PT METRO SECURO INDONESIA

Refractory Solutions for High Temperature Industries

BUILT FOR HEAT. | READY FOR LADLES.

· HIGH STANDARD
· EXPERTISE
· ASSURANCE
· TRUST

PRODUCT CATALOGUE

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Serving Indonesia's High-Temperature Industry

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Serving Indonesia's High-Temperature Industry

THE FULL PRODUCT RANGE

Five refractory families covering dense bricks, monolithic materials, insulation, kiln furniture, and smelting consumables.

01 / REFRACTORY BRICKS

Dense refractory bricks for furnace, ladle, kiln, and high-temperature lining zones.

02 / MONOLITHIC REFRACTORY

Unshaped refractory materials for casting, patching, ramming, gunning, repair, and installation work.

03 / INSULATION PRODUCTS

Lightweight refractory products for backup lining, heat preservation, thermal insulation, and energy saving.

04 / KILN FURNITURE

Refractory shapes and support parts for industrial kilns, ceramic kilns, heat treatment, and firing systems.

05 / SMELTING CONSUMABLES

Consumable refractory materials for smelting, tapping, furnace maintenance, and ladle-related operations.

DESIGNED FOR

Ferrous & Steel · Cement · Glass · Non-ferrous (Nickel, Ferroalloy) · Petrochemical · Foundry · Energy · Kiln & Heat treatment

Selection depends on slag condition, temperature, lining zone, furnace type, campaign expectation, and installation method.

AUTHORIZED PRODUCT SUPPLY

PT Metro Securo Indonesia (MSI) is the officially authorized representative of **Kerui Refractory®**, appointed to market and supply its refractory products and services throughout Indonesia. All Products Listed are Authorized Products from **Kerui Refractory®**.

KERUI REFRACTORY

ZHENGZHOU KERUI INDUSTRIAL DEVELOPMENT CO., LTD.

To whom it may concern:

PT. Metro Securo Indonesia

JI. Raya Sidosermo Indah No.20

Kel. Sidosermo Kec. Wonocolo

Surabaya, Jawa Timur 60239

Letter of Authorization

This is to confirm that the company PT. Metro Securo Indonesia, JI. Raya Sidosermo Indah No.20 Kel. Sidosermo Kec. Wonocolo Surabaya, Jawa Timur 60239 is an authorised representative of the company KERUI Refractory of the address, Chaohua Industry Zone, Xinmi City 452385, Henan Province, China and can market the products and services of KERUI Refractory throughout the territories of Indonesia.

Yours sincerely,
KERUI REFRACTORY

郑州科瑞实业发展有限公司
ZHENGZHOU KERUI INDUSTRIAL DEVELOPMENT CO.,LTD

General Director
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01

REFRACTORY BRICKS

Serving Indonesia’s High Temperature Industry

Dense refractory bricks for furnace, ladle, kiln, and high-temperature lining zones.

FIRE CLAY REFRACTORY BRICK

High Working Temperature

Good Thermal Stability

Strong Slag Resistance

Good Erosion Resistance

APPLICATION:

Fire clay brick is used for lining steel-making electric furnaces, glass melting furnaces, cement rotary furnaces, blast furnace stoves, and general high-temperature industrial service where cost-effective heat resistance is required.

TECHNICAL DATA:

ITEM/GRADE		SK-30	SK-32	SK-34	SK-36	SK-38
Al2O3, %	≥	30	32	34	36	38
Fe2O3, %	≤	2.5	2.5	2.0	2.0	1.8
Apparent Porosity, %	≤	26	24	22	22	20
Bulk Density, g/cm³		1.85–2.0	1.95–2.1	2.0–2.15	2.05–2.2	2.1–2.3
Cold Crushing Strength, MPa	≥	20	25	30	35	40
0.2MPa Refractoriness Under Load, C	≥	1250	1300	1350	1400	1450
Permanent Linear Change, %		1450°C×2h - 0.4~0.2		1500°C×2h - 0.4~0.1		

HIGH ALUMINA REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

Good Thermal Stability

Strong Slag Resistance

APPLICATION:

High alumina brick is used for lining steel-making electric furnaces, glass melting furnaces, cement rotary furnaces, and high-load lining zones in metallurgical and cement industries.

TECHNICAL DATA:

ITEM/GRADE		LZ-80	LZ-75	LZ-70	LZ-65	LZ-60	LZ-55	LZ-48
Al2O3, %	≥	80	75	70	65	60	55	48
Apparent Porosity, %	≤	21	24	24	24	26	22	22
Cold Crushing Strength, MPa	≥	70	60	55	50	45	45	40
0.2MPa Refractoriness Under Load, C	≥	1530	1520	1510	1500	1430	1450	1420
Permanent Linear Change, %		1500°C× 2h - 0.4~0.2				1450°C× 2h - 0.4~0.1		

SILICA REFRACTORY BRICK

High Working Temperature

High Crushing Strength

Good Thermal Stability

Cement & Lime Use

APPLICATION:

Silica brick is widely used in coke ovens, glass furnaces, hot blast stoves, and acid-lined industrial furnaces where high-temperature strength and creep resistance under load are required.

TECHNICAL DATA:

ITEM/GRADE		GZ-95	GZ-94	GZ-93
SiO2, %	≥	95	94	93
Al2O3, %	≤	1.5	1.7	2.0
Fe2O3, %	≤	1.0	1.3	1.5
Apparent Porosity, %	≤	22	22	24
Cold Crushing Strength, MPa	≥	35	35	30
0.2MPa Refractoriness Under Load, C	≥	1650	1640	1620

MULLITE REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

Good Thermal Stability

Good Chemical Resistance

APPLICATION:

Mullite brick is used for lining high-temperature furnaces, hot blast stoves, glass furnace regenerators, and petrochemical heaters due to its high refractoriness and thermal shock resistance.

TECHNICAL DATA:

ITEM/GRADE		M-70	M-65	M-60
Al2O3, %	≥	70	65	60
SiO2, %	≤	26	30	35
Apparent Porosity, %	≤	20	20	22
Bulk Density, g/cm³	≥	2.55	2.45	2.35
Cold Crushing Strength, MPa	≥	60	55	50
0.2MPa Refractoriness Under Load, C	≥	1700	1650	1600

ANDALUSITE REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

Good Thermal Stability

Good Erosion Resistance

APPLICATION:

Andalusite bricks with excellent performance can fully meet the requirements for use in different parts of blast furnaces and hot blast stoves and in different working environments.

TECHNICAL DATA:

ITEM/GRADE		RH-155	RH-150	RH-145	RH-140	RH-135	RH-130
Al2O3, %	≥	69	65	61	57	53	49
Fe2O3, %	≤	1.0	1.0	1.2	1.2	1.5	1.5
TiO2, %	≤	0.5	0.5	0.5	0.6	0.6	0.6
Apparent Porosity, %	≤	20	20	20	20	20	20
Bulk Density, g/cm³		2.55–2.70	2.50–2.65	2.45–2.60	2.40–2.55	2.35–2.50	2.30–2.45
Cold Crushing Strength, MPa	≥	55	55	50	50	40	40
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1650	1600	1520	1450
Permanent Linear Change, %		1500°C×2h			1450°C×2h		

CORUNDUM REFRACTORY BRICK

High Working Temperature

High Crushing Strength

Great Wear Resistance

Good Chemical Resistance

APPLICATION:

Corundum brick is used in high-temperature industrial furnaces, petrochemical reactors, carbon black reactors, and high-wear lining zones that require extreme refractoriness and chemical resistance.

TECHNICAL DATA:

ITEM/GRADE		99	98	95	90	85
Al2O3, %	≥	99	98	95	90	85
SiO2, %	≤	0.2	0.5	2.0	5.0	10
Fe2O3, %	≤	0.2	0.3	0.5	0.7	1.0
Bulk Density, g/cm³	≥	3.20	3.15	3.05	2.95	2.85
Cold Crushing Strength, MPa	≥	80	80	70	65	60
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1700	1700	1650

SILLIMANITE REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

Good Thermal Stability

Strong Slag Resistance

APPLICATION:

Sillimanite brick is used for lining hot blast stoves, glass furnace regenerators, and high-temperature equipment where thermal shock resistance and load-bearing capacity are critical.

TECHNICAL DATA:

ITEM/GRADE		SL-65	SL-60	SL-55
Al2O3, %	≥	65	60	55
SiO2, %	≤	32	35	40
Apparent Porosity, %	≤	20	22	22
Bulk Density, g/cm³	≥	2.50	2.40	2.30
Cold Crushing Strength, MPa	≥	55	50	45
0.2MPa Refractoriness Under Load, C	≥	1650	1600	1550

CORUNDUM MULLITE REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

High Crushing Strength

Great Wear Resistance

APPLICATION:

Corundum mullite brick is used in high-temperature kiln linings, petrochemical heaters, and high-wear industrial applications requiring excellent thermal shock and abrasion resistance.

TECHNICAL DATA:

ITEM/GRADE		CM-80	CM-75	CM-70
Al2O3, %	≥	80	75	70
SiO2, %	≤	18	22	26
Bulk Density, g/cm³	≥	2.85	2.75	2.65
Apparent Porosity, %	≤	18	20	20
Cold Crushing Strength, MPa	≥	80	70	60
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1650

CHROME CORUNDUM REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

Great Wear Resistance

Good Erosion Resistance

APPLICATION:

Chrome corundum brick can be used as glass kiln lining, brushed glass flow hole cover brick and cab be used in molten iron pretreatment device, garbage incinerator, coal water slurry pressurized gasification furnace backing, etc.

TECHNICAL DATA:

ITEM/GRADE		GGZ-30	GGZ-20	GGZ-12	GGZ-5
Cr_2O_3, %	≥	30	20	12	5
Fe_2O_3, %	≤	0.3	0.3	0.3	0.3
Al_2O_3, %	≥	68	76	80	85
Apparent Porosity, %	≤	18	18	18	18
Bulk Density, g/cm³	≥	3.5	3.4	3.2	3.1
Cold Crushing Strength, MPa	≥	100	100	100	100

MAGNESIA BRICK

High Working Temperature

Strong Slag Resistance

High Alumina Series

EAF & Ladle Service

APPLICATION:

Magnesia brick is the standard alkaline refractory for EAF, ladle slag line, cement rotary kilns, and basic oxygen furnace linings, with high refractoriness and basic-slag resistance.

