



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.

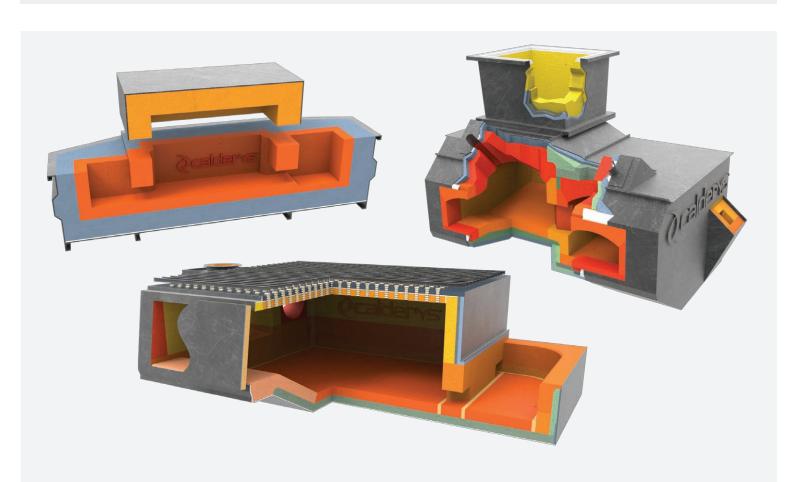
Calderys pays particular attention to industry's impact on the environment and has a sustainability program articulated around three pillars: supporting our customers in their energy transition needs, improving our environmental footprint and being committed to people and local communities.

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.

Some	Product Name	Chemical Composition %		Maximum Operating	Construction Requirements		Compressive strength 800%	Application areas, features
ALKON* CAST MT 90		Al ₂ O ₃	SiO ₂		e (t/m³)	volume (%)		Application areas, reactives
ALKON® CAST HYMOR 80 AL. ALKON® CAST HYMOR 80 AL. B 4.0 3.1 1420 3.05 5.2 - 8.0 130 High temperature resistant High strength ALKON® CAST LB 57 Z20 20.0(Z70 3) 1400 3.05 5.2 - 8.0 130 High temperature resistant High strength ALKON® SOL CAST HT B 5.0 8.0 1200 3.00 SOL binder 150 Sol get bonding Rapid heating High isae capability TOCAST - 8.0 1200 3.00 SOL binder 150 Sol get bonding Rapid heating High isae capability TOCAST - 8.0 10.0 1300 2.95 SOL binder 150 Sol get bonding Rapid heating Household Explosion First Thomas ALKON® CAST B 8.0 18.0 10.0 1300 2.90 5.2 - 8.2 110 Should reside bonding ALKON® CAST NB 94.00 84.0 10.0 1300 2.90 5.2 - 8.2 110 Should reside bonding ALKON® CAST NB 94.00 84.0 10.0 1300 2.90 5.2 - 8.2 110 Should reside bonding ALKON® CAST LB 85 81.7 8.3 1300 2.90 5.2 - 8.2 140 Standard materials high strength ALKON® CAST AF 481 78.5 9.1 1200 2.70 6.0 - 8.0 140 Standard materials high strength ALKON® CAST AF 481 78.5 9.1 1200 2.70 6.0 - 8.0 140 Standard materials Low cost ALKON® CAST AF 481 84.3 24.6 1460 2.80 4.5 - 5.5 70 Thermal shock resistant SFM material ALKON® CAST MF 80 TW 84.3 24.6 1460 2.80 4.5 - 5.5 75 Chamotter type TCS - 018 6.0 2.3.0 1200 2.00 13.5 - 14.5 40 Kajl Light sarter CCS - 018 6.0 2.3.0 1200 2.00 13.5 - 14.5 40 Kajl Light sarter CCS - 0304 18.0 75.0 1100 2.10 5.5 - 6.5 48 Fueed allice based Dense-castable CALLE® CAST LT 98 L 97.9 0.1 1850 2.25 6.0 - 7.0 80 Shock Resistance CALLE® CAST LT 98 L 97.9 1.1 1850 2.25 6.0 - 7.0 80 Shock Resistance CALLE® CAST MS 20 R 2.0 15.5 1850 2.35 6.0 - 8.0 140 high strength CALLE® CAST MS 20 R 2.0 15.5 1850 2.35 6.0 - 8.0 90 Medium coment-based High strength CALLE® CAST MS 28 R 28 11.4 1800 2.90 5.0 - 8.0 140 high strength CALLE® CAST MS 28 R 28 11.4 1800 2.90 5.0 - 8.0 140 high strength CALLE® CAST MS 28 R 29.0 15.0 1500 2.58 SOL binder 60 SIG-beaud allice based CALLE® CAST MS 28 R 30 SIG SOL 1800 2.20 11.0 - 12.0 24 Celling and side walls TOCAST - 18K SOL CAST SS 8 8.0 180 1800 2.20 11.0 - 12.0 24 Celling and side walls TOCA	Series	Formulate	d with w	ater-repeller	nt additives De	nse-castable		
