

# MOLDING SOLUTIONS

 calderlys

# CALDERYS



150+ years of combined experience

6,500+ people and contractors in over 30 countries

50 plants in the 5 continents

One of the world's largest supplier in high temperature solutions

Enlarged portfolio of solutions from refractory bricks and monolithics to steel casting fluxes and green molding sand solutions

**Calderys is a leading global provider for industries operating in high temperature conditions. We specialize in thermal protection for industrial equipment with a wide range of refractory products, and advanced solutions to enhance steel casting, metallurgical fluxes and molding processes.**

In 2023, Calderys joined forces with HarbisonWalker International, the largest supplier of refractory products and services in the United States.

Together, we form a high-growth, customer-centric provider with a comprehensive offering and a truly global reach. Drawing on over 150 years of combined experience, we support our customers in their energy transition needs. We count more than 6,500 people and contractors, in over 30 countries.

**Our international network of experts ensures an end-to-end offer with tailored services.**

We are constantly developing innovative products and techniques in order to **optimize costs and performance**, combining world-class Research & Development and technical experts, as well as responsive supply chain and sales departments.

Our global structure allows us to design the customized solutions of today while **anticipating the industries' needs of tomorrow**. Calderys pays particular attention to the industry's impact on the environment and has a sustainability program articulated around three pillars: supporting our customers in their energy transition needs, improving our environmental footprint and being committed to people and local communities.

**Health and safety is an integral part of how we do business.** The same attention to detail that helps us provide personalized products and solutions is also applied to our rigorous health and safety criteria. Our activities require the highest level of professionalism to carry out our projects. To guarantee the strictest standards, Calderys employs a number of safety, occupational health and environmental protocols across all its entities worldwide — applicable to both our own employees as well as subcontractors and temporary workers.



# OUR VALUE TO THE FOUNDRY INDUSTRY

Calderys is a one-stop shop for all aspects of metal processing for both ferrous and non-ferrous foundries, from melting, treating and transferring to the casting process. We offer a wide range of solutions, from refractory castables and bricks, melt shop additives, slag coagulants and coatings materials to a full set of molding sand additives.

## What we bring to the foundries

- Close watch over ESG topics, including: energy optimisation, CO<sub>2</sub> emission and other environmental project optimisation consulting services, eco-profile, product stewardships, safety culture and innovation
- Complete portfolio of customized solutions from the melting shop to the molding shop
- Full set of refractory services: from engineering & design, installation, project management, dry-out & commissioning, to maintenance and refractory assessments
- Foundry service facilities: off site relining and other refractory related services
- Digital solutions: easier silo management through CALDE® e-Supply, remote assistance and troubleshooting with CALDE® Smart Lens, molding sand materials analysis thanks to CALDE® e-Support
- Casting defect consulting
- Technical support



# INNOVATIVE SERVICES SOLVING FOUNDRIES' CHALLENGES

We offer a wide range of innovative solutions tailored to customer specifications for molding sand additives that meet high health and environmental safety standards.



Calderys' extensive mineral and application expertise enables us to supply the best bentonites with high thermal stability and strength. For green engineering blends, our experts formulate specific solutions based on site visits and thorough analysis. For core sand additives, we offer approved organic, inorganic and hybrid solutions. Our special natural and synthetic sands offer very high refractoriness and meet the highest health and environmental safety standards. Calderys' quarries in Jianping (China) and Taşlık (Turkey) provide us with excellent raw materials, which are processed at our blending sites around the world.

## **CONNECTED SILO LOGISTICS WITH CALDE® E-SUPPLY**

Our smart sensor solutions help you manage silo logistics, from stock monitoring to product delivery.

## **LAB AND ENVIRONMENTAL ANALYSIS WITH CALDE® E-SUPPORT**

We offer routine analyses of your moulding sand materials in our laboratories with an upcoming online access to the results via a secure portal. Specific analysis results are available in updated table and graph form.



# CUSTOMIZED **GREEN MOLDING** **SAND ADDITIVES**

## **GREEN MOLDING SAND ADDITIVES & CUSTOM BLENDS FOR FOUNDRIES**

We have more than 40 years' experience in processing, blending, and supplying combinations of our high-quality bentonite binders and lustrous carbon formers to the global foundry industry. Our blends also include treated carbon and lustrous carbon formers to improve casting surface quality, optimize molding sand performance, and minimize additions. In addition to keeping molding costs relatively low with a high level of sand recovery and easy disposal of spent molding materials, bentonite bonded sand allows for the use of modern high-pressure molding lines, which boosts productivity. Our solutions include: bentonite, bespoke bentonite mixtures, slag additives, and protective coatings.

## **IKOBOND® FOR MOLDING STRENGTH**

IKOBOND® clay technology is designed for superior durability in high-density molding. The strengths generated speed up sand development, thereby optimizing consumption. A special blend of bentonite with a small percentage of highly refractory clay improves thermal expansion and reduces the amount of bentonite burned out in the process, resulting in better mold integrity and strength.

## **LUSTROUS CARBON FORMERS**

A carbon-containing additive is typically added to bentonite-bonded molding sands to reduce oxidation, minimize sand adhesion to the casting during shakeout, improve molding surfaces, and reduce molding defects. It also optimizes the properties and performance of the molding sand.

## **ANTRAPUR®**

ANTRAPUR® blend formulations can be tailored to fulfill specific client needs. There are several advantages to using blends. Blending coal with bentonite improves accuracy of the dosing of the different components in the mixer as coal does not flow well. A very important reason for using a blend is safety during transportation and storage. Products classified as hazardous due to their sensitivity and potential to self-ignite require specialized transportation and safety measures during storage. Products classified as explosive require costly ATEX safety facilities at the add, which is not required with our Antrapur blends.

### ENVIBOND®

Foundries must produce quality castings consistently and as efficiently as possible while minimizing the impact on the environment and the workplace. Thanks to its unique technology effectively consumes gasses, significantly reducing fumes and hazardous organic compounds. ENVIBOND®: - Reduces the use of sea coal by 30% to 90% - Decreases emissions and odors by up to 95% - Lowers consumption of molding sand binders - Results in cleaner air in the workplace with less need for air filtration - Increases the recyclability of molding sand - Improves casting surface quality - Reduces environmental investments

### CORE SAND ADDITIVES: ANTRAPEX®

We provide solutions for core sand in the form of additives, to prevent casting defects. We also cover a broad range of solutions with a variety of products such as organic and inorganic additives:

- Special sands (inorganic)
- ANTRAPEX®, an additive for cold box core sand that minimizes the risk of veining.

ANTRAPEX® is non-porous and generally coarse-grained, minimizing losses of core strength. The organic components of ANTRAPEX® improve the casting surface finish during combustion.

Core sand mixtures containing ANTRAPEX® have a long bench life, guaranteeing a consistent process and quality of core produced. The flowability of the core sand remains high with the addition of ANTRAPEX®. The product range has an unlimited shelf life and is not classified as a hazardous substance or dangerous goods.

After core breakdown, ANTRAPEX® in the molding sand acts as a carbonaceous material.

### COTREX® SLAG BINDERS

Slag binders are used to clean the surface of the melt prior to pouring. They effectively remove dross and slag from the melting and post-treatment processes, ensuring that castings are inclusion-free. The inert nature of the material means there is no reaction with refractory materials in ladle and furnace linings. The high fluidity of our products ensures excellent slag binding power at low consumption. Various particle/grain sizes are available for furnace, transfer, treatment, casting ladle, converter, and induction furnace crucible applications.