TECHNICAL DATA:

ITEM/GRADE		MZ-97	MZ-95	MZ-92	MZ-89	MZ-87
MgO, %	≥	97	95	92	89	87
SiO2, %	≤	1.0	1.5	2.5	3.5	4.5
CaO, %	≤	1.5	2.0	2.5	3.0	3.5
Apparent Porosity, %	≤	16	17	18	19	20
Bulk Density, g/cm³	≥	3.10	3.05	2.95	2.90	2.85
Cold Crushing Strength, MPa	≥	60	60	55	50	45
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1650	1600	1550

MAGNESIA CHROME REFRACTORY BRICK

High Working Temperature

Strong Slag Resistance

High Crushing Strength

EAF & Ladle Service

APPLICATION:

Magnesia chrome brick is widely used in steel-making electric arc furnaces, ladle slag line, secondary refining furnaces, cement rotary kilns, and non-ferrous smelting furnaces.

TECHNICAL DATA:

ITEM/GRADE		MGE-8A	MGE-8B	MGE-12A	MGE-12B	MGE-16A	MGE-16B
MgO, %	≥	65	60	60	55	50	45
Cr2O3, %	≥	8	8	12	12	16	16
Apparent Porosity, %	≤	19	21	19	21	19	22
Cold Crushing Strength, MPa	≥	35	30	35	30	35	25
0.2MPa Refractoriness Under Load, C	≥	1650	1530	1650	1550	1650	1550

MAGNESIA CARBON REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

Strong Slag Resistance

EAF & Ladle Service

APPLICATION:

Magnesia carbon brick is used for EAF slag line, ladle slag line, BOF lining, and secondary refining ladle where high thermal shock resistance and basic-slag resistance are required.

TECHNICAL DATA:

ITEM/GRADE		MT-10A	MT-10B	MT-14A	MT-14B	MT-18A	MT-18B
MgO, %	≥	80	78	76	74	72	70
C, %	≥	10	10	14	14	18	18
Apparent Porosity, %	≤	4	5	4	5	3	4
Bulk Density, g/cm³	≥	2.95	2.90	2.95	2.90	3.00	2.95
Cold Crushing Strength, MPa	≥	40	35	40	35	40	35

MAGNESIA ALUMINA SPINEL REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

Strong Slag Resistance

Steel & Foundry Use

APPLICATION:

Magnesia alumina spinel brick is a chrome-free alternative for cement rotary kiln transition and burning zones, steel ladle linings, and clean steel service where basic-slag resistance is required.

TECHNICAL DATA:

ITEM/GRADE		MAS-80	MAS-75	MAS-70
MgO, %	≥	80	75	70
Al2O3, %	≥	12	18	22
SiO2, %	≤	1.0	1.5	2.0
Apparent Porosity, %	≤	17	18	18
Bulk Density, g/cm³	≥	2.95	2.90	2.85
Cold Crushing Strength, MPa	≥	55	50	50
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1650

MAGNESIA IRON SPINEL REFRACTORY BRICK

High Working Temperature

Strong Slag Resistance

Good Density & Strength

Cement & Lime Use

APPLICATION:

Magnesia iron spinel brick is widely used in cement rotary kiln transition and burning zones, with excellent thermal shock resistance, coating adherence, and basic-slag resistance.

TECHNICAL DATA:

ITEM/GRADE		MIS-85	MIS-80	MIS-75
MgO, %	≥	85	80	75
Fe2O3, %		4–7	5–8	5–8
Al2O3, %	≤	2.0	2.5	3.0
SiO2, %	≤	2.0	2.5	3.0
Apparent Porosity, %	≤	18	18	19
Bulk Density, g/cm³	≥	2.95	2.90	2.85
Cold Crushing Strength, MPa	≥	55	55	50

AZS REFRACTORY BRICK

High Working Temperature

Good Chemical Resistance

Glass Furnace Use

Good Density & Strength

APPLICATION:

AZS (Alumina-Zirconia-Silica) brick is the standard refractory for glass furnace superstructure, melter sidewalls, throat, and regenerator checker where glass corrosion resistance is critical.

TECHNICAL DATA:

ITEM/GRADE		AZS-33	AZS-36	AZS-41
Al2O3, %		—	—	—
ZrO2, %	≥	33	36	41
SiO2, %	≤	16.0	14.0	13.0
Fe2O3, %	≤	0.5	0.5	0.4
Apparent Porosity, %	≤	20	19	18
Bulk Density, g/cm³	≥	3.40	3.55	3.75
Cold Crushing Strength, MPa	≥	100	100	100
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1700

SINTERED ZIRCONIA CORUNDUM REFRACTORY BRICK

High Working Temperature

Good Density & Strength

Glass Furnace Use

Good Chemical Resistance

APPLICATION:

Sintered zirconia corundum brick is used in glass furnace throat, sidewall, and feeder channels where extreme corrosion and erosion resistance is required at high temperatures.

TECHNICAL DATA:

ITEM/GRADE		ZFC-30	ZFC-25	ZFC-20
Al2O3, %	≥	65	68	72
ZrO2, %	≥	30	25	20
SiO2, %	≤	1.0	1.5	2.0
Fe2O3, %	≤	0.3	0.4	0.5
Bulk Density, g/cm³	≥	3.80	3.65	3.50
Cold Crushing Strength, MPa	≥	150	140	120
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1700

HIGH CHROME REFRACTORY BRICK

High Working Temperature

Good Chemical Resistance

Great Wear Resistance

Glass Furnace Use

APPLICATION:

High chrome brick is used in glass furnace regenerator checkers, coal-water slurry gasification linings, and chemical industry reactors where high-temperature chemical resistance is required.

TECHNICAL DATA:

ITEM/GRADE		HGZ-30	HGZ-25	HGZ-20
Cr_2O_3, %	≥	30	25	20
Al_2O_3, %	≤	—	—	—
Fe_2O_3, %	≤	0.5	0.6	0.7
Apparent Porosity, %	≤	18	19	20
Bulk Density, g/cm³	≥	3.65	3.50	3.40
Cold Crushing Strength, MPa	≥	100	90	80
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1650

ZIRCON REFRACTORY BRICK

High Working Temperature

Good Density & Strength

Glass Furnace Use

Good Chemical Resistance

APPLICATION:

Zircon brick is used in glass furnace sidewalls, bottom paving, and continuous casting tundish where low thermal expansion and high chemical resistance are required.

TECHNICAL DATA:

ITEM/GRADE		ZS-65	ZS-60	ZS-55
ZrO2, %	≥	65	60	55
SiO2, %	≤	33	37	42
Al2O3, %	≤	1.0	1.5	2.0
Bulk Density, g/cm³	≥	3.80	3.65	3.50
Apparent Porosity, %	≤	18	19	20
Cold Crushing Strength, MPa	≥	100	90	80
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1650

SILICON CARBIDE REFRACTORY BRICK

High Working Temperature

Lower Thermal Conductivity

Great Wear Resistance

Good Thermal Shock Resistance

APPLICATION:

Silicon carbide brick is used in high-thermal-conductivity applications such as ceramic kiln furniture, blast furnace bosh, and heat exchanger linings requiring extreme abrasion resistance.

TECHNICAL DATA:

ITEM/GRADE		SIC-90	SIC-85	SIC-80
SiC, %	≥	90	85	80
SiO2, %	≤	5.0	8.0	10
Al2O3, %	≤	3.0	5.0	6.0
Fe2O3, %	≤	1.0	1.2	1.5
Apparent Porosity, %	≤	16	17	18
Bulk Density, g/cm³	≥	2.65	2.60	2.55
Cold Crushing Strength, MPa	≥	100	90	80
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1650

ALUMINUM SILICON CARBIDE REFRACTORY BRICK

High Working Temperature

Good Thermal Shock Resistance

Great Wear Resistance

SiC-based Formulation

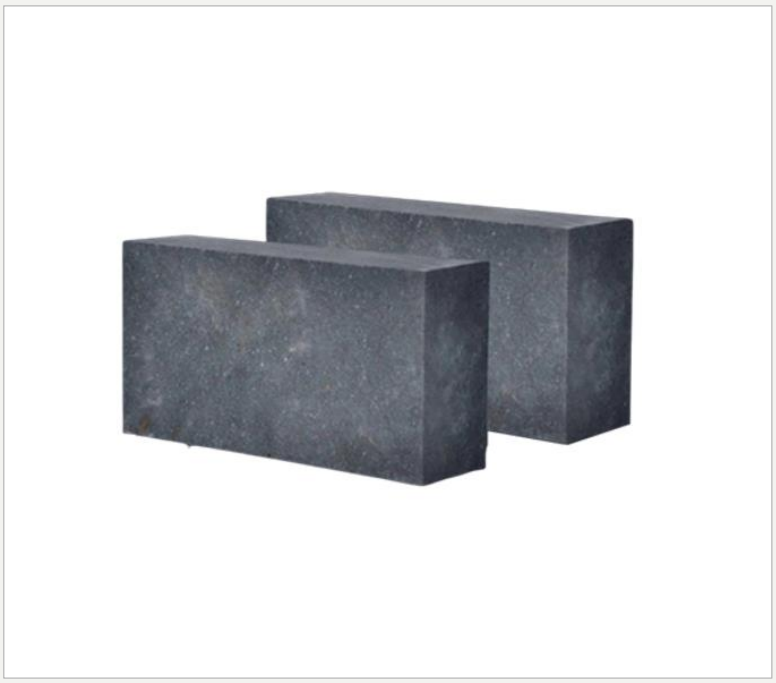
APPLICATION:

Aluminum silicon carbide brick is used in high-wear zones of blast furnace, torpedo ladle, and iron runner where combined abrasion and thermal-shock resistance is critical.

TECHNICAL DATA:

ITEM/GRADE		ASC-70	ASC-65	ASC-60
Al2O3, %	≥	70	65	60
SiC, %	≥	10	12	15
Fe2O3, %	≤	1.5	1.8	2.0
Apparent Porosity, %	≤	16	17	18
Bulk Density, g/cm³	≥	2.85	2.80	2.75
Cold Crushing Strength, MPa	≥	90	85	80
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1650

SILICON NITRIDE & SILICON CARBIDE REFRACTORY BRICK



High Working Temperature

Good Thermal Shock Resistance

SiC-based Formulation

Great Wear Resistance

APPLICATION:

Silicon nitride combined SiC brick is used in blast furnace bosh, belly, and lower stack where extreme thermal shock resistance and alkali resistance are required.