ALKON** CAST LB 57 Z20 20.0 (ZrO →) 1400 3.05 4.4 - 5.4 4.40 20.0 (Zro →) 1400 3.05 3.05 3.05 3.05 3.05 3.05 3.05 3.05 3.06 3.06 3.06 3.06 3.06 3.06 3.06 3.06 3.06 3.06 3.07 3.06 3.08 3.08 3.08 3.09 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.	ALKON® CAST MT 90	90.5	-	1550	3.05	4.0 - 5.5	85	
ALKON® SOL CAST HT ALKON® SOL CAST HT ALKON® SOL CAST B 85 B5.0 B5.	ALKON® CAST HYMOR 80 AL	84.0	3.1	1420	3.05	5.2 - 6.0	130	
ALKON* SOL CAST B 85 85.0 8.0 1200 3.00 SOL blinder 120 Sol-gel bounding Rejul heating play heating play from the pass of the	ALKON® CAST LB 57 Z20	20.0 (Zr	0 2)	1400	3.05	4.4 - 5.4	140	Zirconium-based high strength
TOCAST -CHEM PBBS 87.0 3.0 1400 3.05 Phosphate binder BS Short-term curing and heating binder binder binder BS Short-term curing and heating binder binder BS ALKON* CAST NB 84 0D 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 material; high strength ALKON* CAST AF 481 78.6 9.1 1200 2.90 6.1 - 7.3 130 High fluidity ALKON* CAST MB 60 TW 64.3 24.6 1450 2.60 4.5 - 5.5 75 70 Thermal shock resistant SFM material ALKON* CAST MF 44 45.4 46.4 1200 2.16 7.0 - 8.5 75 Chamotite type TCS-018 60.0 2.30 1200 2.00 13.5 - 14.5 4.0 Koji Light series TCS-0304 18.0 75.0 1100 2.10 5.5 - 6.5 49 Fused silica based Dense-castable CALDE* CAST LI 98 L 97.9 0.1 1850 3.20 4.5 - 5.5 65 For high-purity aluminium CALDE* CAST NB 82 0D 82.0 13.5 1650 2.75 6.0 - 7.0 80 Shock Resistance Flak Thermal Shock	ALKON® SOL CAST HT	83.0	8.3	1600	2.95	SOL binder	150	
ALKON	ALKON® SOL CAST B 85	85.0	8.0	1200	3.00	SOL binder	120	Sol-gel bonding Rapid heating
ALKON® CAST LB 85 81.7 8.3 1300 2.90 5.0 - 6.0 150 Standard material, high strength ALKON® CAST 294 79.7 9.0 1200 2.80 5.2 - 6.2 140 Standard material, high strength ALKON® CAST 294 ALKON® CAST 294 79.7 9.0 1200 2.70 6.0 - 8.0 140 Standard material, high strength ALKON® CAST AF 481 78.6 9.1 1200 2.70 6.0 - 8.0 140 Standard material, Low cost ALKON® CAST AF 481 78.6 9.1 1200 2.70 6.0 - 8.0 140 Standard material, high strength ALKON® CAST AF 481 78.6 84.5 85.5 1200 2.90 6.1 - 7.3 130 High fluidity ALKON® CAST MF 644 45.4 46.4 1200 2.16 7.0 - 8.5 75 Chamotic type TCS-018 60.0 23.0 1200 2.00 13.5 - 14.5 40 Kaji 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 2.75 6.0 - 7.0 80 Shock Resistance Shock Resistance Shock Resistance Reduced Explosion Risk Thermal Shock Resistance Shock Resistance Reduced Explosion Risk Thermal Shock Resistance CALDE® CAST M 28 HR 50.9 42.7 1550 2.35 6.0 - 7.0 80 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 High strength CALDE® CAST M 28 HR 50.9 42.7 1550 2.35 6.0 - 8.0 90 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 Forest-based Forest-based or gel bonding Rapid heating CALDE® CAST M 28 HR 50.9 42.7 1500 2.50 1500 2.50 1500 2.50 1500 2.50 1500 2.50 1500 2.50 1500 2.60 1500 2.60 1500 2.60 1500 2.60 1500 2.60 1500 2.60 1500 2.60 1500 2.60 1500 1500 2.60 1500 2.60 1500 2.60 1500 2.60 1500 2.60 1500 2.60 1500 1500 2.60 1500 2.60 1500 1500 2.60 1500 2.60 1500 1500 2.60 1500 2.60 1500 1500 2.60 1500 1500 2.60 1500 1500 1500 2.60 1500 1500 2.60 1500 1500 2.60 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500	TOCAST -CHEM PB85	87.0	3.0	1400	3.05		85	Short-term curing and heating phosphate bonding
