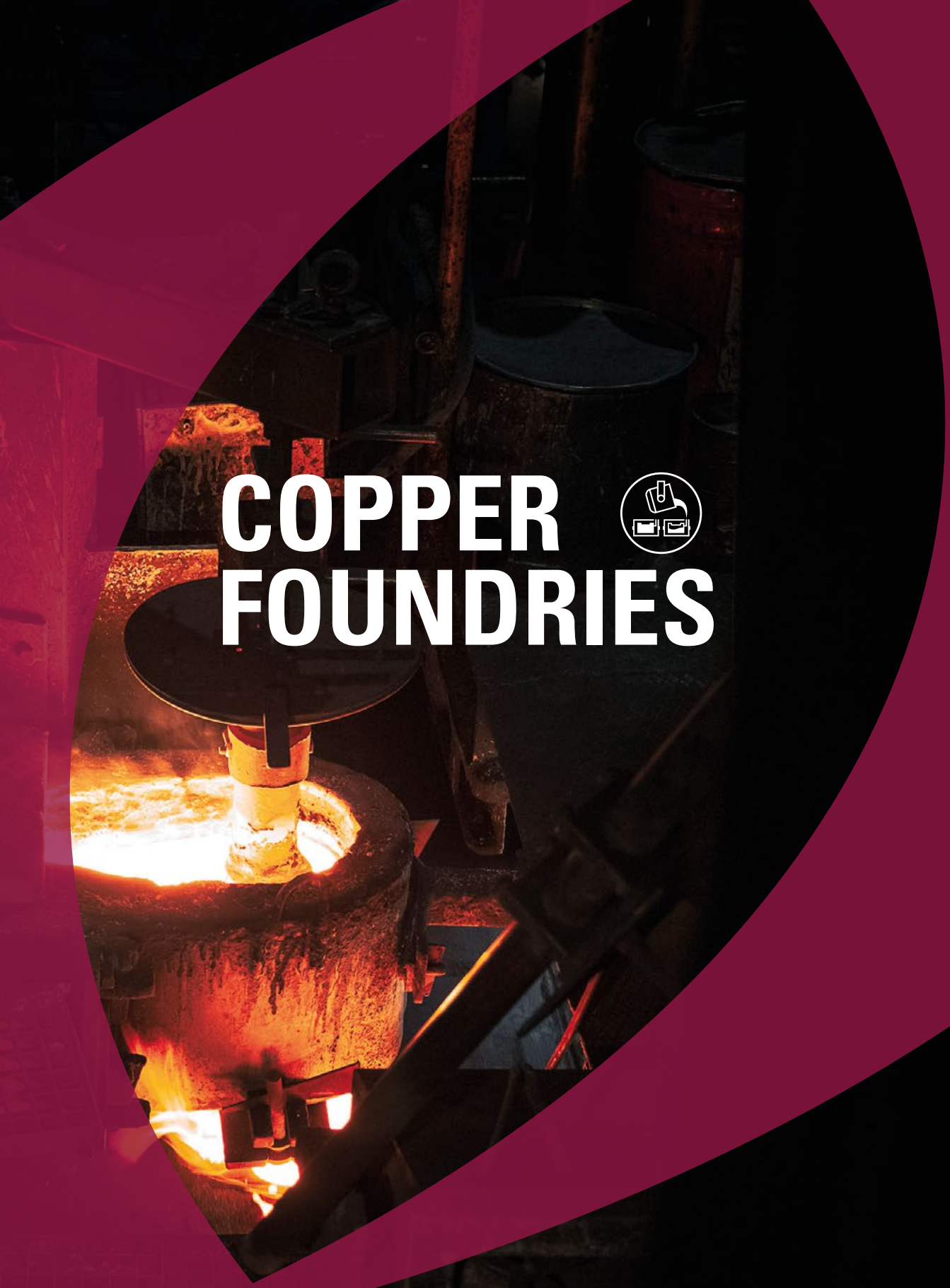
EMEA



COPPER FOUNDRIES

calderys

OUR VALUE TO THE FOUNDRY INDUSTRY

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 iron and 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.

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.