TECHNICAL DATA:

ITEM/GRADE		SN-90	SN-85	SN-80
SiC, %	≥	90	85	80
Si3N4, %	≥	15	15	15
Fe2O3, %	≤	0.5	0.7	1.0
Apparent Porosity, %	≤	15	16	17
Bulk Density, g/cm³	≥	2.70	2.65	2.60
Cold Crushing Strength, MPa	≥	150	140	130
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1700

02

MONOLITHIC REFRACTORY

Serving Indonesia’s High Temperature Industry

Unshaped refractory materials for casting, patching, ramming, gunning, repair, and installation work.

HIGH ALUMINA CASTABLE

High Working Temperature

High Crushing Strength

Great Wear Resistance

Foundry & Smelting Use

APPLICATION:

High alumina castable is used for monolithic linings of boilers, steel ladles, forge furnaces, cement kilns, and other high-temperature thermal equipment requiring excellent wear and thermal shock resistance.

TECHNICAL DATA:

ITEM/GRADE		HA-70	HA-65	HA-60	HA-50
Al2O3, %	≥	70	65	60	50
CaO, %	≤	3.0	3.0	3.0	3.5
Max Service Temperature, °C		1700	1650	1600	1550
Bulk Density, g/cm³	≥	2.70	2.65	2.55	2.40
Cold Crushing Strength, MPa	≥	60	55	50	40
Permanent Linear Change, %		1500°C×3h 0.5			

LOW CEMENT CASTABLE

High Crushing Strength

Good Density & Strength

Great Wear Resistance

High Working Temperature

APPLICATION:

Low cement castable (LCC) is used in high-load linings of iron and steel ladles, tundish, and petrochemical heaters where low porosity, high strength, and superior wear resistance are required.

TECHNICAL DATA:

ITEM/GRADE		LCC-70	LCC-65	LCC-60
Al2O3, %	≥	70	65	60
CaO, %	≤	1.5	2.0	2.0
SiO2, %	≤	8.0	10	12
Bulk Density, g/cm³	≥	2.75	2.70	2.60
Cold Crushing Strength, MPa	≥	80	70	60
0.2MPa Refractoriness Under Load, C	≥	1700	1650	1600
Permanent Linear Change, %		1500°C×3h 0.3		

CORUNDUM CASTABLE

High Working Temperature

High Crushing Strength

Great Wear Resistance

Good Chemical Resistance

APPLICATION:

Corundum castable is used in severe-service linings of petrochemical reactors, secondary refining ladles, and high-temperature cyclone separators requiring extreme wear and corrosion resistance.

TECHNICAL DATA:

ITEM/GRADE		CR-90	CR-85	CR-80
Al2O3, %	≥	90	85	80
SiO2, %	≤	5.0	8.0	12
CaO, %	≤	2.0	2.0	2.5
Bulk Density, g/cm³	≥	2.95	2.85	2.75
Cold Crushing Strength, MPa	≥	80	70	65
0.2MPa Refractoriness Under Load, C	≥	1700	1700	1700

MULLITE CASTABLE

High Working Temperature

Good Thermal Shock Resistance

Good Density & Strength

Good Thermal Stability

APPLICATION:

Mullite castable is used for monolithic linings of high-temperature furnaces, hot blast stoves, and petrochemical heaters requiring low thermal expansion and high thermal shock resistance.

TECHNICAL DATA:

ITEM/GRADE		ML-70	ML-65	ML-60
Al2O3, %	≥	70	65	60
SiO2, %	≤	26	30	35
Bulk Density, g/cm³	≥	2.55	2.45	2.40
Cold Crushing Strength, MPa	≥	60	55	50
0.2MPa Refractoriness Under Load, C	≥	1700	1650	1600
Permanent Linear Change, %		1500°C×3h -0.4~0.4		

SILICON CARBIDE CASTABLE

High Working Temperature

Great Wear Resistance

Lower Thermal Conductivity

SiC-based Formulation

APPLICATION:

Silicon carbide castable is used in iron and steel melt-runner systems, blast furnace trough, and waste incinerator linings where high thermal conductivity and wear resistance are critical.

TECHNICAL DATA:

ITEM/GRADE		SCC-80	SCC-70	SCC-60
SiC, %	≥	80	70	60
Al2O3, %	≤	10	15	20
SiO2, %	≤	8.0	12	15
Bulk Density, g/cm³	≥	2.60	2.55	2.50
Cold Crushing Strength, MPa	≥	80	70	60
0.2MPa Refractoriness Under Load, C	≥	1700	1650	1600

ACID RESISTANT CASTABLE

Good Chemical Resistance

Good Density & Strength

Low Porosity & Permeability

Easy Installation

APPLICATION:

Acid resistant castable is used in chemical industry vessels, acid pickling tanks, and chimney linings where resistance to acidic media at moderate temperatures is required.

TECHNICAL DATA:

ITEM/GRADE		AR-50	AR-45	AR-40
SiO2, %	≥	50	45	40
Al2O3, %	≤	20	20	20
Acid Resistance, %	≥	98	96	95
Bulk Density, g/cm³	≥	2.20	2.15	2.10
Cold Crushing Strength, MPa	≥	40	35	30
Max Service Temperature, °C		1200	1100	1000

PLASTIC CASTABLE

Good Thermal Shock Resistance

Easy Installation

Great Wear Resistance

Flexible Service Range

APPLICATION:

Plastic castable is used as a ramming or patching material for boiler lining, furnace door, and burners where easy installation and good thermal shock resistance are required.

TECHNICAL DATA:

ITEM/GRADE		PC-60	PC-50	PC-40
Al2O3, %	≥	60	50	40
SiO2, %	≤	30	35	40
Bulk Density, g/cm³	≥	2.50	2.40	2.30
Cold Crushing Strength, MPa	≥	50	40	30
0.2MPa Refractoriness Under Load, C	≥	1500	1450	1400
Plasticity Index, %	≥	15	15	15

INSULATING CASTABLE

Lightweight & Energy-saving

Lower Thermal Conductivity

Easy Installation

Energy-saving Design

APPLICATION:

Insulating castable is used as a backup lining behind dense castables or bricks in furnaces, kilns, and heaters to reduce heat loss and lower energy consumption.

TECHNICAL DATA:

ITEM/GRADE		IC-1300	IC-1200	IC-1100	IC-1000
Al2O3, %	≥	40	35	30	25
Bulk Density, g/cm³	≤	1.30	1.20	1.10	1.00
Cold Crushing Strength, MPa	≥	8	6	5	4
0.2MPa Refractoriness Under Load, C	≥	1300	1200	1100	1000
Thermal Conductivity, W/(m·K)	≤	0.45	0.40	0.35	0.30

MAGNESIA CASTABLE

High Working Temperature

Strong Slag Resistance

EAF & Ladle Service

High Alumina Series

APPLICATION:

Magnesia castable is used in EAF and ladle slag line repairs, basic oxygen furnace bottom, and other high-temperature alkaline service zones where high refractoriness and basic-slag resistance are required.

TECHNICAL DATA:

ITEM/GRADE		MC-90	MC-85	MC-80
MgO, %	≥	90	85	80
SiO2, %	≤	2.0	3.0	4.0
CaO, %	≤	3.0	4.0	5.0
Bulk Density, g/cm³	≥	2.85	2.75	2.65
Cold Crushing Strength, MPa	≥	60	55	50
0.2MPa Refractoriness Under Load, C	≥	1700	1650	1600

STEEL FIBER CASTABLE

High Crushing Strength

Good Thermal Shock Resistance

Great Wear Resistance

Steel & Foundry Use

APPLICATION:

Steel fiber reinforced castable is used in high-impact and thermal-cycling zones of cyclone separators, burner blocks, and boiler linings where mechanical reinforcement is critical.

TECHNICAL DATA:

ITEM/GRADE		SFC-70	SFC-65	SFC-60
Al2O3, %	≥	70	65	60
SiO2, %	≤	20	25	28
CaO, %	≤	3.0	3.0	3.5
Bulk Density, g/cm³	≥	2.75	2.65	2.55
Cold Crushing Strength, MPa	≥	80	70	60
Flexural Strength, MPa	≥	12	10	8
Steel Fiber Content, %		2–4	2–4	2–4

WEAR RESISTANT CASTABLE

Great Wear Resistance

High Crushing Strength

Good Density & Strength

Steel & Foundry Use

APPLICATION:

Wear resistant castable is used in cyclone separators, circulating fluidized bed boiler linings, and pneumatic conveying elbows where severe abrasive wear is expected.

TECHNICAL DATA:

ITEM/GRADE		WR-80	WR-70	WR-60
Al2O3, %	≥	80	70	60
SiC, %	≥	8.0	5.0	—
Bulk Density, g/cm³	≥	2.85	2.75	2.65
Cold Crushing Strength, MPa	≥	100	90	80
Flexural Strength, MPa	≥	12	10	9
Abrasion Loss, cm³	≤	5	7	9

LIGHTWEIGHT CASTABLE

Lightweight & Energy-saving

Lower Thermal Conductivity

Easy Installation

Energy-saving Design

APPLICATION:

Lightweight castable is used as a heat-insulating layer in industrial furnaces, kilns, and heaters to reduce heat loss, energy consumption, and outer-shell temperature.

TECHNICAL DATA:

ITEM/GRADE		LW-1300	LW-1100	LW-900	LW-700
Al2O3, %	≥	40	30	25	20
Bulk Density, g/cm³	≤	1.30	1.10	0.90	0.70
Cold Crushing Strength, MPa	≥	6	4	3	2
0.2MPa Refractoriness Under Load, C	≥	1300	1100	900	700
Thermal Conductivity, W/(m·K)	≤	0.45	0.35	0.28	0.20

CA50 HIGH ALUMINA CEMENT

Stable Binder System

Easy Installation

High Working Temperature

Foundry & Smelting Use

APPLICATION:

CA50 high alumina cement is used as a binder for refractory castables in medium-temperature service and as a hydraulic binder for general refractory applications.

