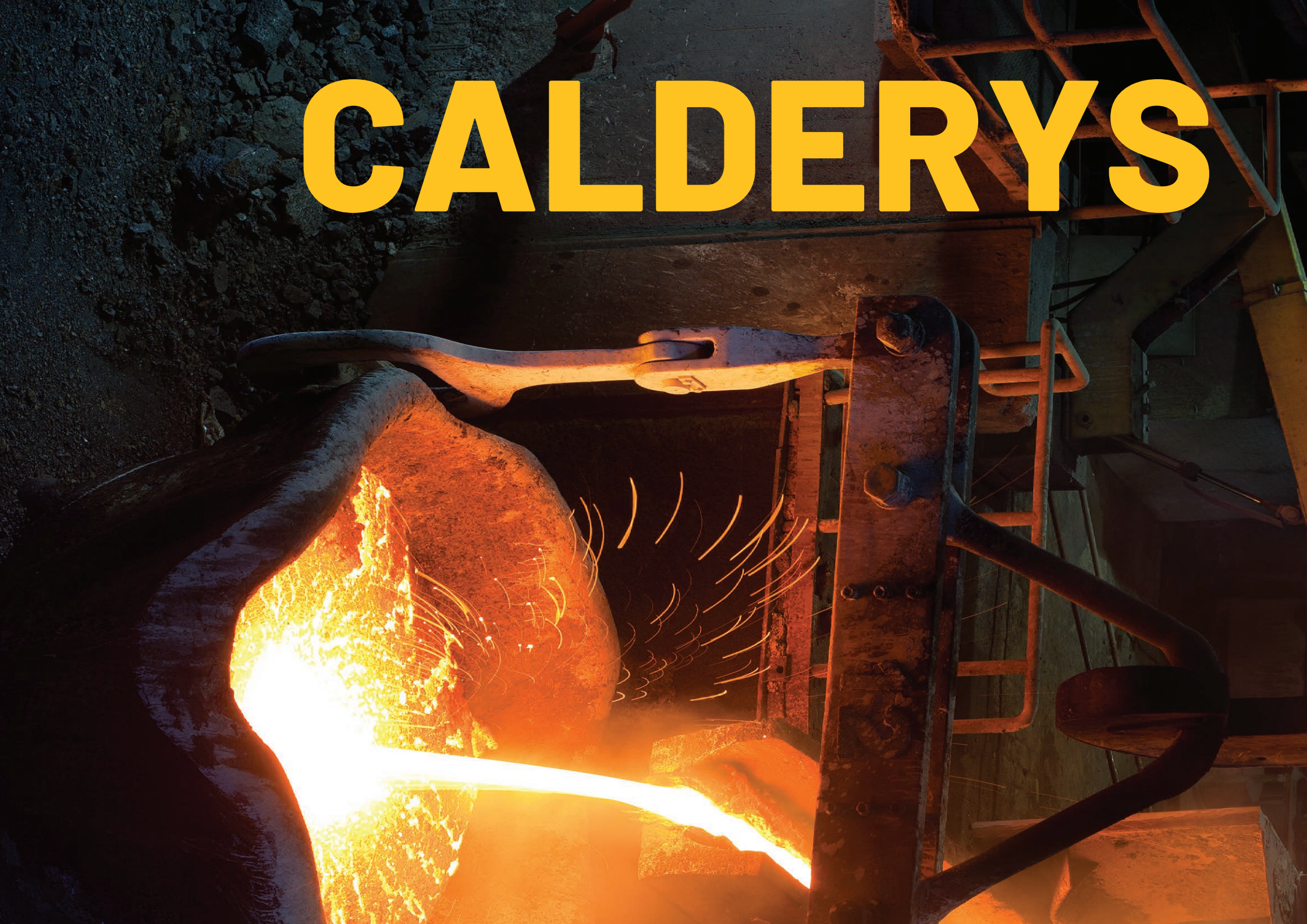

ALUMINUM
calderys


CALDERYS

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.

With a presence in more than 30 countries on the 5 continents and a strong footprint in the Americas through the brand HWI (HarbisonWalker International), Calderys' international network of experts ensures an end-to-end offer with tailored services.

Drawing on over 150 years of experience, we are constantly developing innovative products and techniques, optimizing 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.