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 optimization & CO2 emission, 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 smart sensors, remote assistance and troubleshooting with CALDE® Smart Lens, molding sand materials analysis
- Casting defect consulting
- Technical support

WHAT WE BRING TO
COPPER FOUNDRIES

MATERIAL SELECTION

Our expert engineers have a deep understanding of your local market, industrial process, and the chemical reactions in your equipment.
They work with you to identify the best products in terms of performance, lifetime, and cost.

Through careful product selection, we will:
- Reduce downtime for installation and maintenance
- Decrease manpower needs
- Increase production volume, quality, and reliability
- Extend product life, thereby cutting waste
- Make manufacturing safer

PROJECT MANAGEMENT

Our highly specialized and skilled teams handle projects of all sizes and complexities. The Calderys project engineers plan and control every aspect of the project lifecycle from concept to definition, installation, dry-out and commissioning.

Our end-to-end project management services include:
- Engineering
- Material selection
- Planning Delivery scheduling
- Site- and sub-contractor management and supervision
- Direct training of your personnel
- Handover to your production team

Additionally, we offer robotics combined with digital equipment designed to enhance the efficacy of our products and reduce the need for on-site maintenance.

OUR SERVICES

ENGINEERING & DESIGN

Our engineers work closely with you to optimise price and performance based on the needs of your specific operations. They use the latest tools and techniques to custom design your projects from start to finish, including heat-transfer calculations and drawings. Thanks to our familiarity with a wide range of bricks, fibers, anchors and other accessories, and our full portfolio of monolithic products, you can rest assured that your refractory lining is best-in-class.

INSTALLATION

To ensure our products fulfill your needs and deliver optimal performance, our in-house certified engineers will visit your premises to install your refractories quickly and efficiently using our own cutting-edge equipment.
Calderys' supervisors and installers are trained to observe the highest safety and quality standards while working on your site. They will minimize downtime during installation while maintaining the high performance and long-term cost-effectiveness you expect from our products.

DRY OUT & COMMISSIONING

Proper dry-out is crucial to the lifetime of a refractory lining. Our experienced engineers will optimize your dry-out schedule, ensuring energy savings and refractory reliability.

MAINTENANCE

Calderys' global project expertise at leading industrial sites means we provide a world-class, wide-ranging, bespoke maintenance service. We offer regular and predictive refractory maintenance, including shutdown maintenance services, as well as rapid round-the-clock response to emergencies. This leaves you free to focus on your core processes and maximize productivity.
Our strategically located foundry service centers provide the appropriate machinery and manpower to our clients whenever they are needed. For example:
- mixing
- casting
- gunning
- spraycast
- breaking/dismantling
- anchor welding

REFRACTORY ASSESSMENTS

Before we start a job, we complete an extensive analysis of your process, equipment, and working conditions in order to provide the best solution for your needs. Our team pair their experience with the latest assessment techniques (from specialized checklists to thermal imaging) to optimize your refractory lining and related processes. Equipment that performs smoothly will deliver the best productivity and cost-efficiency.
Personnel safety is a key element of Calderys' assessments. We also offer safety assessments for subcontractors undertaking refractory installation work at your site.

MACHINERY SERVICE

CALDE® SPRAY MACHINE

Our machine for coating applications in Foundries completes our machinery services for our customers.
Main areas of use include ladles, runners, spouts or CIF furnaces, further reducing the time needed for daily maintenance and additionally improving the ergonomic aspects of this tasks.

CALDE® PAC

We offer a range of arm and base vibrators and automatic lifters for the hassle-free installation of our dry refractory materials such as SILICA MIX and CALDE® MIX in Coreless Induction Furnaces.
These devices allow a highly efficient, consistent and correct compaction with low-maintenance components, independent from the operator. Easy-to-read installation manuals in all European languages and reusable packing cases for safe storage on site highlight our understanding of our customer's processes.

DIGITAL SOLUTIONS

Remote assistance and troubleshooting with CALDE® SMART LENS
Remote technical service via smart glasses linked to a secure web-based platform, as well as quick access to the Calderys foundry networks.