TECHNICAL DATA:

ITEM/GRADE		CA50-A	CA50-B	CA50-C
Al2O3, %	≥	50	50	50
SiO2, %	≤	8.0	8.0	8.0
Fe2O3, %	≤	2.5	2.5	2.5
CaO, %	≤	35	35	35
Specific Surface, m²/kg	≥	300	320	350
Initial Setting Time, min	≥	30	30	30
Final Setting Time, min	≤	360	360	360
1-Day Compressive Strength, ..	≥	30	40	50
3-Day Compressive Strength, ..	≥	50	60	70

CA60 HIGH ALUMINA CEMENT

Stable Binder System

Easy Installation

High Working Temperature

Foundry & Smelting Use

APPLICATION:

CA60 high alumina cement is used as a binder for high-performance refractory castables in steel, cement, and petrochemical service where high early strength and medium-temperature resistance are required.

TECHNICAL DATA:

ITEM/GRADE		CA60-A	CA60-B
Al2O3, %	≥	60	60
SiO2, %	≤	5.0	4.0
Fe2O3, %	≤	2.0	2.0
CaO, %	≤	32	32
Specific Surface, m²/kg	≥	350	380
1-Day Compressive Strength, ..	≥	50	60
3-Day Compressive Strength, ..	≥	70	80

CA70 HIGH ALUMINA CEMENT

Stable Binder System

High Working Temperature

High Crushing Strength

Foundry & Smelting Use

APPLICATION:

CA70 high alumina cement is used as a high-purity binder for premium refractory castables and gunning mixes in steel ladles, tundish, and petrochemical heaters requiring high-temperature performance.

TECHNICAL DATA:

ITEM/GRADE		CA70-A	CA70-B
Al2O3, %	≥	70	70
SiO2, %	≤	1.5	1.0
Fe2O3, %	≤	1.0	0.7
CaO, %	≤	30	30
Specific Surface, m²/kg	≥	400	450
1-Day Compressive Strength, ..	≥	50	60
3-Day Compressive Strength, ..	≥	70	80

CA80 HIGH ALUMINA CEMENT

Stable Binder System

High Working Temperature

High Crushing Strength

Flexible Service Range

APPLICATION:

CA80 high alumina cement is the premium binder for low-cement and ultra-low cement castables used in severe-service steel ladles, tundish, and high-temperature furnace linings.

TECHNICAL DATA:

ITEM/GRADE		CA80-A	CA80-B
Al2O3, %	≥	80	80
SiO2, %	≤	0.5	0.3
Fe2O3, %	≤	0.5	0.3
CaO, %	≤	20	20
Specific Surface, m²/kg	≥	500	550
1-Day Compressive Strength, ..	≥	40	50
3-Day Compressive Strength, ..	≥	60	70

CALCIUM ALUMINATE CEMENT

Stable Binder System

Easy Installation

High Working Temperature

Flexible Service Range

APPLICATION:

Calcium aluminate cement is used as a binder for general-purpose refractory castables, mortars, and gunning mixes in industrial furnace and boiler construction.

TECHNICAL DATA:

ITEM/GRADE		CAC-50	CAC-60	CAC-70
Al2O3, %	≥	50	60	70
SiO2, %	≤	8.0	5.0	1.5
Fe2O3, %	≤	2.5	2.0	1.0
CaO, %	≤	35	32	28
Specific Surface, m²/kg	≥	300	350	400
Initial Setting Time, min	≥	60	60	60
3-Day Compressive Strength, ..	≥	50	60	70

REFRACTORY GUNNING MIX

Repair & Patching

Easy Installation

Flexible Service Range

High Working Temperature

APPLICATION:

Refractory gunning mix is used for hot and cold repairs of ladle linings, furnace walls, and boiler linings where pneumatic application is required for fast turnaround.

TECHNICAL DATA:

ITEM/GRADE		GM-70	GM-60	GM-50
Al2O3, %	≥	70	60	50
SiO2, %	≤	20	28	35
Bulk Density, g/cm³	≥	2.55	2.40	2.30
Cold Crushing Strength, MPa	≥	50	40	35
Bonding Strength, MPa	≥	2.0	1.5	1.0
0.2MPa Refractoriness Under Load, C	≥	1650	1550	1450

REFRACTORY PRECAST BLOCK

Easy Installation

High Crushing Strength

Good Density & Strength

Flexible Service Range

APPLICATION:

Refractory precast blocks are factory-cast shapes used as burner blocks, tap-hole blocks, ladle well blocks, and other complex geometries requiring high dimensional accuracy and fast installation.

TECHNICAL DATA:

ITEM/GRADE		PB-80	PB-70	PB-60
Al2O3, %	≥	80	70	60
SiO2, %	≤	15	20	25
Bulk Density, g/cm³	≥	2.85	2.70	2.60
Cold Crushing Strength, MPa	≥	80	70	60
0.2MPa Refractoriness Under Load, C	≥	1700	1650	1600
Permanent Linear Change, %		1500°C×3h -0.3~0.3		

MAGNESIA RAMMING MASS

High Working Temperature

Strong Slag Resistance

EAF & Ladle Service

Flexible Service Range

APPLICATION:

Magnesia ramming mass is used as a basic furnace lining and ladle bottom lining in EAF, induction furnace, and other high-temperature alkaline service applications.

TECHNICAL DATA:

ITEM/GRADE		MR-95	MR-90	MR-85
MgO, %	≥	95	90	85
SiO2, %	≤	1.0	2.0	3.0
CaO, %	≤	2.0	2.5	3.0
Fe2O3, %	≤	0.5	0.8	1.0
Bulk Density, g/cm³	≥	2.85	2.80	2.70
Max Service Temperature, °C		1800	1750	1700

ALUMINA RAMMING MASS

High Working Temperature

Good Thermal Shock Resistance

Easy Installation

Foundry & Smelting Use

APPLICATION:

Alumina ramming mass is used as a monolithic lining in induction furnaces, ladles, and other high-temperature thermal equipment requiring easy installation and good thermal shock resistance.

TECHNICAL DATA:

ITEM/GRADE		AR-85	AR-75	AR-65
Al2O3, %	≥	85	75	65
SiO2, %	≤	10	15	20
Fe2O3, %	≤	1.5	2.0	2.5
Bulk Density, g/cm³	≥	2.85	2.70	2.55
Max Service Temperature, °C		1800	1700	1600
Cold Crushing Strength, MPa	≥	50	40	35

SILICA RAMMING MASS

Good Chemical Resistance

Easy Installation

Flexible Service Range

Acid Lining Service

APPLICATION:

Silica ramming mass is used as a monolithic acid lining in induction furnaces melting copper, brass, and other non-ferrous metals where acidic-slag resistance is required.

TECHNICAL DATA:

ITEM/GRADE		SR-95	SR-90	SR-85
SiO2, %	≥	95	90	85
Al2O3, %	≤	1.5	2.5	4.0
Fe2O3, %	≤	1.0	1.5	2.0
Bulk Density, g/cm³	≥	2.00	1.95	1.90
Max Service Temperature, °C		1700	1650	1600
Cold Crushing Strength, MPa	≥	30	25	20

AZS RAMMING MASS

Good Chemical Resistance

High Working Temperature

Glass Furnace Use

Good Density & Strength

APPLICATION:

AZS ramming mass is used in glass furnace throat, feeder channels, and other high-corrosion zones where dense, low-porosity monolithic lining is required for glass contact service.

TECHNICAL DATA:

ITEM/GRADE		AZS-R33	AZS-R20	AZS-R12
ZrO2, %	≥	33	20	12
Al2O3, %		—	—	—
SiO2, %	≤	16	20	22
Bulk Density, g/cm³	≥	3.30	3.10	2.95
Cold Crushing Strength, MPa	≥	60	55	50
Max Service Temperature, °C		1700	1650	1600

ALUMINA-MAGNESIA SPINEL RAMMING MASS

Good Thermal Shock Resistance

Strong Slag Resistance

Easy Installation

Steel & Foundry Use

APPLICATION:

Alumina-magnesia spinel ramming mass is used in steel ladle bottoms, tundish, and steel-teeming ladle linings where spinel-forming composition provides excellent thermal shock and basic-slag resistance.

TECHNICAL DATA:

ITEM/GRADE		AM-80	AM-75	AM-70
Al2O3, %	≥	80	75	70
MgO, %	≥	10	12	15
SiO2, %	≤	3.0	3.5	4.0
Fe2O3, %	≤	1.5	2.0	2.5
Bulk Density, g/cm³	≥	2.80	2.75	2.70
Max Service Temperature, °C		1750	1700	1650

03

INSULATION PRODUCTS

Serving Indonesia's High Temperature Industry

Lightweight refractory products for backup lining, heat preservation, thermal insulation, and energy saving.

FIRECLAY INSULATION BRICK

Lightweight & Energy-saving

Lower Thermal Conductivity

Cost-effective

Easy Installation

APPLICATION:

Fireclay insulation brick is used as a backup lining in industrial furnaces, kilns, and boilers where moderate insulation is required at lower cost than higher-purity grades.

TECHNICAL DATA:

ITEM/GRADE		NG-1.0	NG-0.9	NG-0.8	NG-0.7	NG-0.6	NG-0.5
Al2O3, %	≥	30	30	30	30	30	30
Fe2O3, %	≤	2.0	2.0	2.0	2.0	2.0	2.0
Bulk Density, g/cm³	≤	1.0	0.9	0.8	0.7	0.6	0.5
Cold Crushing Strength, MPa	≥	5.0	4.5	3.5	3.0	2.5	2.0
0.2MPa Refractoriness Under Load, C	≥	1200	1200	1150	1100	1050	1000
Thermal Conductivity, W/(m·K)	≤	0.40	0.35	0.30	0.27	0.25	0.20

HIGH ALUMINA INSULATION BRICK

High Working Temperature

Lightweight & Energy-saving

Lower Thermal Conductivity

High Crushing Strength

APPLICATION:

High alumina insulation brick is used as a hot-face or backup lining in high-temperature industrial furnaces, ceramic kilns, and petrochemical heaters where both insulation and high-temperature strength are required.