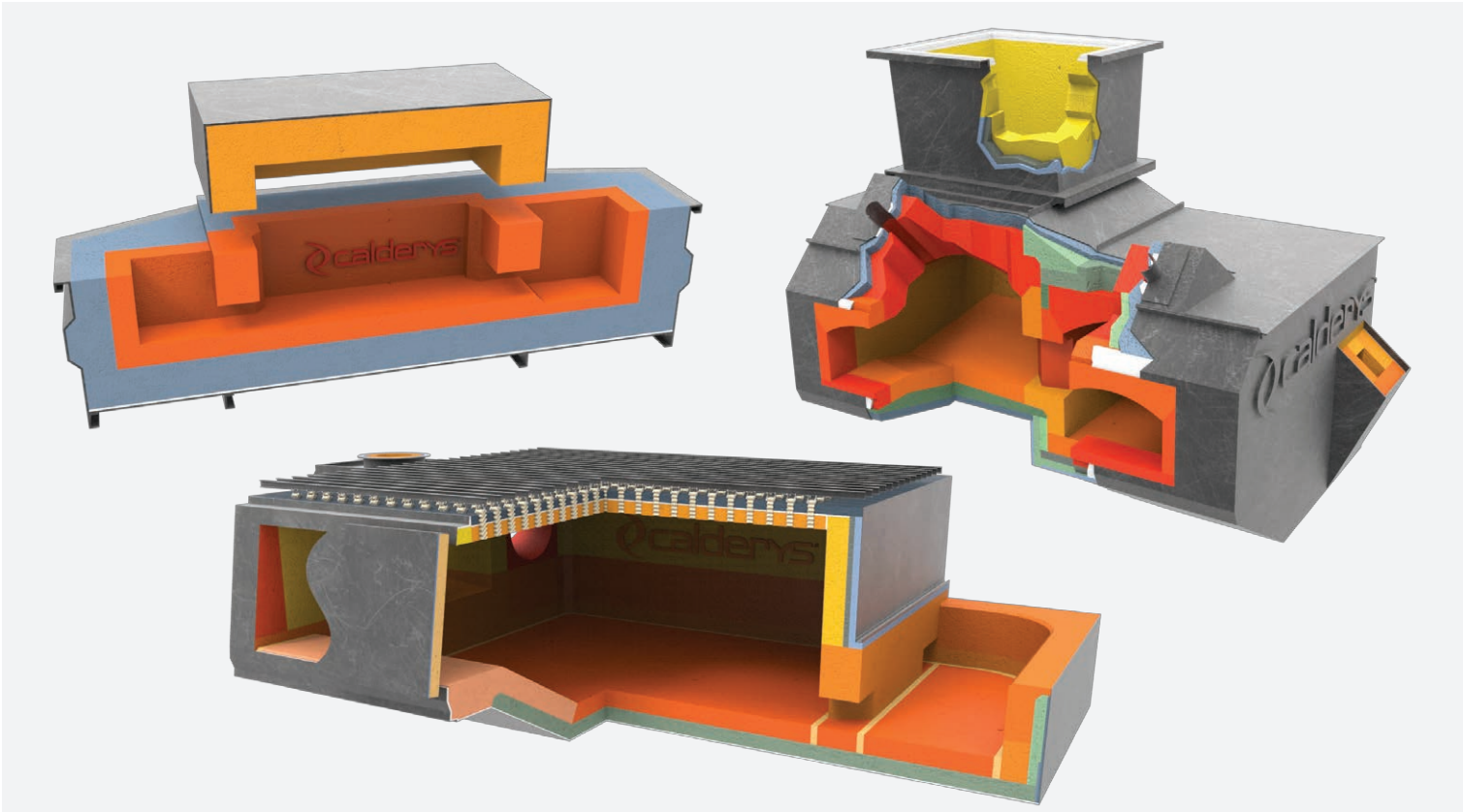
Calderys pays particular attention to industry's impact on the environment and has a sustainability program articulated around three pillars: supporting our customers in their energy transition needs, improving our environmental footprint and being committed to people and local communities.