HEAT LOSS CALCULATION

Get an optimized refractory lining for your furnace and improve your energy savings

SERVICE FACILITIES

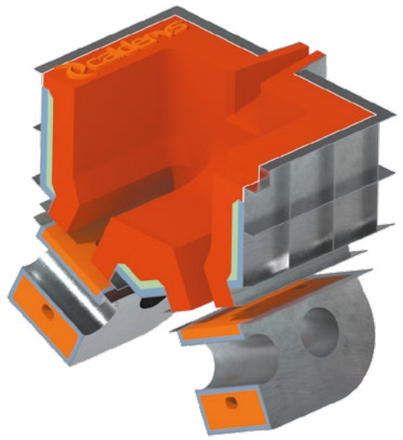
Foundry equipment, from ladles to pouring furnaces, can be relined off-site at one of our Service centers. We handle the entire process, from pick-up to delivery of your fully refurbished equipment when you need it.
Our safe and hassle-free service helps you reduce downtime, get back on line faster and free up resources.

TAILORED SOLUTIONS
FOR ALL COPPER FOUNDRIES EQUIPMENT

TILTING REFINING FURNACE

The recently designed secondary copper reverberatory units generate significant quantities of high temperature fluid oxidic slags. These slags are very corrosive to the typical magnesia-chrome refractories commonly used in primary copper processing vessels. Calderys offers alumina-chrome refractories, which increase the lining life in the slag line zones.

These bricks exhibit minimal penetration of slag and metal into the working surface and can be economically recovered from the used lining, crushed and reintroduced into the feedstock used for manufacturing new bricks.

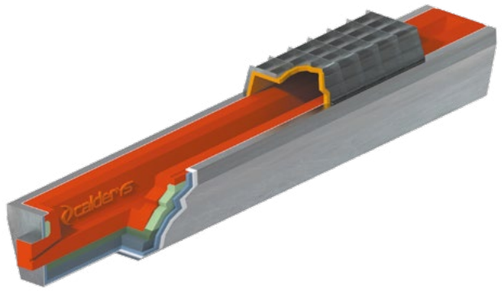


CHANNEL MELTING FURNACE

The channel melting furnace takes a key role in the modern foundry production environment. Its main function is to heat and melt the metal. It requires a highly reliable refractory lining concepts that exhibit superior properties with respect to both corrosion resistance and thermal insulation. Calderys offers a wide product range for all sizes of melting furnaces for copper, brass and other non-ferrous alloys.

CORELESS INDUCTION FURNACE (CIF)

Refractory solutions for all parts of coreless induction furnaces, whether you are melting non-ferrous alloys with melting points below 1000°C, to highly alloyed Cu nickel above 1000°C. We deliver products that allow you to securely operate your furnaces over a designated period and keep maintenance on schedule.

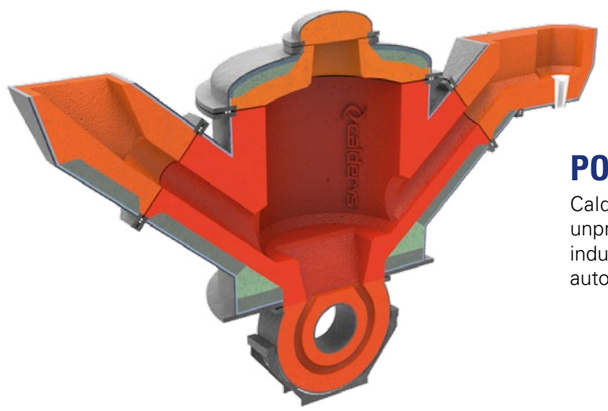


RUNNERS

Our castables for copper runners are designed to combine a total reliability with a reduced maintenance downtime, whatever the length of the campaign. Our solutions ensure:

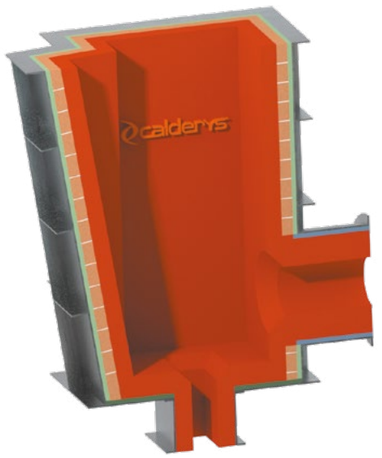
- total reliability
- long campaings
- smaller maintenance downtime