TECHNICAL DATA:

ITEM/GRADE		LG-1.0	LG-0.9	LG-0.8	LG-0.7	LG-0.6
Al2O3, %	≥	48	48	48	48	48
Fe2O3, %	≤	2.0	2.0	2.0	2.0	2.0
Bulk Density, g/cm³	≤	1.0	0.9	0.8	0.7	0.6
Cold Crushing Strength, MPa	≥	6.0	5.0	4.5	3.5	2.5
0.2MPa Refractoriness Under Load, C	≥	1350	1350	1300	1250	1200
Thermal Conductivity, W/(m·K)	≤	0.40	0.35	0.30	0.27	0.25

MULLITE INSULATION BRICK

High Working Temperature

Lightweight & Energy-saving

Lower Thermal Conductivity

Good Thermal Shock Resistance

APPLICATION:

Mullite insulation brick is used as a backup lining in high-temperature furnaces, hot blast stoves, and ceramic kilns where excellent thermal shock resistance and high service temperature are required.

TECHNICAL DATA:

ITEM/GRADE		MG-1.0	MG-0.9	MG-0.8	MG-0.7
Al2O3, %	≥	60	60	60	60
Fe2O3, %	≤	1.5	1.5	1.5	1.5
Bulk Density, g/cm³	≤	1.0	0.9	0.8	0.7
Cold Crushing Strength, MPa	≥	6.0	5.0	4.5	3.5
0.2MPa Refractoriness Under Load, C	≥	1450	1400	1350	1300
Thermal Conductivity, W/(m·K)	≤	0.40	0.35	0.30	0.27

SILICA INSULATION BRICK

High Working Temperature

Lightweight & Energy-saving

Lower Thermal Conductivity

Cement & Lime Use

APPLICATION:

Silica insulation brick is used as a backup lining in coke ovens, glass furnaces, and other high-temperature acidic service applications where low thermal expansion is required.

TECHNICAL DATA:

ITEM/GRADE		SG-1.0	SG-0.9	SG-0.8
SiO2, %	≥	91	91	91
Al2O3, %	≤	1.0	1.0	1.0
Fe2O3, %	≤	1.0	1.0	1.0
Bulk Density, g/cm³	≤	1.0	0.9	0.8
Cold Crushing Strength, MPa	≥	5.0	4.0	3.5
0.2MPa Refractoriness Under Load, C	≥	1500	1450	1400
Thermal Conductivity, W/(m·K)	≤	0.45	0.40	0.35

ALUMINA BUBBLE INSULATION BRICK

High Working Temperature

High Crushing Strength

Good Thermal Shock Resistance

Good Thermal Stability

APPLICATION:

Alumina bubble brick is used as the working layer and heat insulation layer of high temperature kilns in petrochemical industry gasifiers, carbon black reactors, metallurgical induction furnaces and other industries.

TECHNICAL DATA:

ITEM/GRADE		85	90	99
Max Service Temperature, °C		1680	1700	1800
Al2O3, %	≥	85	90	99
SiO2, %	≤	13	8	0.2
Fe2O3, %	≤	0.2	0.2	0.2
Bulk Density, g/cm³		1.4–1.7	1.4–1.7	1.4–1.7
Cold Crushing Strength, MPa	≥	12	10	9
Refractoriness Under Load (0..	≥	1650	1700	1700
Reheating Linear Change (160..		±0.3	±0.3	±0.3
Thermal Expansion Coefficien..		~7.8	~8.0	~8.6
Thermal Conductivity Coeffic..	≤	0.8	1.3	1.5

JM23 INSULATION BRICK

High Working Temperature

Lightweight & Energy-saving

Lower Thermal Conductivity

Cement & Lime Use

APPLICATION:

JM23 insulation brick is a high-purity, low-iron insulating brick used in cement kilns, lime kilns, and petrochemical heaters as a backup lining with service temperature up to 1260°C.

TECHNICAL DATA:

ITEM/GRADE		JM-23
Classification Temperature, °C		1260
Bulk Density, g/cm³		0.55
Cold Crushing Strength, MPa	≥	1.2
Modulus of Rupture, MPa	≥	0.7
0.2MPa Refractoriness Under Load, C	≥	1080
Permanent Linear Change, %		1230°C×24h -0.5
Thermal Conductivity (350°C)..	≤	0.16
Thermal Conductivity (700°C)..	≤	0.21

JM26 INSULATION BRICK

High Working Temperature

Lightweight & Energy-saving

Lower Thermal Conductivity

Steel & Foundry Use

APPLICATION:

JM26 insulation brick is used as a backup lining in high-temperature furnaces, ceramic kilns, and steel ladles with service temperature up to 1430°C where low thermal conductivity is required.

TECHNICAL DATA:

ITEM/GRADE		JM-26
Classification Temperature, °C		1430
Bulk Density, g/cm³		0.80
Cold Crushing Strength, MPa	≥	2.0
Modulus of Rupture, MPa	≥	1.0
0.2MPa Refractoriness Under Load, C	≥	1200
Permanent Linear Change, %		1400°C×24h -0.5
Thermal Conductivity (350°C)..	≤	0.22
Thermal Conductivity (700°C)..	≤	0.28

JM28 INSULATION BRICK

High Working Temperature

Lightweight & Energy-saving

Lower Thermal Conductivity

Flexible Service Range

APPLICATION:

JM28 insulation brick is a high-alumina lightweight insulating brick used in high-temperature industrial furnaces, ceramic kilns, and petrochemical heaters with service temperature up to 1540°C.

TECHNICAL DATA:

ITEM/GRADE		JM-28
Classification Temperature, °C		1540
Bulk Density, g/cm³		0.90
Cold Crushing Strength, MPa	≥	2.5
Modulus of Rupture, MPa	≥	1.2
0.2MPa Refractoriness Under Load, C	≥	1280
Permanent Linear Change, %		1510°C×24h -0.5
Thermal Conductivity (350°C)..	≤	0.26
Thermal Conductivity (700°C)..	≤	0.32

JM30 INSULATION BRICK

High Working Temperature

Lightweight & Energy-saving

Lower Thermal Conductivity

Glass Furnace Use

APPLICATION:

JM30 insulation brick is a high-performance lightweight brick for cement kilns, lime kilns, and glass furnace regenerators with service temperature up to 1650°C and excellent thermal shock resistance.

TECHNICAL DATA:

ITEM/GRADE		JM-30
Classification Temperature, °C		1650
Bulk Density, g/cm³		1.00
Cold Crushing Strength, MPa	≥	3.0
Modulus of Rupture, MPa	≥	1.4
0.2MPa Refractoriness Under Load, C	≥	1350
Permanent Linear Change, %		1620°C×24h -0.5
Thermal Conductivity (350°C)..	≤	0.30
Thermal Conductivity (700°C)..	≤	0.36

B1 INSULATION BRICK

Lightweight & Energy-saving

Lower Thermal Conductivity

High Working Temperature

Easy Installation

APPLICATION:

B1 insulation brick is a high-purity lightweight insulating brick used in petrochemical heaters, ceramic kilns, and high-temperature furnace backup linings where excellent thermal efficiency is required.

TECHNICAL DATA:

ITEM/GRADE		B-1
Classification Temperature, °C		1100
Bulk Density, g/cm³	≤	0.50
Cold Crushing Strength, MPa	≥	1.0
0.2MPa Refractoriness Under Load, C	≥	900
Permanent Linear Change, %		1100°C×12h -0.5
Thermal Conductivity (350°C)..	≤	0.15
Thermal Conductivity (700°C)..	≤	0.19

B5 INSULATION BRICK

Lightweight & Energy-saving

Lower Thermal Conductivity

High Working Temperature

Easy Installation

APPLICATION:

B5 insulation brick is a high-strength, lightweight insulating brick used in industrial furnace linings and high-temperature equipment where high mechanical strength and low thermal conductivity are required.

TECHNICAL DATA:

ITEM/GRADE		B-5
Classification Temperature, °C		1400
Bulk Density, g/cm³	≤	0.70
Cold Crushing Strength, MPa	≥	2.0
0.2MPa Refractoriness Under Load, C	≥	1200
Permanent Linear Change, %		1400°C×12h -0.5
Thermal Conductivity (350°C)..	≤	0.20
Thermal Conductivity (700°C)..	≤	0.26

CERAMIC FIBER BLANKET

Lightweight & Energy-saving

Lower Thermal Conductivity

Good Thermal Shock Resistance

Easy Installation

APPLICATION:

Ceramic fiber blanket is used for high-temperature insulation of industrial furnace linings, pipe insulation, kiln car insulation, and heat shields where flexible, low-mass insulation is required.

TECHNICAL DATA:

ITEM/GRADE		STD-1100	STD-1260	HP-1260	HP-1430	HA-1600
Classification Temperature, °C		1100	1260	1260	1430	1600
Bulk Density, kg/m³		64–96	64–128	64–128	64–128	96–160
Tensile Strength, kPa	≥	30	40	50	50	60
Thermal Conductivity (400°C)..	≤	0.10	0.09	0.08	0.08	0.10
Thermal Conductivity (800°C)..	≤	0.18	0.16	0.14	0.14	0.16
Permanent Linear Change, %		1050°C×24h - 3.0	1200°C×24h - 3.0	1200°C×24h - 2.5	1350°C×24h - 2.5	1500°C×24h - 2.0

CERAMIC FIBER BOARD

Lightweight & Energy-saving

High Crushing Strength

Lower Thermal Conductivity

Easy Installation

APPLICATION:

Ceramic fiber board is used as rigid insulation in furnace linings, kiln car construction, fire protection boards, and high-temperature gaskets where structural rigidity and high-temperature resistance are required.

TECHNICAL DATA:

ITEM/GRADE		STD-1100	STD-1260	HP-1260	HP-1430
Classification Temperature, °C		1100	1260	1260	1430
Bulk Density, kg/m³		200–300	200–350	200–350	250–400
Cold Crushing Strength, MPa	≥	0.3	0.4	0.5	0.6
Thermal Conductivity (400°C)..	≤	0.10	0.09	0.08	0.08
Permanent Linear Change, %		1050°C×24h -3.0	1200°C×24h -3.0	1200°C×24h -2.5	1350°C×24h -2.5

CERAMIC FIBER MODULE

Lightweight & Energy-saving

Easy Installation

Lower Thermal Conductivity

Good Thermal Shock Resistance

APPLICATION:

Ceramic fiber modules are pre-compressed folded blocks used for fast installation of furnace roofs and walls in steel, cement, and petrochemical industries where maximum heat retention is required.