Health and safety are an integral part of how we do business, and our activities require the highest level of professionalism to carry out our projects. The same attention to detail that helps us provide personalized products and solutions is also applied to our rigorous health and safety criteria — applicable to both our own employees as well as subcontractors and temporary workers.

| Product Name | Chemical Composition % | | Maximum Operating Temperature (°C) | Construction Requirements (t/m³) | Standard water addition volume (%) | Compressive strength 800% after heating (MPa) | Application areas, features |
|---|---|---|---|---|---|---|---|
| | $Al_2O_3$ | $SiO_2$ | | | | | |
| Series | Formulated with water-repellent additives Dense-castable | | | | | | |
| ALKON® CAST MT 90 | 90.5 | - | 1550 | 3.05 | 4.0 - 5.5 | 85 | SFM Materials for High-Purity Aluminium |
| ALKON® CAST HYMOR 80 AL | 84.0 | 3.1 | 1420 | 3.05 | 5.2 - 6.0 | 130 | High-temperature resistant High strength |
| ALKON® CAST LB 57 Z20 | 20.0 ($ZrO_2$) | | 1400 | 3.05 | 4.4 - 5.4 | 140 | Zirconium-based high strength |
| ALKON® SOL CAST HT | 83.0 | 8.3 | 1600 | 2.95 | SOL binder | 150 | Sol-gel bonding Rapid heating High-load capability |
| ALKON® SOL CAST B 85 | 85.0 | 8.0 | 1200 | 3.00 | SOL binder | 120 | Sol-gel bonding Rapid heating |
| TOCAST -CHEM PB85 | 87.0 | 3.0 | 1400 | 3.05 | Phosphate binder | 85 | Short-term curing and heating phosphate bonding |
| ALKON® CAST NB 84 QD | 84.0 | 10.0 | 1300 | 2.90 | 5.2 - 6.2 | 110 | Reduced Explosion Risk Thermal Shock Resistance |
| ALKON® CAST LB 85 | 81.7 | 8.3 | 1300 | 2.90 | 5.0 - 6.0 | 150 | Standard material, high strength |
| ALKON® CAST 204 | 79.7 | 9.0 | 1200 | 2.80 | 5.2 - 6.2 | 140 | Standard material, high strength |
| ALKON® CAST AF 481 | 78.6 | 9.1 | 1200 | 2.70 | 6.0 - 8.0 | 140 | Standard materials Low cost |
| ALKON® FLOW LB 85 | 84.5 | 8.5 | 1200 | 2.90 | 6.1 - 7.3 | 130 | High fluidity |
| ALKON® CAST MM 60 TW | 64.3 | 24.6 | 1450 | 2.60 | 4.5 - 5.5 | 70 | Thermal shock resistant SFM material |
| ALKON® CAST MF 44 | 45.4 | 46.4 | 1200 | 2.16 | 7.0 - 8.5 | 75 | Chamotte type |
| TCS -018 | 60.0 | 23.0 | 1200 | 2.00 | 13.5 - 14.5 | 40 | Koji Light series |
| TCS -0304 | 18.0 | 75.0 | 1100 | 2.10 | 5.5 - 6.5 | 49 | Fused silica-based |
| Dense-castable | | | | | | | |
| CALDE® CAST LT 98 L | 97.9 | 0.1 | 1850 | 3.20 | 4.5 - 5.5 | 65 | For high-purity aluminium |
| CALDE® CAST NB 82 QD | 82.0 | 13.5 | 1650 | 2.75 | 6.0 - 7.0 | 80 | Reduced Explosion Risk Thermal Shock Resistance |
| INTRACAST 360 SR | 82.8 | 11.4 | 1600 | 2.90 | 5.0 - 6.0 | 140 | high strength |
| CALDE® CAST 1560 | 59.0 | 36.0 | 1650 | 2.45 | 6.4 - 7.6 | 60 | Thermal shock resistance |
| CALDE® CAST M 32 | 76.1 | 15.0 | 1600 | 2.63 | 6.0 - 7.4 | 120 | Medium cement-based High strength |
| CALDE® CAST M 28 HR | 50.9 | 42.7 | 1550 | 2.35 | 6.0 - 8.0 | 90 | Medium cement-based |
| TCS -EXSC85 | 85.0 (SiC) | | 1500 | 2.60 | 6.0 - 6.5 | 68 | SiC-based |
| CALDE® SOL CAST S 80 | 78.0 (SiC) | | 1500 | 2.58 | SOL binder | 60 | SiC-based sol-gel bonding Rapid heating |
| General-purpose castable | | | | | | | |
| TOCAST-17 | 70.0 | 24.0 | 1700 | 2.30 | 11.5 - 12.5 | 17 | Ceiling and side walls |
| TOCAST -16K | 63.0 | 28.0 | 1600 | 2.20 | 11.0 - 12.0 | 24 | Ceiling and side walls |
| TOCAST-15 | 53.0 | 38.0 | 1500 | 2.13 | 12.0 - 13.0 | 23 | Second Refractory |
| Plastic material | | | | | | | |
| CALDE® PLAST P 85 | 84.0 | 8.0 | 1650 | 3.05 | - | 80 (1200) | Phosphate-based high-strength plastic material |
| CALDE® PLAST SUPERAL AB | 51.0 | 45.0 | 1650 | 2.40 | - | 30 (1000) | Ceiling and side walls |
| CJ-PLAST 165AB | 50.0 | 45.0 | 1650 | 2.45 | - | 17 (1000) | Ceiling and side walls |