TAILORED SOLUTIONS
FOR ALL COPPER FOUNDRIES EQUIPMENT



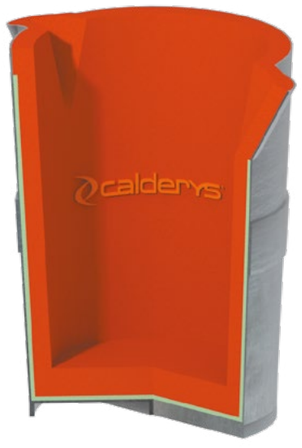
POURING FURNACE

Calderys offers solutions for all sizes of pressurised and unpressurised pouring furnaces, including the lining of channel inductors or coreless inductors as well as completely coreless automated pouring furnaces.



CONTINUOUS CASTING FURNACE

The smelting of copper presents challenges for foundries. Pre-heating of the crucible, as well as timely controlled melting time are crucial. Calderys offers many lining choices depending on the foundry processes.



COPPER LADLE

Refractory products designed to provide best possible thermal insulation to conserve energy, and to reduce the deformation effects on the steel shell structure. Calderys products offer long resistance times in a more complex industry.

TECHNICAL DATA

Product Name	Main Component	Maximum recommended temperature (°C)	Maximum recommended temperature (°F)	Chemical Analysis				Material required (T/m³)
				Al_2O_3	SiO_2	SiC	ZrO_2	
CALDE® CAST 1560	Andalousite	1650	3002	59	36	-	-	2.5
CALDE® CAST B 85	Bauxite	1600	2912	84-50	5.6	-	-	2.47
CALDE® CAST LA 50 SZ	Andalousite	1650	3002	50	-	9.7	9.4	2.85
CALDE® CAST LT 98 L	Tabular Alumina	1850	3362	98	0.2	-	-	3.2
CALDE® CAST LX 58	Andalousite	1650	3002	57	38	-	-	2.5
CALDE® CAST 1560	Andalousite	1650	3002	59	36	-	-	2.45
CALDE® CAST UB 75 S	Bauxite / Silicon Carbide	1650	3002	77	11	7.5	-	2.75
CALDE® CAST G 7P	Corundum	1650	3002	72	2.5	19.5	-	3
CALDE® CAST G 7P SD	Corundum	1650	3002	72.5	2.3	19.5	-	2.95
CALDE® CAST MC 45 S40	Corundum / Silicon Carbide	1500	2732	45	5.8	43	-	2.65
CALDE® FLOW LA 58 Z	Andalousite / Zircon	1650	3002	59	-	-	9.6	2.7
CALDE® CAST MW 140 C/G	Insulating Chamotte	1400	2552	42	43.6	-	-	1.3
CALDE® GUN MW 118	Insulating Chamotte	1180	2156	28	48	-	-	1.08
CALDE® MIX BC 85 S	Corundum	1600	2912	86	4	5	-	3.05
CALDE® MIX BM 70 S	Mullite	1600	2912	68	22	4.7	-	2.5
CALDE® PATCH C 90	Corundum	1500	2732	87	2.5	-	-	2.3
CALDE® STIXT 90 G1	Tabular Alumina	1750	3182	91	3	-	-	2.85
SILICA MIX MS B 1,2	Silica	1500	2732	1.4	97.1	-	-	2.2
SILICA MIX MS B 1,6	Silica	1500	2732	1.4	97.1	-	-	2.2
SILICA MIX I/Cu B 1.2	Silica	1500	2732	1.4	97.1	-	-	2.2
SILICA MIX I/Cu B 1.6	Silica	1500	2732	1.4	96.9	-	-	2.2
SILICA MIX I/Cu B 2.0	Silica	1500	2732	1.4	96.7	-	-	2.2
SILICA MIX B Cu 7	Silica	1500	2732	-	90	6.7	-	2.2
SILICA MIX Cu	Silica	1500	2732	-	94.9	1.9	0.5	2.2
Insulating Fire Bricks 26 (IFB 26)	high-purity refractory clays, with alumina	1650	3002	58	38.8	-	-	0.8
CALDE® SOL CAST A 50 SZ	Andalousite	1650	3002	50	29.5	9.4	8.9	2.75