TECHNICAL DATA:

ITEM/GRADE		STD-1100	STD-1260	HP-1260	HP-1430	HA-1600
Classification Temperature, °C		1100	1260	1260	1430	1600
Bulk Density, kg/m³		160–200	160–200	160–200	160–200	170–220
Tensile Strength, kPa	≥	30	40	50	50	60
Thermal Conductivity (400°C)..	≤	0.10	0.09	0.08	0.08	0.10
Permanent Linear Change, %		1050°C×24h 3.0	1200°C×24h 3.0	1200°C×24h 2.5	1350°C×24h 2.5	1500°C×24h 2.0

CERAMIC FIBER CLOTH

Good Thermal Shock Resistance

Easy Installation

Flexible Service Range

Heat-resistant Fabric

APPLICATION:

Ceramic fiber cloth is used for high-temperature sealing, welding blankets, fire curtains, expansion joint packing, and thermal insulation wrapping where flexible fabric form is required.

TECHNICAL DATA:

ITEM/GRADE		STD-1260	HP-1260	HA-1430
Classification Temperature, °C		1260	1260	1430
Bulk Density, kg/m³		500	500	500
Tensile Strength, N/25mm	≥	400	450	500
Width, mm		1000	1000	1000
Thickness, mm		1.5–6.0	1.5–6.0	1.5–6.0
Thermal Conductivity, W/(m·K)	≤	0.20	0.18	0.20

CERAMIC FIBER PAPER

Lightweight & Energy-saving

Lower Thermal Conductivity

Easy Installation

Flexible Service Range

APPLICATION:

Ceramic fiber paper is used as a thin high-temperature gasket, insulation wrap, parting agent in induction furnaces, and as a thermal barrier in automotive and aerospace applications.

TECHNICAL DATA:

ITEM/GRADE		STD-1100	STD-1260	HP-1260
Classification Temperature, °C		1100	1260	1260
Bulk Density, kg/m³		180–200	180–200	180–200
Tensile Strength, MPa	≥	0.4	0.5	0.6
Thickness, mm		1–6	1–6	1–6
Thermal Conductivity (400°C)..	≤	0.09	0.08	0.07
Permanent Linear Change, %		1050°C×24h -3.0	1200°C×24h -3.0	1200°C×24h -2.5

CERAMIC FIBER ROPE

Good Thermal Shock Resistance

Easy Installation

Flexible Service Range

Good Chemical Resistance

APPLICATION:

Ceramic fiber rope is used as high-temperature door seals, expansion joint packing, and pipe insulation in industrial furnaces, boilers, and kilns where flexible sealing is required.

TECHNICAL DATA:

ITEM/GRADE		STD-1100	STD-1260	HP-1260
Classification Temperature, °C		1100	1260	1260
Bulk Density, kg/m³		400–500	400–500	400–500
Diameter, mm		6–50	6–50	6–50
Thermal Conductivity (400°C)..	≤	0.10	0.09	0.08
Permanent Linear Change, %		1050°C×24h -3.0	1200°C×24h -3.0	1200°C×24h -2.5

CERAMIC FIBER BULK

Lightweight & Energy-saving

Lower Thermal Conductivity

Flexible Service Range

Easy Installation

APPLICATION:

Ceramic fiber bulk is used as loose-fill insulation in complex geometries, expansion joints, furnace door seals, and as a feedstock for producing other ceramic fiber products.

TECHNICAL DATA:

ITEM/GRADE		STD-1100	STD-1260	HP-1260	HP-1430
Classification Temperature, °C		1100	1260	1260	1430
Bulk Density, kg/m³		80–100	80–100	80–100	80–100
Fiber Diameter, μm		2–4	2–4	2–4	2–4
Shot Content, %	≤	20	18	15	15
Thermal Conductivity (400°C)..	≤	0.10	0.09	0.08	0.08
Permanent Linear Change, %		1050°C×24h -3.0	1200°C×24h -3.0	1200°C×24h -2.5	1350°C×24h -2.5

CERAMIC FIBER TAPE

Good Thermal Shock Resistance

Easy Installation

Flexible Service Range

Heat-resistant Tape

APPLICATION:

Ceramic fiber tape is used for high-temperature pipe wrapping, cable insulation, sealing joints, and gasketing in industrial furnaces and thermal equipment where flexible tape form is required.

TECHNICAL DATA:

ITEM/GRADE		STD-1260	HP-1260
Classification Temperature, °C		1260	1260
Bulk Density, kg/m³		450	450
Tensile Strength, N/25mm	≥	300	350
Width, mm		20–200	20–200
Thickness, mm		1.5–6.0	1.5–6.0
Thermal Conductivity, W/(m·K)	≤	0.20	0.18

CERAMIC FIBER TUBE

Easy Installation

Flexible Service Range

Lightweight & Energy-saving

Good Thermal Shock Resistance

APPLICATION:

Ceramic fiber tube is used as a high-temperature pipe insulation, protective sleeve for cables and instruments, and expansion joint filler in industrial furnace and boiler construction.

TECHNICAL DATA:

ITEM/GRADE		STD-1260	HP-1260
Classification Temperature, °C		1260	1260
Bulk Density, kg/m³		200	200
Inner Diameter, mm		10–200	10–200
Wall Thickness, mm		5–50	5–50
Thermal Conductivity (400°C)..	≤	0.10	0.09
Permanent Linear Change, %		1200°C×24h -3.0	1200°C×24h -2.5

BIO SOLUBLE FIBER BLANKET

Lightweight & Energy-saving

Eco-safe Formulation

Lower Thermal Conductivity

APPLICATION:

Bio-soluble fiber blanket is a high-temperature insulation material with low bio-persistence, used in industrial furnace lining, fire protection, and pipe insulation where safety and environmental compliance are required.

TECHNICAL DATA:

ITEM/GRADE		BIO-1100	BIO-1260
Classification Temperature, °C		1100	1260
Bulk Density, kg/m³		64–128	64–128
Tensile Strength, kPa	≥	30	40
Thermal Conductivity (400°C)..	≤	0.09	0.08
Thermal Conductivity (800°C)..	≤	0.16	0.14
Permanent Linear Change, %		1050°C×24h -3.0	1200°C×24h -3.0

CALCIUM SILICATE BOARD

Lightweight & Energy-saving

Lower Thermal Conductivity

Easy Installation

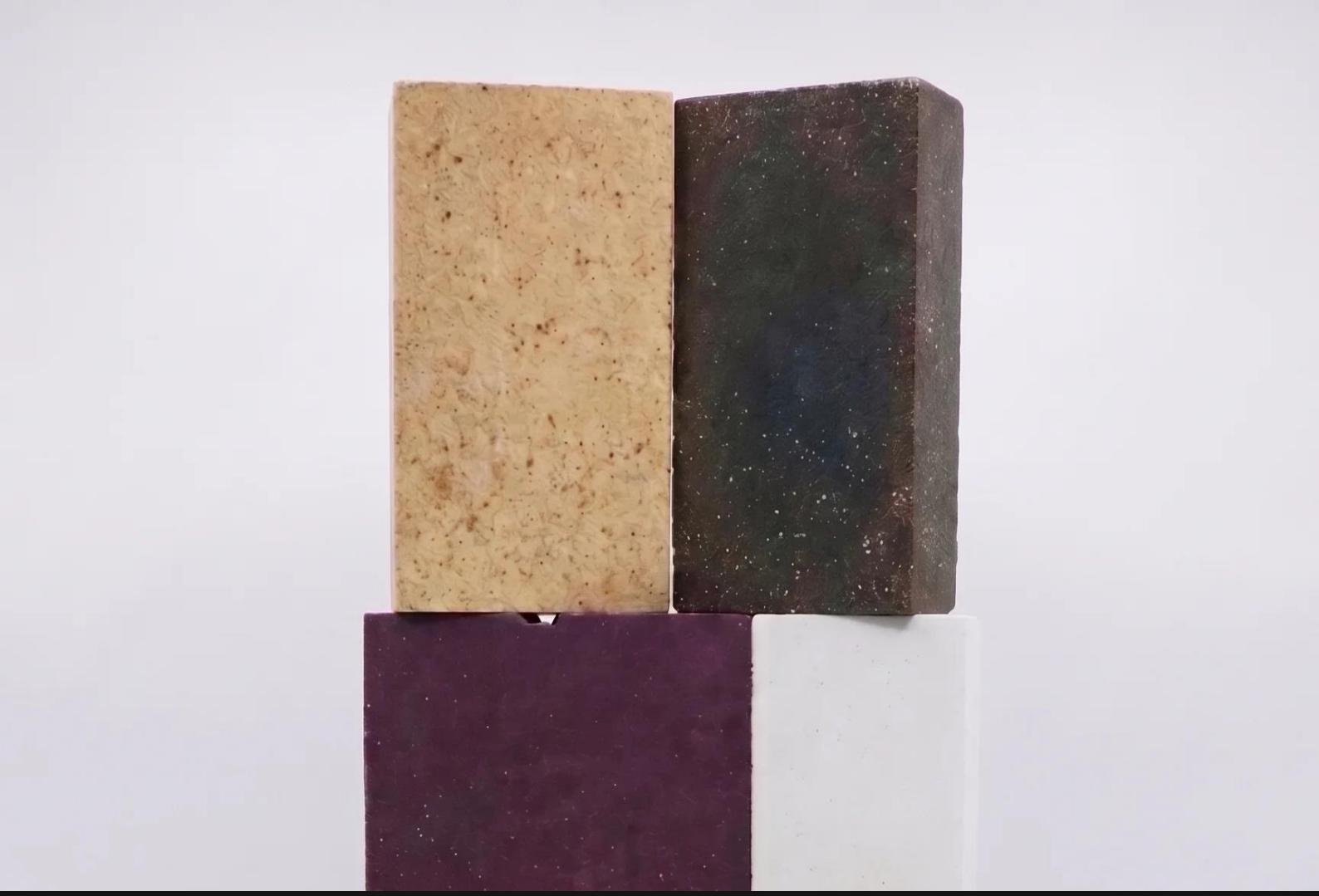
Fire-resistant

APPLICATION:

Calcium silicate board is used as a high-temperature insulation board in industrial furnace backup lining, building fire protection, and pipe insulation where rigid, non-combustible insulation is required.