- The figures stated are representative values and are not guaranteed. They are subject to change without notice.
- For products ending with C/G, the physical property values are those at the time of pouring.
- The required quantity of sprayed material does not include rebound loss or finishing loss.
- We also stock a wide range of other castables. Please feel free to enquire.

| Product Name | Chemical Composition % | | Maximum Operating Temperature (°C) | Construction Requirements ($t/m^3$) | Standard water addition volume (%) | Compressive strength 800% after heating (MPa) | Application areas, features |
|---|---|---|---|---|---|---|---|
| | $Al_2O_3$ | $SiO_2$ | | | | | |
| **Sprayed material** | | | | | | | |
| TOSHOT -C75 AL | 80.0 | 1.5 | 1420 | 2.60 | Nozzle adjustment | 65 | Contains water-resistant additives Suitable for molten metal repairs |
| TOSHOT -M60 | 56.2 | 35.3 | 1600 | 2.05 | Nozzle adjustment | 7 | Dry-sprayable plastic material |
| CALDE® GUN C 28 HR G3 TW | 54.1 | 36.0 | 1500 | 2.15 | Nozzle adjustment | 55 | General-purpose high strength |
| CALDE® GUN C 28 | 48.9 | 42.4 | 1500 | 2.02 | Nozzle adjustment | 35 | General-purpose spray material |
| **Insulating castable** | | | | | | | |
| TCS L-150 | 55.0 | 38.0 | 1500 | 1.75 | 17 - 19 | 7 | Fire-resistant insulated doors and ducts |
| TOCAST -MW 16 AL | 84.0 | 7.0 | 1200 | 1.66 | 12 - 14 | 25 | High-strength formulation with water-resistant additives |
| TOCAST L-12 C/G | 42.0 | 45.0 | 1200 | 1.00 | 44 - 47 | 2 | Backing material |
| TOCAST L -10 C/G AL | 41.0 | 33.5 | 1200 | 1.10 | 40 - 50 | 2 | Backing material containing water-resistant additives |
| TOCAST L -10 C/G | 27.5 | 56.5 | 1100 | 0.95 | 50 - 55 | 1.2 | Backing material |
| **Patching material Coating material** | | | | | | | |
| CALDE® PATCH PT 88 U | 88.0 | 6.0 | 1650 | 2.95 | - | - | High Alumina for Molten Metal Section Repairs |
| CALDE® PATCH PB 82 U | 82.0 | 9.0 | 1600 | 2.90 | - | - | Repair department |
| TOBOND -203Z | 70.1($ZrO_2$) | | - | - | - | - | Zirconia-based coating material |
| ALCOAT -K2 | 35.2 | 11.7 | - | - | - | - | Multi-component coating material |
| ALKON® PATCH PT 85 U | 85.0 | - | 1200 | 2.50 | - | - | Alumina-based coating material |



Calderys provides innovative technologies and numerous products based on its worldwide track record and extensive experience.
From material supply to various furnace construction works and overseas project assignments, we offer flexible solutions to meet all your company's requirements.

