lines)

## TYPICAL MATERIALS

**SUPPLIED FOR THESE APPLICATIONS INCLUDE:**

- Fused Cast AZS and Corundum Bricks – Ideal for glass contact zones and sidewalls
- Silica Bricks – High thermal shock resistance and excellent creep resistance at high temperatures
- Zircon and Zircon-Mullite Bricks – Low contamination and high corrosion resistance
- Sillimanite and Mullite Bricks – Suitable for crown and insulation layers
- Low-Porosity Fireclay Bricks – For superstructures and backup insulation

**EACH SOLUTION IS SELECTED BASED ON THE SPECIFIC THERMAL PROFILE & GLASS TYPE, ENSURING LONG-LASTING REFRACTORY INTEGRITY, MINIMAL GLASS DEFECT RATES, & EXTENDED CAMPAIGN LIFE.**



**OUR SOLUTIONS DELIVER STABLE, LONG-LIFE PERFORMANCE ACROSS CRITICAL THERMAL ZONES, HELPING OPERATORS MAINTAIN UPTIME, IMPROVE FUEL EFFICIENCY, AND MEET ENVIRONMENTAL COMPLIANCE TARGETS.**



# THERMAL POWER, ELECTRICAL, PETROCHEMICAL & COAL CHEMICAL INDUSTRIES

***Rotary Kilns • Incineration Units  
Gasifiers • Boilers  
Sulphur Recovery Plants***

Industrial processes in the energy and chemical sectors expose refractory linings to aggressive environments, high thermal gradients, corrosive slags, and rapid cycling, all of which demand materials with high mechanical strength, chemical inertness, and thermal shock resistance.

**DGC Refractories supplies a range of high-performance shaped refractories for:**

- Sulphur Combustion & Waste Incineration Units
- High-Temperature Gasification Chambers
- Rotary Kilns & Cyclones in Power Plants
- Furnace Linings in Petrochemical Processing

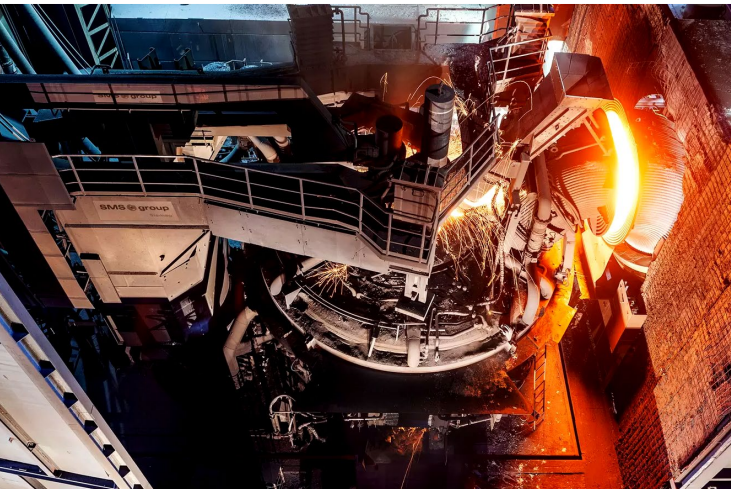
**RECOMMENDED MATERIALS INCLUDE:**

- Fused and Semi-Rebonded Magnesia-Chrome Bricks – For zones exposed to corrosive slags and thermal cycling
- Direct-Bonded Magnesia-Chrome Bricks – Excellent refractoriness and volume stability at high temperatures
- High-Alumina and Silicon Carbide Bricks – For abrasion-prone and chemically aggressive areas
- Dry Impervious and Abrasion-Resistant Refractories – For thermal shields and erosion zones
- Vacuum-Formed and Ceramic Filter Elements – For sealing, filtration, and shaped insulation

# FOUNDRY INDUSTRY

*Iron • Steel • Aluminium •  
Copper • Zinc Casting  
Operations*

The foundry environment requires flexible, heat-resistant, and abrasion-tolerant materials for use in furnaces, ladles, and ancillary components exposed to repetitive thermal cycling, mechanical stress, and chemical attack.



DGC Refractories offers a well-proven range of shaped refractories and insulating products tailored to:

- Electric Arc Furnaces (EAFs)
- Induction Furnaces
- Holding & Pouring Ladles
- Tundishes and Launderers

## KEY REFRACTORY MATERIALS INCLUDE:

- **High-Alumina and Mullite-Based Bricks**  
– Withstand high thermal loads and mechanical wear
- **Silicon Carbide Bricks** – Excellent abrasion and oxidation resistance
- **Zircon-Based Products** – For non-wetting properties in non-ferrous casting
- **Insulation Bricks & Backup Linings** – Enhancing thermal control and energy savings



## We also supply:

- **Ceramic Fiber Products** – Including blankets, boards, modules, and paper for lining flexibility and insulation
- **Slip Plane Materials and Coil Cements** – Ensuring stability and safety in induction furnace applications
- **Capping & Sprout Solutions** – Designed to improve flow control and minimize heat loss during pouring

**DGC'S MATERIALS ARE SELECTED FOR THEIR OPERATIONAL RESILIENCE, COST-EFFECTIVENESS, & EASE OF INSTALLATION, ENSURING FOUNDRIES CAN OPERATE AT PEAK EFFICIENCY WHILE MAINTAINING CONSISTENT CASTING QUALITY.**

# YOUR STRATEGIC PARTNER IN REFRACTORY EXCELLENCE



With over a century of industrial service heritage and deep materials expertise, **DGC Refractories** is positioned to support your most demanding high-temperature applications with confidence.

**We offer:**

- **Reliable Supply** – Backed by strong international manufacturing partnerships and logistics support
- **Engineering Support** – Application-specific material selection and performance-driven solutions
- **Technical Consistency** – Every product batch is rigorously tested to international quality standards
- **Client Focus** – Responsive service, tailored recommendations, and long-term operational value

**FROM METALS & MINERALS TO ENERGY & ENGINEERED MATERIALS,  
OUR REFRACTORIES HELP DRIVE PERFORMANCE  
ACROSS AFRICA & BEYOND.**



# OUR OFFICES

**CONTACT US** to learn how DGC can help transform your operations and deliver sustainable competitive advantage.

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**OVER A CENTURY OF SERVICE. A FUTURE BUILT ON ENGINEERED RESILIENCE.**



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