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 material, high strength ALKON® CAST AF 481 78.6 9.1 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 Köjl Light series TCS -0304 18.0 75.0 1100 2.10 5.5 - 6.5 49 Fused silice-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 0D 82.0 13.5 1860 2.75 6.0 - 7.0 80 Shock Resistance INTRACAST 360 SR 82.8 11.4 1800 2.90 5.0 - 8.0 140 high strength CALDE® CAST M 32 76.1 15.0 1800 2.93 5.0 - 8.0 140 high strength CALDE® CAST M 32 76.1 15.0 1800 2.63 6.0 - 7.4 120 Medium cement-based High strength CALDE® CAST M 32 76.1 15.0 1800 2.63 6.0 - 7.4 120 Medium cement-based High strength CALDE® CAST M 32 76.1 15.0 1800 2.63 6.0 - 7.4 120 Medium cement-based CALDE® CAST M 32 76.1 15.0 1800 2.63 6.0 - 7.4 120 Medium cement-based CALDE® CAST M 32 76.1 15.0 1800 2.63 SOL binder 60 SIC-based sol-gel bonding Rapid heating CALDE® CAST M 32 76.1 15.0 1500 2.60 6.0 - 6.5 68 SIC-based sol-gel bonding Rapid heating CALDE® CAST M 32 76.1 15.0 1500 2.60 6.0 - 6.5 68 SIC-based sol-gel bonding Rapid heating CALDE® CAST M 32 76.1 15.0 1500 2.30 11.5 - 12.5 17 Ceiling and side walls TCS -EXSC85 86.0 78.0 (SIC) 1500 2.30 11.5 - 12.5 17 Ceiling and side walls TCS -EXSC85 5.0 3.0 38.0 1500 2.13 12.0 - 13.0 23 Second Retractory Plastic material CALDE® PLAST P 85 84.0 8.0 8.0 1650 3.05 - 80 (IZ00) Phosphate-based high strength CALDE® PLAST P 85 84.0 8.0 8.0 1650 3.05 - 80 (IZ00) Phosphate-based high strength CALDE® PLAST SUPERAL AB 81.0 1650 3.06 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	ALKON® CAST NB 84 QD	84.0	10.0	1300	2.90	5.2 - 6.2	110	
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 76.0 1100 2.10 5.5 - 6.5 49 Fused silice-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 LT 98 L 97.9 0.1 1850 2.75 6.0 - 7.0 80 Shock Resistance INTRACAST 360 SR 82.8 11.4 1800 2.90 5.0 - 6.0 140 high strength CALDE® CAST M32 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 High strength CALDE® CAST M 28 HR 50.9 42.7 1550 2.35 6.0 - 8.0 90 Medium cement-based High strength TCS -EXSC85 85.0 (SIC) 1500 2.60 6.0 - 6.5 68 SIC-based CALDE® SOL CAST S 80 76.0 (SIC) 1500 2.60 6.0 - 6.5 68 SIC-based sol-gel bonding Rapid heating Ceneral-purpose castable TCOCAST -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 -16K 63.0 38.0 1500 2.13 12.0 - 13.0 23 Second Refractory Plastic material CALDE® PLAST P 85 84.0 8.0 8.0 1660 3.05 - 80 (1200) Phasphate-based high-strength