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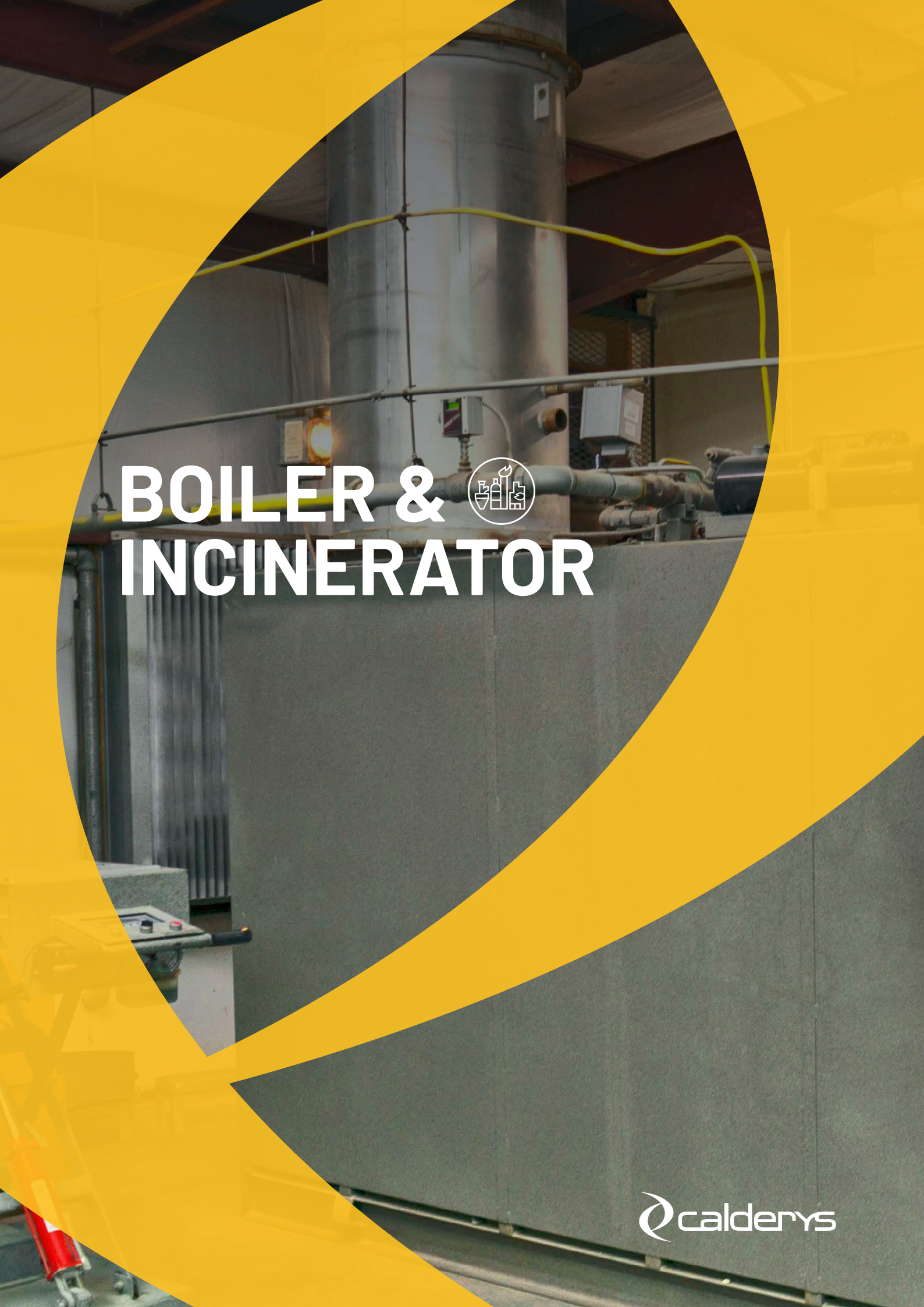