TECHNICAL DATA:

ITEM/GRADE		CS-1100	CS-650
Max Service Temperature, °C		1100	650
Bulk Density, kg/m³	≤	230	170
Cold Crushing Strength, MPa	≥	0.6	0.4
Modulus of Rupture, MPa	≥	0.4	0.3
Thermal Conductivity (100°C)..	≤	0.06	0.05
Thermal Conductivity (400°C)..	≤	0.11	0.08
Permanent Linear Change, %		1050°C×16h -2.0	650°C×16h -1.5



04

KILN FURNITURE

Serving Indonesia’s High Temperature Industry

Refractory shapes and support parts for industrial kilns, ceramic kilns, heat treatment, and firing systems.

CORDIERITE MULLITE PLATES

Good Thermal Shock Resistance

Good Density & Strength

High Working Temperature

Flexible Service Range

APPLICATION:

Cordierite mullite plates are used as kiln shelves and batts in fast-fire, decorative, and tableware ceramic kilns where low thermal expansion and high thermal shock resistance are required.

TECHNICAL DATA:

ITEM/GRADE		CM-PT-1	CM-PT-2	CM-PT-3
Al2O3, %	≥	40	45	50
SiO2, %	≥	45	42	40
MgO, %	≥	6	6	5
Bulk Density, g/cm³		1.9–2.1	2.0–2.2	2.1–2.3
Apparent Porosity, %		22–26	20–24	18–22
Modulus of Rupture, MPa	≥	12	15	18
0.2MPa Refractoriness Under Load, C	≥	1300	1320	1350
Thermal Expansion (1000°C), %	≤	0.5	0.5	0.5

CORDIERITE MULLITE BATTS

Good Thermal Shock Resistance

Good Density & Strength

High Working Temperature

Flexible Service Range

APPLICATION:

Cordierite mullite batts are used as load-bearing supports in roller kilns and tunnel kilns for sanitaryware, tableware, and electrical porcelain firing where high mechanical strength and thermal shock resistance are required.

TECHNICAL DATA:

ITEM/GRADE		CM-BT-1	CM-BT-2	CM-BT-3
Al2O3, %	≥	40	45	50
SiO2, %	≥	45	42	40
MgO, %	≥	6	6	5
Bulk Density, g/cm³		1.9–2.1	2.0–2.2	2.1–2.3
Apparent Porosity, %		22–26	20–24	18–22
Modulus of Rupture, MPa	≥	12	15	18
0.2MPa Refractoriness Under Load, C	≥	1300	1320	1350

CORDIERITE MULLITE SUPPORT

High Crushing Strength

High Working Temperature

Good Density & Strength

Flexible Service Range

APPLICATION:

Cordierite mullite support posts and pillars are used as vertical load-bearing elements in tunnel and roller kilns for stacking kiln furniture in sanitaryware and tableware production.

TECHNICAL DATA:

ITEM/GRADE		CM-SP-1	CM-SP-2	CM-SP-3
Al2O3, %	≥	40	45	50
SiO2, %	≥	45	42	40
MgO, %	≥	6	6	5
Bulk Density, g/cm³		1.9–2.1	2.0–2.2	2.1–2.3
Modulus of Rupture, MPa	≥	12	15	18
0.2MPa Refractoriness Under Load, C	≥	1300	1320	1350

CORDIERITE MULLITE TUBE / ROLLER

Good Thermal Shock Resistance

Good Density & Strength

High Working Temperature

Flexible Service Range

APPLICATION:

Cordierite mullite tubes and rollers are used as conveying rollers in roller kilns for ceramic tile, sanitaryware, and tableware firing where smooth surface, low thermal expansion, and high wear resistance are required.

TECHNICAL DATA:

ITEM/GRADE		CM-RL-1	CM-RL-2
Al2O3, %	≥	40	45
SiO2, %	≥	45	42
MgO, %	≥	6	6
Bulk Density, g/cm³		1.95–2.15	2.05–2.25
Modulus of Rupture, MPa	≥	15	18
Thermal Expansion (1000°C), %	≤	0.5	0.5
0.2MPa Refractoriness Under Load, C	≥	1300	1320

CORDIERITE MULLITE SAGGERS

High Working Temperature

Good Thermal Shock Resistance

Good Chemical Resistance

Good Density & Strength

APPLICATION:

Cordierite mullite saggers are used as containers for firing electronic ceramics, magnetic materials, lithium battery cathode materials, and technical ceramics where protection from direct flame is required.

TECHNICAL DATA:

ITEM/GRADE		CM-SG-1	CM-SG-2
Al2O3, %	≥	40	45
SiO2, %	≥	45	42
MgO, %	≥	6	6
Bulk Density, g/cm³		1.95–2.15	2.05–2.25
Apparent Porosity, %		22–26	20–24
Modulus of Rupture, MPa	≥	12	15
0.2MPa Refractoriness Under Load, C	≥	1300	1320

CORDIERITE MULLITE CRUCIBLE

High Working Temperature

Good Thermal Shock Resistance

Good Chemical Resistance

Good Density & Strength

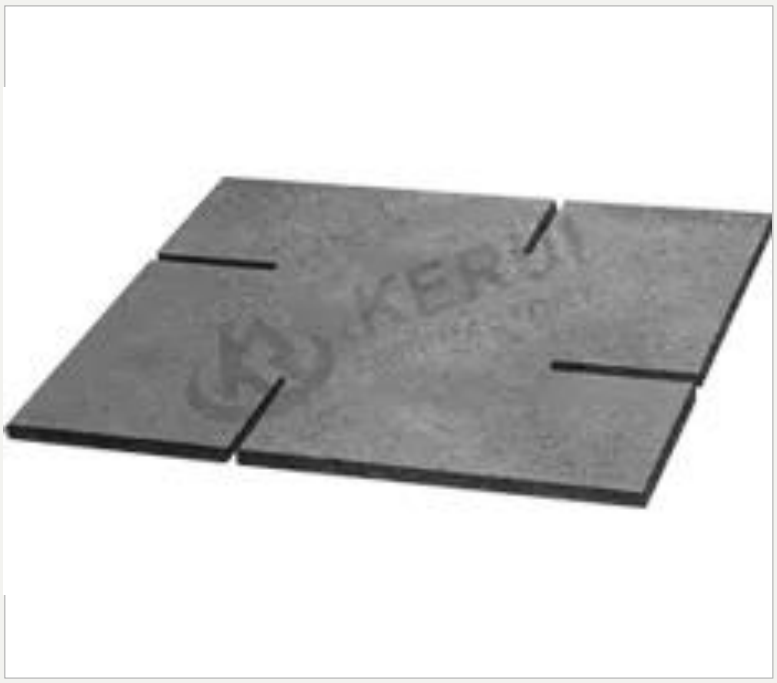
APPLICATION:

Cordierite mullite crucibles are used for melting non-ferrous metals, sintering technical ceramics, and laboratory high-temperature applications where thermal shock resistance and chemical stability are required.

TECHNICAL DATA:

ITEM/GRADE		CM-CR-1	CM-CR-2
Al2O3, %	≥	40	45
SiO2, %	≥	45	42
MgO, %	≥	6	6
Bulk Density, g/cm³		1.95–2.15	2.05–2.25
Modulus of Rupture, MPa	≥	12	15
0.2MPa Refractoriness Under Load, C	≥	1300	1320

SILICON CARBIDE PLATES



High Working Temperature

Lower Thermal Conductivity

Great Wear Resistance

Good Thermal Shock Resistance

APPLICATION:

Silicon carbide plates are used as high-load kiln shelves in technical ceramics, sanitaryware, and electronic ceramics firing where high thermal conductivity, extreme wear resistance, and fast firing cycles are required.

TECHNICAL DATA:

ITEM/GRADE		SIC-PT-1	SIC-PT-2	SIC-PT-3
SiC, %	≥	85	90	95
SiO2, %	≤	8.0	5.0	3.0
Bulk Density, g/cm³	≥	2.55	2.65	2.75
Apparent Porosity, %	≤	18	16	14
Modulus of Rupture, MPa	≥	40	50	60
0.2MPa Refractoriness Under Load, C	≥	1650	1700	1750
Thermal Conductivity (1000°C..	≥	10	12	14

SILICON CARBIDE BEAMS

High Working Temperature

Lower Thermal Conductivity

High Crushing Strength

Good Thermal Shock Resistance

APPLICATION:

Silicon carbide beams are used as load-bearing structural elements in high-temperature tunnel and shuttle kilns where high mechanical strength, thermal conductivity, and creep resistance are required.

TECHNICAL DATA:

ITEM/GRADE		SIC-BM-1	SIC-BM-2	SIC-BM-3
SiC, %	≥	85	90	95
SiO2, %	≤	8.0	5.0	3.0
Bulk Density, g/cm³	≥	2.55	2.65	2.75
Apparent Porosity, %	≤	18	16	14
Modulus of Rupture, MPa	≥	40	50	60
0.2MPa Refractoriness Under Load, C	≥	1650	1700	1750

SILICON CARBIDE ROLLERS

High Working Temperature

Lower Thermal Conductivity

Great Wear Resistance

Good Thermal Shock Resistance

APPLICATION:

Silicon carbide rollers are used as high-temperature conveying rollers in fast-fire roller kilns for tile, sanitaryware, and porcelain production where high thermal conductivity and wear resistance are required.

TECHNICAL DATA:

ITEM/GRADE		SIC-RL-1	SIC-RL-2	SIC-RL-3
SiC, %	≥	85	90	95
SiO2, %	≤	8.0	5.0	3.0
Bulk Density, g/cm³	≥	2.55	2.65	2.75
Apparent Porosity, %	≤	18	16	14
Modulus of Rupture, MPa	≥	40	50	60
0.2MPa Refractoriness Under Load, C	≥	1650	1700	1750

SILICON CARBIDE BATTS

High Working Temperature

Lower Thermal Conductivity

Great Wear Resistance

Good Thermal Shock Resistance

APPLICATION:

Silicon carbide batts are used as primary load-bearing shelves in high-temperature tunnel and shuttle kilns for technical ceramics, electronic ceramics, and high-density firing.