Product Name	Main Component	Maximum recommended temperature (°C)	Maximum recommended temperature (°F)	Chemical Composition, wt.%									Bulk Density	Apparent Porosity	CCS	CMOR	HMOR		PLC	
				Al_2O_3	SiO_2	MgO	Cr_2O_3	Fe2O3	TiO_2	CaO	SiC+C	Other	lb/ft3 (g/cm³)	%	lb/in2 (MPa)	lb/in2 (MPa)	Temperature °F (C°)	psi (MPa)	Temperature °F (C°)	%
NARMAG®® 60 CU	Direct-Bond MgCr Brick	> 1700	> 3100	7.7	1.8	61.9	17.4	10	–	1	–	–	196 (3.14)	17.2	–	950 (6.6)	2300 (1260°C)	850 (5.9)	–	–
NARMAG® 60 DB	Direct-Bond MgCr Brick	> 1700	> 3100	4.5	1.2	65.1	18.3	9.7	–	1.2	–	–	197 (3.15)	17.6	–	675 (4.7)	2700 (1482°C)	280 (1.9)	–	–
NARMAG® 6260	Direct-Bond MgCr Brick	> 1700	> 3100	5.7	0.6	64.5	18.1	10.3	–	0.9	–	–	203 (3.25)	15	–	690 (4.8)	2700 (1482°C)	850 (5.9)	–	–
NARMAG® HNF 27	Semi-Rebonded MgCr Brick	> 1700	> 3100	9.4	0.8	48.2	27.6	13.3	–	0.5	–	–	201 (3.22)	17	–	750 (5.2)	–	–	–	–
AUREX® 20 SR EU	Alumina-Chrome Brick			75.7	1.6	Trace	19.1	0.1	0.1	0.1	–	3.3	203 (3.25)	17.8	–	1600 (11.0)	2700 (1482°C)	2000 (13.8)	2910 (1598°C)	-0.1
AUREX® 30 SR EU	Alumina-Chrome Brick			67	1.7	0.1	28.1	0.1	Trace	0.1	–	2.9	216 (3.46)	17.3	–	2200 (15.2)	2700 (1482°C)	2700 (18.6)	2910 (1598°C)	7.1
SUPER NARMAG® 142	Semi-Rebonded MgCr Brick	> 1700	> 3100	6	1.1	60	20	11.4	–	0.9	–	–	201 (3.22)	16.2	–	750 (5.2)	2700 (1482°C)	350 (2.4)	–	–
SUPER NARMAG® 148 CU	Rebonded MgCr Brick	> 1700	> 3100	7.4	1.5	48.2	25.5	15.5	–	0.9	–	–	212 (3.40)	14	–	1200 (8.3)	2300 (1260°C)	3000 (20.7)	–	–
RUBY® SR	Alumina-Chrome Brick			84	1.9	0.2	10.5	0.1	Trace	0.1	–	3.5	201 (3.22)	16.5	–	2600 (17.9)	2700 (1482°C)	2100 (14.5)	2910 (1598°C)	0.5
JADE® 30 DC	Alumina-Chrome Cast Fired Shape			65.5	3.1	–	29.6	–	–	–	–	1.6	202 (3.24)	17.7	–	1600 (11.0)	–	–	2910 (1598°C)	1.2
KALA®	Fireclay Brick	1450	2600	49.6	46.5	0.1	–	1.3	2.3	0.1	–	0.1	151 (2.42)	14.1	9700 (66.9)	2000 (13.8)	–	–	2910 (1598°C)	0.5
CLIPPER® DP	Fireclay Brick	1400	2500	43	52	0.3	–	1.3	2.3	0.3	–	1	142 (2.27)	14.5	–	1300 (9.0)	–	–	2910 (1598°C)	-0.3

Picture © Olivier Lattuga - Duyck

calderys

www.calderys.com