# BOILER & INCINERATOR

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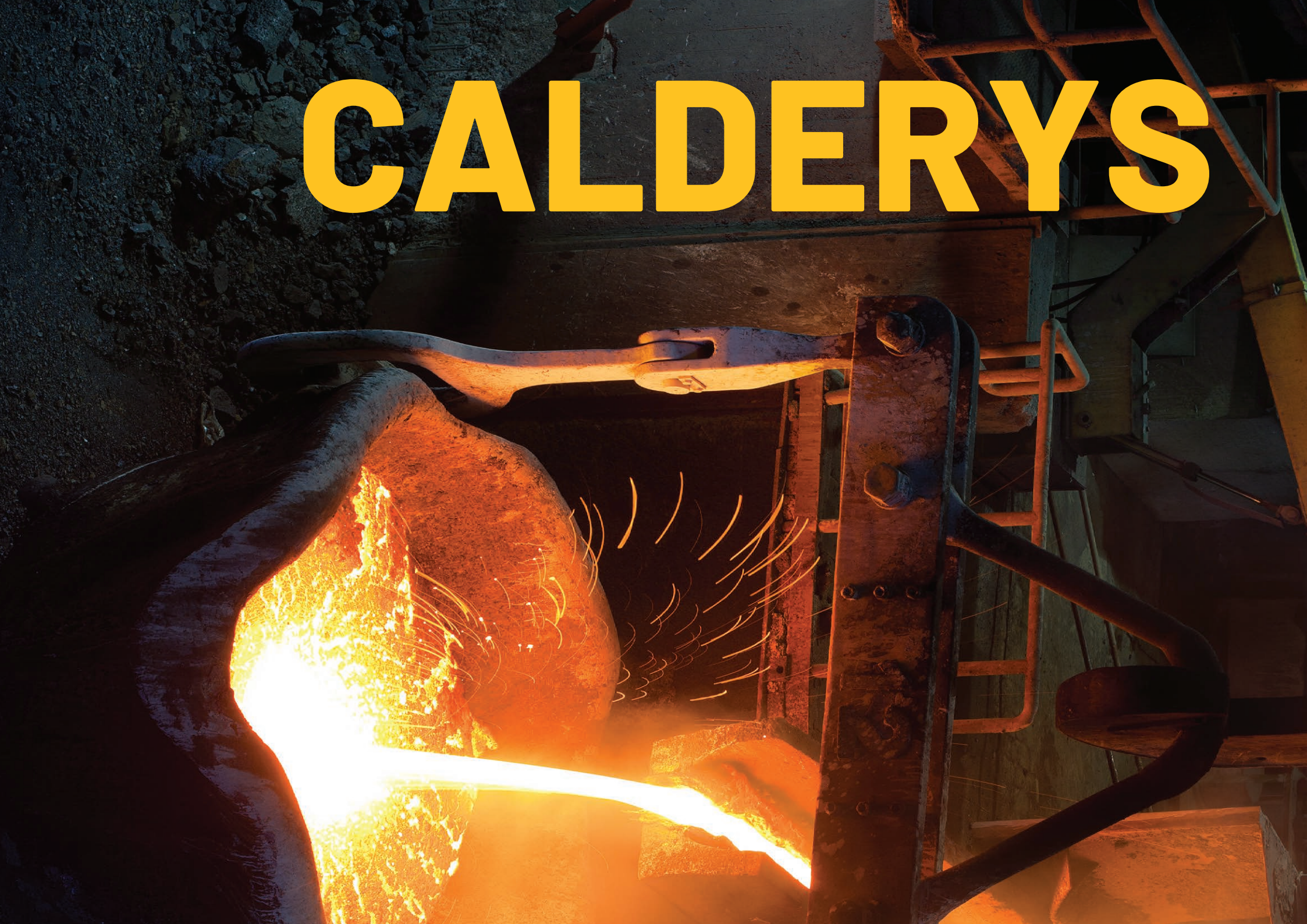
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| **Castable** | | | | | | | |
| TOCAST-EX15 | 57.0 | 32.5 | 1500 | 2.13 | 12.5 - 13.5 | 34 | General-purpose |
| TOCAST-12AR | 23.0 | 62.0 | 1200 | 2.02 | 12.5 - 13.5 | 32 | General-purpose acid-resistant |
| TOCAST-HF15 | 57.0 | 32.0 | 1500 | 2.25 | 9.0 - 10.0 | 45 | General-purpose acid-resistant high-flow |
| CALDE® CAST M 32 | 76.1 | 15.0 | 1600 | 2.63 | 6.0 - 7.4 | 120 | MCC Bauxite High strength |
| TCS-EX145 | 48.0 | 46.0 | 1500 | 2.35 | 6.0 - 8.0 | 90 (900℃) | LCC Chamotte High Strength |
| CALDE® FLOW LF 50 A | 52.0 | 44.5 | 1500 | 2.35 | 6.5 - 7.5 | 100 | LCC High strength High flow Alkali-resistant |
| CALDE® FLOW LM 60 A | 61.0 | 35.3 | 1600 | 2.56 | 6.2 - 6.8 | 120 | LCC High strength High flow Alkali-resistant |
| CALDE® FLOW LM 74 A | 71.9 | 25.1 | 1750 | 2.60 | 5.5 - 6.5 | 120 | LCC High strength High flow Alkali-resistant |
| TCS-HF160 | 60.0 | 34.0 | 1600 | 2.55 | 6.0 - 7.0 | 74 | LCC High strength High flow |
| CALDE® FLOW LS 30 | 31.3 (SiC) | | 1500 | 2.40 | 7.0 - 7.5 | 100 (1200℃) | LCC High strength High fluidity High thermal conductivity |
| CALDE® FLOW LS 60 | 59.0 (SiC) | | 1500 | 2.50 | 6.0 - 8.0 | 120 | LCCHigh strength High fluidity High thermal conductivity |
| TCS-EXSC60 | 58.0 (SiC) | | 1500 | 2.60 | 6.0 - 6.4 | 81 | High strength High thermal conductivity |
| TCS-EXSC85 | 85.0 (SiC) | | 1500 | 2.60 | 6.0 - 6.5 | 68 | High strength High thermal conductivity |
| CALDE® SOL SPRAYCAST M 60 | 61.5 | 35.5 | 1650 | 2.55 | SOL Binder | 60 | Sol-gel bonding Erosion resistance Rapid drying |
| CALDE® SOL SPRAYCAST M 74 A | 73.0 | 25.0 | 1750 | 2.60 | SOL Binder | 77 | Sol-gel bonding Erosion resistance Rapid drying |
| CALDE® SOL CAST M 75 | 76.0 | 23.0 | 1800 | 2.70 | SOL Binder | 85 | Sol-gel bonding Erosion resistance Rapid drying |
| CALDE® SOL CAST S 60 | 59.0 (SiC) | | 1500 | 2.57 | SOL Binder | 60 | Sol-gel bonding Rapid drying High thermal conductivity |
| CALDE® SOL CAST S 80 | 78.0 (SiC) | | 1500 | 2.58 | SOL Binder | 60 | Sol-gel bonding Rapid drying High thermal conductivity |
| **Dry-mix sprayed material** | | | | | | | |
| CALDE® GUN F 47 | 47.0 | 44.0 | 1500 | 2.10 | Nozzle adjustment | 25 | General-purpose combustion chamber Secondary combustion chamber Duct |
| CALDE® GUN C 28 | 48.9 | 42.4 | 1500 | 2.02 | Nozzle adjustment | 35 | General-purpose combustion chamber Secondary combustion chamber Duct |
| CALDE® GUN C 28 HR G3 TW | 54.1 | 36.0 | 1500 | 2.15 | Nozzle adjustment | 55 | General-purpose combustion chamber Secondary combustion chamber High strength |
| TOSHOT-12AR | 23.0 | 62.0 | 1200 | 1.82 | Nozzle adjustment | 33 | General-purpose acid-resistant flue gas cooling chamber |
| TOSHOT-C20 | 38.3 | 47.3 | 1450 | 1.80 | Nozzle adjustment | 13 | General-purpose acid-resistant flue gas cooling chamber |
| CALDE® GUN LF 52 A G3 | 49.2 | 46.6 | 1400 | 2.24 | Specialised nozzle adjustment | 60 | LPGM Alkali-Resistant Water-Cooled Wall/Combustion Chamber |
| CALDE® GUN LM 60 A | 60.5 | 34.0 | 1600 | 2.40 | Specialised nozzle adjustment | 60 | LPGM Alkali-Resistant Water-Cooled Wall/Combustion Chamber |
| CALDE® GUN LM 74 A | 70.8 | 25.2 | 1700 | 2.50 | Specialised nozzle adjustment | 70 | LPGM Alkali-Resistant Water-Cooled Wall/Combustion Chamber |
| CALDE® GUN LS 30 | 31.3 (SiC) | | 1500 | 2.35 | Specialised nozzle adjustment | 70 | LPGM High Thermal Conductivity Water-Cooled Wall |
| CALDE® GUN LS 60 | 58.5 (SiC) | | 1500 | 2.53 | Specialised nozzle adjustment | 89 | LPGM High Thermal Conductivity Water-Cooled Wall |
| CALDE® GUN LS 80 | 80.0 (SiC) | | 1500 | 2.51 | Specialised nozzle adjustment | 80 | LPGM High Thermal Conductivity Water-Cooled Wall |
| CALDE® SOL GUN M 55 S5 | 58.0 | 34.0 | 1600 | 2.35 | SOL Binder | 85 | Sol-gel bonding Erosion resistance Rapid drying |
| CALDE® SOL GUN S | 60 59.0 (SiC) | | 1500 | 2.40 | SOL Binder | 70 | Sol-gel bonding Erosion resistance Rapid drying |
| CALDE® SOL GUN S 80 | 79.0 (SiC) | | 1500 | 2.40 | SOL Binder | 60 | Sol-gel bonding Rapid drying High thermal conductivity |