TECHNICAL DATA:

ITEM/GRADE		SIC-BT-1	SIC-BT-2
SiC, %	≥	85	90
SiO2, %	≤	8.0	5.0
Bulk Density, g/cm³	≥	2.55	2.65
Modulus of Rupture, MPa	≥	40	50
0.2MPa Refractoriness Under Load, C	≥	1650	1700
Thermal Conductivity (1000°C..	≥	10	12

SILICON CARBIDE BURNER NOZZLES

High Working Temperature

Great Wear Resistance

Good Thermal Shock Resistance

Lower Thermal Conductivity

APPLICATION:

Silicon carbide burner nozzles are used in industrial furnaces, kilns, and combustion systems where extreme thermal shock, abrasion, and high-temperature oxidation resistance are required.

TECHNICAL DATA:

ITEM/GRADE		SIC-BN-1	SIC-BN-2	SIC-BN-3
SiC, %	≥	85	90	95
SiO2, %	≤	8.0	5.0	3.0
Bulk Density, g/cm³	≥	2.55	2.65	2.75
Apparent Porosity, %	≤	18	16	14
Modulus of Rupture, MPa	≥	40	50	60
0.2MPa Refractoriness Under Load, C	≥	1650	1700	1750

SILICON CARBIDE SAGGERS

High Working Temperature

Lower Thermal Conductivity

Great Wear Resistance

Good Chemical Resistance

APPLICATION:

Silicon carbide saggers are used as containers for firing lithium battery cathode materials, electronic ceramics, and other technical ceramics where high thermal conductivity and chemical resistance are required.

TECHNICAL DATA:

ITEM/GRADE		SIC-SG-1	SIC-SG-2
SiC, %	≥	85	90
SiO2, %	≤	8.0	5.0
Bulk Density, g/cm³	≥	2.55	2.65
Modulus of Rupture, MPa	≥	40	50
0.2MPa Refractoriness Under Load, C	≥	1650	1700
Thermal Conductivity (1000°C..	≥	10	12

SILICON CARBIDE CRUCIBLES

High Working Temperature

Lower Thermal Conductivity

Great Wear Resistance

Good Chemical Resistance

APPLICATION:

Silicon carbide crucibles are used for melting non-ferrous metals, sintering advanced ceramics, and high-temperature laboratory work where fast heat transfer and high chemical resistance are required.

TECHNICAL DATA:

ITEM/GRADE		SIC-CR-1	SIC-CR-2
SiC, %	≥	85	90
SiO2, %	≤	8.0	5.0
Bulk Density, g/cm³	≥	2.55	2.65
Modulus of Rupture, MPa	≥	40	50
0.2MPa Refractoriness Under Load, C	≥	1650	1700
Thermal Conductivity (1000°C..	≥	10	12

05

SMELTING CONSUMABLES

Serving Indonesia's High Temperature Industry

Consumable refractory materials for smelting, tapping, furnace maintenance, and ladle-related operations.

WATER-FREE TAPHOLE CLAY

Tapping & Plugging

High Working Temperature

Stable Binder System

Flexible Service Range

APPLICATION:

Water-free taphole clay is used for plugging and opening tapholes in blast furnaces, EAF, and non-ferrous smelting furnaces where high-temperature performance, good plasticity, and stable opening behavior are required.

TECHNICAL DATA:

ITEM/GRADE		KRNC-A	KRNC-B	KRNC-C
Al2O3, %		20–30	30–40	40–55
SiO2, %		55–70	40–55	20–35
Fe2O3, %	≤	1.5	2.0	2.5
TiO2, %	≤	1.5	1.8	2.0
CaO, %	≤	0.3	0.5	1.0
Bulk Density, g/cm³	≥	1.95	2.05	2.15
Max Service Temperature, °C		1800	1800	1800
Max Grain Size, mm		5	5	5
Binder Type		Tar / Resin	Tar / Resin	Tar / Resin

RAMMING MASS

Repair & Patching

Flexible Service Range

Foundry & Smelting Use

Easy Installation

APPLICATION:

Ramming mass is used as a monolithic lining in induction furnaces, ladle bottoms, and other high-temperature equipment requiring easy installation and good chemical resistance.

TECHNICAL DATA:

ITEM/GRADE		RM-GENERIC
Base Material		Magnesia / Alumina / Silica / AZS
MgO, %		≥80 to ≥96 (basic types)
Al2O3, %		65–88 (alumina types)
SiO2, %		≥90 (silica types)
Bulk Density, g/cm³		2.0–3.2 depending on type
Max Service Temperature, °C		1700–1900
Application Method		Ramming / Mechanical compaction
Supply Format		Pallets / Ton bags / 25 kg bags

MAGNESIUM-CALCIUM RAMMING MATERIAL

High Working Temperature

Strong Slag Resistance

EAF & Ladle Service

Basic Slag Resistance

APPLICATION:

Magnesium-calcium ramming mass is used in EAF and ladle service requiring basic slag resistance, clean steel production, and high-temperature strength.

TECHNICAL DATA:

ITEM/GRADE		KRMC-79S
MgO, %	≥	79
CaO, %		8–12
Fe2O3, %		4–6
SiO2, %	≤	1.3
Al2O3, %	≤	0.6
Bulk Density, g/cm³	≥	3.25
Application Method		Ramming / Mechanical compaction
Key Properties		High thermal shock · High compressive strength · Good chemical resistance

PRODUCT SELECTION GUIDE

Match your lining zone and service condition to the recommended product family.

LINING ZONE / APPLICATION	RECOMMENDED FAMILY	KEY PRODUCT
Ladle lining, slag line, metal line	Refractory Bricks	Magnesia-Carbon, Mag-Chrome
Furnace bottom, walls, high-load	Refractory Bricks	Magnesia-Chrome (MGe / RMGe)
Taphole plugging and opening	Smelting Consumables	Water-Free Taphole Clay
EAF, ladle, basic slag service	Smelting Consumables	Magnesia-Calcium Ramming Mass
Induction furnace lining	Monolithic Refractory	Alumina / Silica Ramming Mass
Glass furnace / corrosive service	Refractory Bricks	AZS / Zirconia Corundum
Cement kiln burning zone	Refractory Bricks	Magnesia-Chrome, Dolomite-based
Casting, patching, repair work	Monolithic Refractory	Castable, Gunning Mix, Precast
Kiln furniture / firing systems	Kiln Furniture	SiC Plates, Cordierite-Mullite
Backup lining, heat retention	Insulation Products	Insulation Brick, Ceramic Fiber
Kiln shelves, supports, saggers	Kiln Furniture	Cordierite-Mullite / SiC

MAIN CATEGORIES

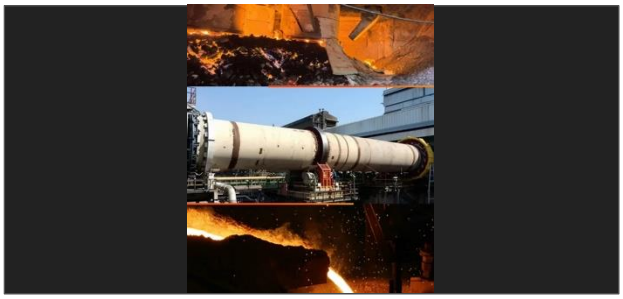
Each family serves a different role in the refractory system.

01	02	03	04	05
Refractory Bricks	**Monolithic Refractory**	**Insulation Products**	**Kiln Furniture**	**Smelting Consumables**
Dense fired bricks for permanent lining zones	Unshaped castables, cements, ramming mass, gunning mix	Lightweight backup lining and energy-saving layers	Refractory shapes for industrial kilns and firing systems	Consumables for tapping and furnace maintenance
→ Furnace, ladle, kiln walls	*→ Installation, repair, casting, patching*	*→ Backup lining, heat retention*	*→ Plates, beams, rollers, saggers, crucibles*	*→ Taphole clay, ramming, patching*

For grade matching and final selection, send inquiry to MSI with your operating context (see Contact page).

INDUSTRIES SERVED

MSI focuses on Indonesian operations where refractory consumables and lining materials directly affect uptime, cost per ton, and campaign life.



NICKEL SMELTING

Nickel smelting and downstream metal processing — high-temperature slag resistance, tapping cycles, ladle and launder service.

PRODUCTS: Magnesia bricks, magnesia-carbon, taphole clay, ramming mass

FERROALLOY

Ferronickel and ferroalloy operations with high-temperature refractory needs, basic slag chemistry, and high cycling duty.

PRODUCTS: Magnesia-chrome bricks, MgO-C, magnesia ramming mass

STEEL & FOUNDRY

Steelmaking, foundry, and non-ferrous metal smelting applications. EAF, ladle, tundish, and casting line refractory service.

PRODUCTS: MgO-C, taphole clay, gunning mix, precast shapes

CEMENT, GLASS & ENERGY

Cement kilns, glass furnaces, petrochemical heaters, and power generation — backup lining, burning zone, and insulation.

PRODUCTS: AZS, high alumina, insulation brick, ceramic fiber

Product recommendations vary by slag chemistry, temperature, and campaign expectation. See selection guide.

CONTACT FOR INQUIRY

For product specification, grade matching, quotation, and supply coordination

PT METRO SECURO INDONESIA

BUILT FOR HEAT. READY FOR LADLES.

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WHAT TO INCLUDE IN YOUR INQUIRY

- ❑ Equipment / furnace type and lining zone
- ❑ Operating temperature and service environment
- ❑ Slag chemistry and thermal cycling profile
- ❑ Target quantity and packaging preference
- ❑ Delivery schedule and destination port
- ❑ Required size, grade, or TDS reference

INDUSTRIES SERVED

- Nickel and Other Non-Ferrous Smelting
- Ferroalloy Smelting
- Steel & Foundry
- Cement, Glass, Petrochemical & Energy

All product data is supplied through collaboration with Kerui Refractory® and is subject to confirmation at inquiry stage.

PT METRO SECURO INDONESIA

BUILT FOR HEAT.
READY FOR LADLES.

SPECIALIZED REFRACTORY SUPPLY FOR INDONESIA'S SMELTING AND HIGH-TEMPERATURE INDUSTRIES.

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