CALDE® PLAST P 85 84.0 8.0 8.0 1660 3.05 - 80 (1200) Phasphate-based high-strength CALDE® PLAST SUPERAL AB 51.0 45.0 1660 3.05 - 80 (1200) Phasphate-based high-strength CALDE® PLAST SUPERAL AB 51.0 45.0 1660 3.05 - 80 (1200) Phasphate-based high-strength CALDE® PLAST SUPERAL AB 51.0 45.0 1660 3.05 - 80 (1200) Phasphate-based high-strength CALDE® PLAST SUPERAL AB 51.0 45.0 1650 2.40 - 30 (1000) Ceiling and side walls	ALKON® CAST LB 85	81.7	8.3	1300	2.90	5.0 - 6.0	150	Standard material, high strength
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 1860 3.20 4.5 - 5.5 65 For high-purity aluminium CALDE® CAST LT 98 L 97.9 0.1 1860 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 -EXSC65 85.0 (SIC) 1500 2.60 6.0 6.5 68 SIC-based CALDE® SOL CAST S 80 78.0 (SIC) 1500 2.50 SOL binder 60 SIC-based sol-gel bonding Rapid heating General-purpose castable TCCAST-17 70.0 24.0 1700 2.30 11.5 - 12.5 17 Ceiling and side walls TCCAST -16K 63.0 38.0 1500 2.20 11.0 - 12.0 24 Ceiling and side walls TCCAST -16K 63.0 38.0 1500 2.20 11.0 - 12.0 24 Ceiling and side walls TCCAST -16 80 (1200) Phosphate-based high-strength plastic material CALDE® PLAST P 85 84.0 8.0 1650 3.05 - 80 (1200) Phosphate-based high-strength plastic material	ALKON® CAST 204	79.7	9.0	1200	2.80	5.2 - 6.2	140	Standard material, high strength
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 46.4 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 00 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 M32 76.1 15.0 1600 2.63 6.0 - 7.4 120 Medium cement-based High strength CALDE® CAST M2B 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-16 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 2.40 - 80 (1200) Phosphate-based high-strength plastic material CALDE® PLAST SUPERALAB 51.0 45.0 1650 2.40 - 30(1000) Ceiling and side walls	ALKON® CAST AF 481	78.6	9.1	1200	2.70	6.0 - 8.0	140	Standard materials Low cost
ALKON® CAST MF 44	ALKON® FLOW LB 85	84.5	8.5	1200	2.90	6.1 - 7.3	130	High fluidity
TCS-018	ALKON® CAST MM 60 TW	64.3	24.6	1450	2.60	4.5 - 5.5	70	Thermal shock resistant SFM material
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 0D 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 M32 76.1 15.0 1600 2.63 6.0 - 7.4 120 Medium cement-based High strength CALDE® CAST M28 HR 50.9 42.7 1550 2.35 6.0 - 8.0 90 Medium cement-based High strength CALDE® SOL CAST S 80 78.0 (SiC) 1500 2.58 SOL binder 60 SiC-based sol-gel bonding Rapid heating General-purpose castable TOC	ALKON® CAST MF 44	45.4	46.4	1200	2.16	7.0 - 8.5	75	Chamotte type
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 OD 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 M32 76.1 15.0 1600 2.63 6.0 - 7.4 120 Medium cement-based High strength CALDE® CAST M28 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 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-1	TCS -018	60.0	23.0	1200	2.00	13.5 - 14.5	40	Koji Light series