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| **Insulating castable** | | | | | | | |
| CJ-ROCKS | 29.5 | 35.5 | 1000 | 0.40 | Nozzle adjustment | 0.4 | Super Insulation Spray |
| TOCAST L-8 C/G | 27.0 | 55.0 | 1000 | 0.80 | 72 - 78 | 1 | Insulation Pouring Spraying Trowel application |
| TOCAST L-10 C/G | 27.5 | 56.5 | 1100 | 0.95 | 50 - 55 | 1.2 | Insulation Pouring Spraying Trowel application |
| TOCAST L-13 C/G | 37.0 | 46.0 | 1300 | 1.20 | 40 - 46 | 4 | Insulation Pouring Spraying Trowel application |
| **Plastic material** | | | | | | | |
| CALDE® PLAST SUPERAL AB | 51.0 | 45.0 | 1650 | 2.40 | - | 30 (1000℃) | Plastic material Clay-like |
| CJ-PLAST 165AB | 50.0 | 45.0 | 1650 | 2.45 | - | 17 (1000℃) | Plastic material Clay-like |
| CALDE® PLAST P 85 | 84.0 | 8.0 | 1650 | 3.05 | - | 80 (1200℃) | Plastic material High strength Thermosetting |
| TOSHOT-M60 | 56.2 | 35.3 | 1600 | 2.05 | Nozzle adjustment | 7 | Dry-mix plastic spray material General |
| TOSHOT-X70 | 70.0 | 21.8 | 1700 | 2.25 | Nozzle adjustment | 6 | Dry Plastic Spray Material for High Temperatures |
| **Patching compound Coating agent** | | | | | | | |
| CALDE® PATCH PB 82 U | 82.0 | 9.0 | 1600 | 2.90 | - | 50 (1200℃) | Thermosetting patching repair material |
| CALDE® PATCH PT 88 U | 88.0 | 6.0 | 1650 | 2.95 | - | 50 (1200℃) | Thermosetting patching repair material |
| CALDE® STIX PB 85 C/G | 84.0 | 9.5 | 1300 | 2.85 | 7.0- 9.0 | 140 | On-site patching compound Air-hardening Wear-resistant |
| CALDE® PATCH PT 90 HR | 89.0 | 6.0 | 1250 | 2.75 | 7.0 - 7.6 | 150 | On-site patching compound Air-hardening Wear-resistant |
| TOCOAT-C50 | 50.1 (C) | | - | 4kg/m² | 45 | - | Clinker adhesion inhibitor |

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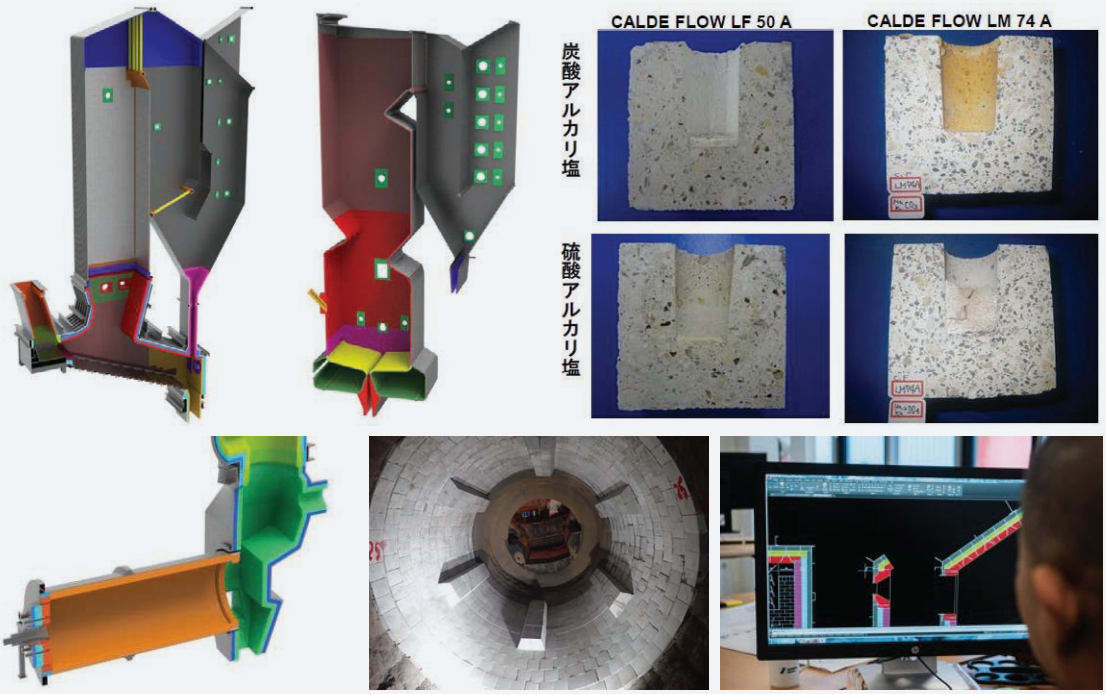


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