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 0D 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 M32 76.1 15.0 1600 2.63 6.0 - 7.4 120 Medium cement-based High strength CALDE® CAST M28 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 S80 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 SUPERAL AB 51.0 45.0 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	TCS -0304	18.0	75.0	1100	2.10	5.5 - 6.5	49	Fused silica-based
CALDE® CAST NB 82 0D 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 M32 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 38.0 1500 2.13 </td <td>Dense-castable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Dense-castable							
NTRACAST 360 SR 82.8 11.4 1600 2.90 5.0 - 6.0 140 high strength	CALDE® CAST LT 98 L	97.9	0.1	1850	3.20	4.5 - 5.5	65	For high-purity aluminium
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 SUPERAL AB 51.0 45.0 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	CALDE® CAST NB 82 QD	82.0	13.5	1650	2.75	6.0 - 7.0	80	
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 TOS - 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 </td <td>INTRACAST 360 SR</td> <td>82.8</td> <td>11.4</td> <td>1600</td> <td>2.90</td> <td>5.0 - 6.0</td> <td>140</td> <td>high strength</td>	INTRACAST 360 SR	82.8	11.4	1600	2.90	5.0 - 6.0	140	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	CALDE® CAST 1560	59.0	36.0	1650	2.45	6.4 - 7.6	60	Thermal shock resistance
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	CALDE® CAST M 32	76.1	15.0	1600	2.63	6.0 - 7.4	120	Medium cement-based High strength
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	CALDE® CAST M 28 HR	50.9	42.7	1550	2.35	6.0 - 8.0	90	Medium cement-based
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	TCS -EXSC85	85.0	(SiC)	1500	2.60	6.0 - 6.5	68	SiC-based
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	CALDE® SOL CAST S 80	78.0(SiC)	1500	2.58	SOL binder	60	SiC-based sol-gel bonding Rapid heating
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	General-purpose castable							
TOCAST-15	TOCAST-17	70.0	24.0	1700	2.30	11.5 - 12.5	17	Ceiling and side walls
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	TOCAST -16K	63.0	28.0	1600	2.20	11.0 - 12.0	24	Ceiling and side walls
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	TOCAST-15	53.0	38.0	1500	2.13	12.0 - 13.0	23	Second Refractory
CALDE® PLAST P85 84.0 8.0 1650 3.06 - 80 (1200) plastic material CALDE® PLAST SUPERAL AB 51.0 45.0 1650 2.40 - 30 (1000) Ceiling and side walls	Plastic material							
	CALDE® PLAST P 85	84.0	8.0	1650	3.05	-	80 (1200)	
CJ-PLAST 165AB 50.0 45.0 1650 2.45 - 17 (1000) Ceiling and side walls	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.

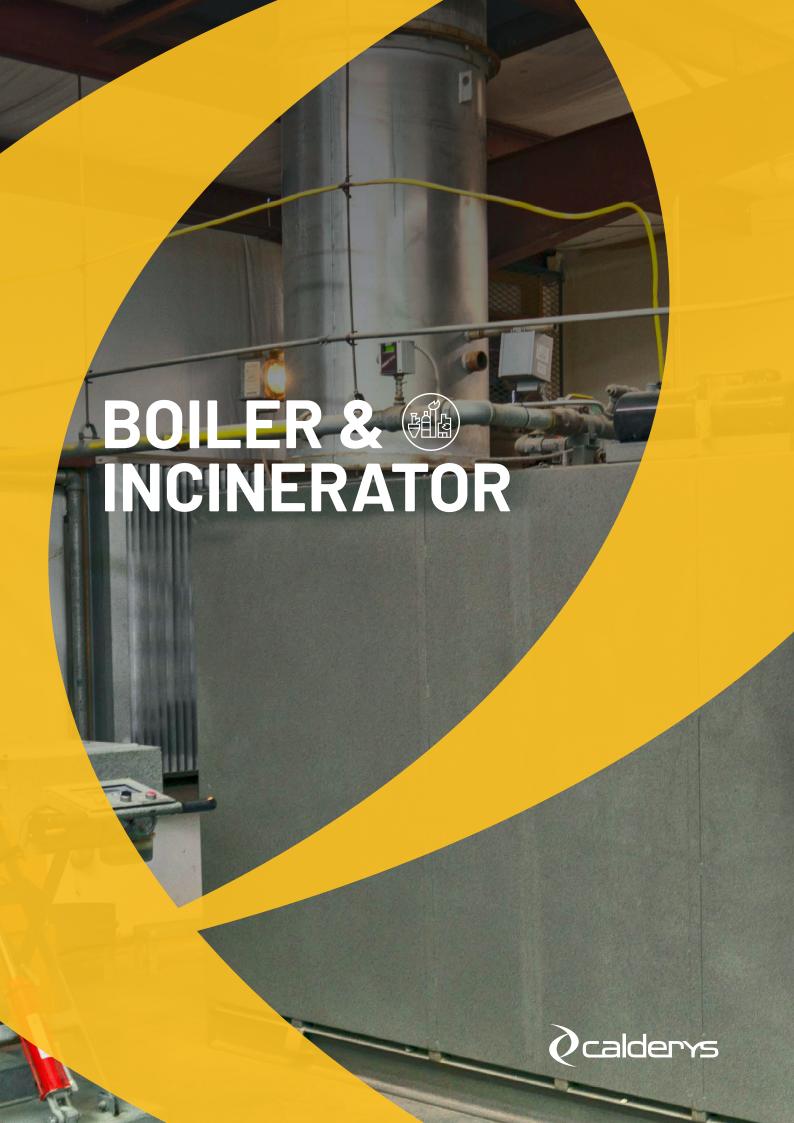
Product Name	Chemical Composition %		Maximum Operating Temperature	Construction Requirements	Standard water addition volume (%)	Compressive strength 800% after heating	Application areas, features
	AI_2O_3	SiO ₂	(°C)	(t/m²)	volume (%)	(MPa)	
Sprayed material							
TOSHOT -C75 AL	80.0	1.5	1420	2.60	Nozzle 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 materia	al						
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(2	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

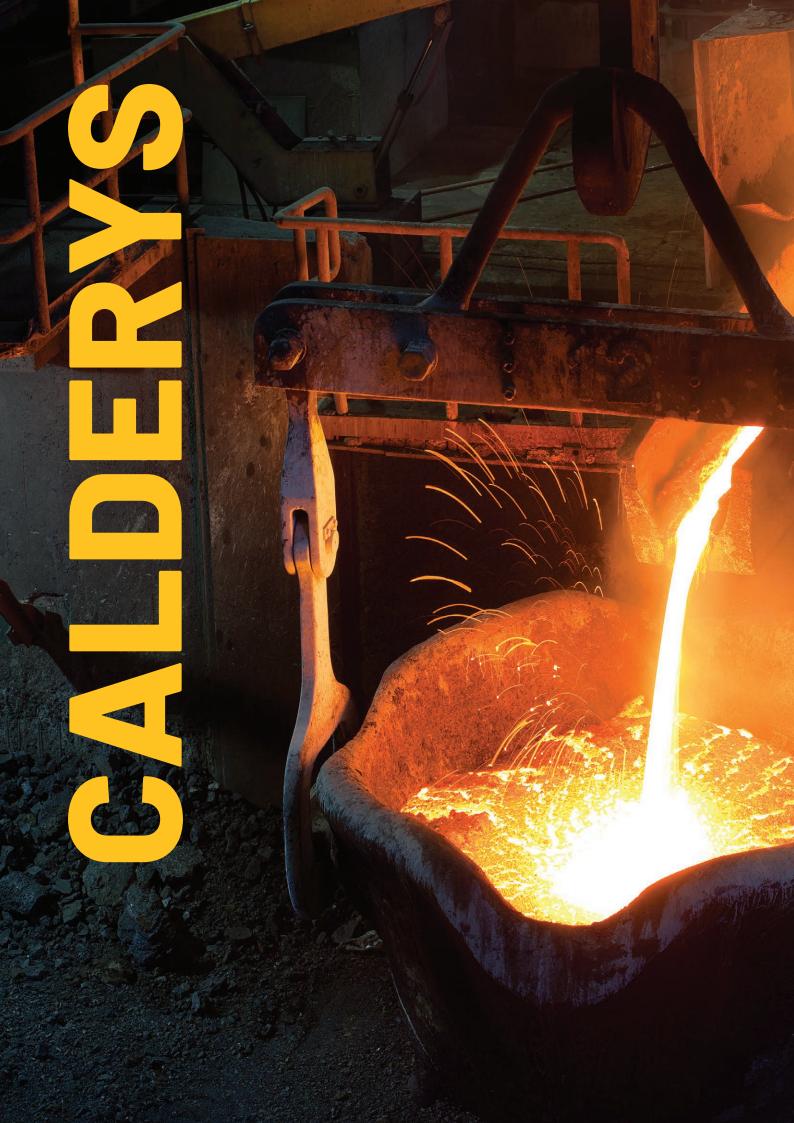


Calderys provides innovative technologies and numerous products based on its worldwide track record and extensive experience.

From material supply to various furnace construction works and overseas project assignments, we offer flexible solutions to meet all your company's requirements.









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.

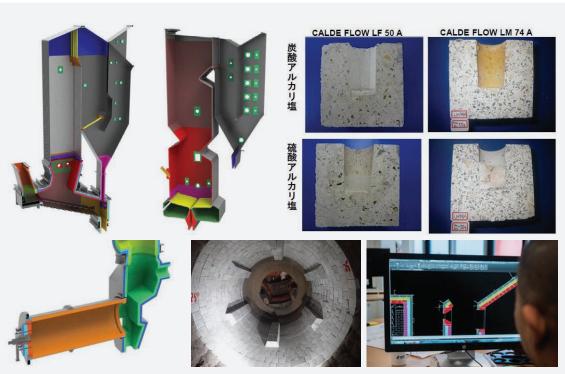
Calderys pays particular attention to industry's impact on the environment and has a sustainability program articulated around three pillars: supporting our customers in their energy transition needs, improving our environmental footprint and being committed to people and local communities.

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 %		on %	Maximum Operating	Construction Requirements			00% Application areas features
Troduct Name	A	I ₂ O ₃		Temperature (°C)	(t/m³)	volume (%)	after heat (MPa)	ing Application areas, reatures
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-flo
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°C)	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°C)) LCC High strength High fluidity High thermal conductivity
CALDE® FLOW LS 60		(SiC)	1500	2.50	6.0	- 8.0	120	LCCHigh strength High fluidity High thermal conductivity
TCS-EXSC60		(SiC)	1500			- 6.4	81	High strength High thermal conductivity
TCS-EXSC85		(SiC)	1500		6.0		68	High strength High thermal conductivity
CALDE® SOL SPRAYCAST M 60	61.5	35.5	1650			. Binder	60	Sol-gel bonding Erosion resistance Rapid drying
CALDE® SOL SPRAYCAST M 74 A	73.0	25.0	1750			. Binder	77	Sol-gel bonding Erosion resistance Rapid drying
CALDE® SOL CAST M 75	76.0	23.0	1800			Binder	85	Sol-gel bonding Erosion resistance Rapid drying
CALDE® SOL CAST S 60	59.0	(SiC)	1500			. Binder	60	Sol-gel bonding Rapid drying High thern 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		Noz adju	zle Istment	25	General-purpose combustion chamber Secondary combustion chamber Duct
CALDE® GUN C 28	48.9	42.4	1500			zle adjustment		General-purpose combustion chamber Secondary combustion chamber Duct
CALDE® GUN C 28 HR G3 TW	54.1	36.0	1500	2.15	Noz	zle adjustment	t 55	General-purpose combustion chamber Secondary combustion chamber High strength
TOSHOT-12AR	23.0	62.0	1200	1.82	Noz	zle adjustment	t 33	General-purpose acid-resistant flue gas cooling chamber
TOSHOT-C20	38.3	47.3	1450	1.80	Noz	zle adjustment	t 13	General-purpose acid-resistant flue gas cooling chamber
CALDE® GUN LF 52 A G3	49.2	46.6	1400	2.24		cialised nozzle Istment	60	LPGM Alkali-Resistant Water-Cooled Wall/Combustion Chamber
CALDE® GUN LM 60 A	60.5	34.0	1600	2.40		cialised nozzle Istment	60	LPGM Alkali-Resistant Water-Cooled Wall/Combustion Chamber
CALDE® GUN LM 74 A	70.8	25.2	1700	2.50		cialised nozzle Istment	· 70	LPGM Alkali-Resistant Water-Cooled Wall/Combustion Chamber
CALDE® GUN LS 30	31.3 (SiC)1500		2.35		cialised nozzle Istment	· 70	LPGM High Thermal Conductivity Water-Cooled Wall
CALDE® GUN LS 60	58.5 ((SiC)	1500	2.53		cialised nozzle Istment	9 89	LPGM High Thermal Conductivity Water-Cooled Wall
CALDE® GUN LS 80	80.0	(SiC)	1500	2.51		cialised nozzle ustment	980	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

Product Name					Construction Requirements	Standard water addition volume (%)	Compress strength 8 after heat	0% Application areas features
	Al	O ₃		(°C)	(01117)	Volume (76)	(MPa)	ing
Insulating castable								
CJ-ROCKS	29.5	35.5	1000	0.40	No	zzle 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°C)	Plastic material Clay-like
CJ-PLAST 165AB	50.0	45.0	1650	2.45	-		17 (1000°C)	Plastic material Clay-like
CALDE® PLAST P 85	84.0	8.0	1650	3.05	-		80 (1200°C)	Plastic material High strength Thermosetting
TOSHOT-M60	56.2	35.3	1600	2.05	No	zzle adjustment	7	Dry-mix plastic spray material General
TOSHOT-X70	70.0	21.8	1700	2.25	No	zzle adjustment	6	Dry Plastic Spray Material for High Temperatures
Patching compound Coating a	igent							
CALDE® PATCH PB 82 U	82.0	9.0	1600	2.90	-		50 (1200°C)	Thermosetting patching repair material
CALDE® PATCH PT 88 U	88.0	6.0	1650	2.95	-		50 (1200°C)	Thermosetting patching repair materia
CALDE® STIX PB 85 C/G	84.0	9.5	1300	2.85	7.0	- 9.0	140	On-site patching compound Air-hardenin Wear-resistant
CALDE® PATCH PT 90 HR	89.0	6.0	1250	2.75	7.0	- 7.6	150	On-site patching compound Air-hardenin Wear-resistant
TOCOAT-C50	50.	1(C)	-	4kg/	′m² 45		-	Clinker adhesion inhibitor

- The figures stated are representative values and are not guaranteed. They are subject to change without notice.
- $\bullet \quad \text{For products ending with C/G, the physical property values are those at the time of pouring.}\\$
- 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.



- Calderys offers 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.

