KEXING

SPECIAL CERAMICS

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MISSION STATEMENT

Science, technology and its subsequent economy develop at a rapid pace. At the same time energy shortages along with environmental pollution continue to exist.

A knowledge-based economy demands a company with the agility to flourish when opportunities and challenges co-exist. Our team was founded by academic scholars committed to protecting the environment and having a direct impact on saving and producing cleaner energy.

We are at the forefront of research development and integration in our relevant disciplines. Our products are designed and built with these principles in mind.

We customize all products and materials to individual customer needs and specifications.

COMPANY PROFILE

Jiangxi Kexing Special Ceramic Co., Ltd is an industrial ceramic manufacturer and advanced ceramic research company, which is located in Jiangxi Pingxiang Industrial Ceramic Park – the capital of ceramic in China. Founded by Liling Kexing Industry Co., Jiangxi Kexing Special Ceramic is specializing in manufacturing ceramic media and distributing its products over the world. In 2012, Jiangxi Kexing Special Ceramic opened its North America Branch Office in Toronto Canada – Kexing Special Ceramics Co., Ltd. due to the high demand from our clients in U.S., Canada, and South America.

Industrial ceramic media includes: Ceramic Honeycomb Heat Recovery Media, Chemical Packing, Catalyst Carrier, Filter Plate as well as Alumina Ball, Baffle Brick, Saddles, Super Saddles. We provide customized solutions for honeycomb ceramic media under 900 CPS and our products are widely applied in the industries of chemical, electric power, metallurgy, petroleum, electronics, electrical appliances, machinery, environmental, residential, etc.

Establishing long-term relationships with Central South University (CSU), Luoyang Institute of Refractories Research (LIRR), Hunan University (HNU) and Jingdezhen Ceramic Institute (JCI), Jiangxi Kexing Special Ceramic have achieved many patents by its research team. With the team of ceramic professionals and senior consultants, Kexing Special Ceramic has made significant breakthroughs of high temperature material and high cell density honeycomb ceramics and it will keep pushing the edges.

CERAMIC HONEYCOMB MONOLITH

Heat Storage & Exchange, Catalyst Carrier, Gaseous Emissions Control, Chemical Packing

Application: RTO & RCO, Metal Casting, Scrubber, Packing Tower

For years, we have been fulfilling the honeycomb ceramic needs of European, American and Chinese customers. These products specifically apply to regenerative thermal oxidizer (RTO), regenerative catalytic oxidizer (RCO), and metal melting furnace. This includes heat exchange and heat storage of industrial furnaces and the collection and purification of gas and dust. The packing tower and catalyst carrier aids in both absorption and conversion.

We customize all products and materials to individual customer needs and specifications.

150x150x300x(40x40) Cellular Honeycomb Ceramics

Physical Performance

Item	Material	Alumina Porcelain	Dense Cordierite	Cordierite	Mullite	Stoneware
Density	g/cm³	2.68	2.42	2.16	2.31	2.47
	lb/ft³	167.3	151.1	134.9	144.2	154.2
Bulk Density	kg/m³	965	871	778	832	889
	lb/ft³	60.2	54.4	48.6	51.9	55.5
Thermal Expansion Coefficient	10^{-6}/K	6.2	3.5	3.4	6.2	4.8
	10^{-6}/°F	3.4	1.94	1.89	3.4	2.7
Specific Heat Capacity	J/kg·K	992	942	1016	998	897
	Btu/lb·°F	0.237	0.221	0.243	0.238	0.214
Thermal Conductivity	W/m·K	2.79	1.89	1.63	2.42	1.37
	Btu/ft·h·°F	19.4	13.1	11.3	16.8	9.5
Thermal Shock Resistance	Max K	500	500	600	550	500
	Max °F	900	900	1080	990	900
Softening Temperature	°C	1500	1320	1400	1580	1380
	°F	2732	2408	2552	2876	2516
Maximum Service Temperature	°C	1400	1200	1300	1480	1280
	°F	2550	2228	2372	2698	2336
Average Heat Capacity	kW·h/m³·K	0.266	0.228	0.219	0.231	0.222
	Btu/ft³· °F	14.3	12.0	11.8	12.4	11.9
Water Absorption	%	≤20	≤5	15-20	15-20	≤5
Acid Resistance	%	0.2	5.0	16.7	2.5	0.3

Specifications

- Overall Dimensions – 150 x 150 x 300mm / 5.9 x 5.9 x 11.81 in
- Number of Cells – 40 x 40 = 1600
- Cell Width – 3.0 mm / 0.119 in
- Wall Thickness – 0.7 mm / 0.028 in
- Specific Surface Area – 825 m²/m³ / 251.4 ft²/ft³
- Void Fraction – 64%

150x150x300x(50x50) Cellular Honeycomb Ceramics

Physical Performance

Material Item		Alumina Porcelain	Dense Cordierite	Cordierite	Mullite	Stoneware
Density	g/cm³	2.68	2.42	2.16	2.31	2.47
	lb/ft³	167.3	151.1	134.9	144.2	154.2
Bulk Density	kg/m³	991.6	895.4	799.2	854.7	913.9
	lb/ft³	61.9	55.9	49.9	53.4	57.1
Thermal Expansion Coefficient	10^{-6}/K	6.2	3.5	3.4	6.2	4.8
	10^{-6}/°F	3.4	1.94	1.89	3.4	2.7
Specific Heat Capacity	J/kg·K	992	942	1016	998	897
	Btu/lb·°F	0.237	0.221	0.243	0.238	0.214
Thermal Conductivity	W/m·K	2.79	1.89	1.63	2.42	1.37
	Btu/ft·h·°F	19.4	13.1	11.3	16.8	9.5
Thermal Shock Resistance	Max K	500	500	600	550	500
	Max °F	900	900	1080	990	900
Softening Temperature	°C	1500	1320	1400	1580	1380
	°F	2732	2408	2552	2876	2516
Maximum Service Temperature	°C	1400	1200	1300	1480	1280
	°F	2550	2228	2372	2696	2336
Average Heat Capacity	kW·h/m³·K	0.273	0.234	0.226	0.237	0.228
	Btu/ft³· °F	14.7	12.4	12.4	12.7	12.2
Water Absorption	%	≤20	≤5	15-20	15-20	≤5
Acid Resistance	%	0.2	5.0	16.7	2.5	0.3

Specifications

- Overall Dimensions – 150 x 150 x 300mm / 5.9 x 5.9 x 11.81 in
- Number of Cells – 50 x 50 = 2500
- Cell Width – 2.27 mm / 0.089 in
- Wall Thickness – 0.7 mm / 0.028 in
- Specific Surface Area – 1009 m²/m³ / 307.5 ft²/ft³
- Void Fraction – 57%

150x150x300x(60x60) Cellular Honeycomb Ceramics

Physical Performance

Material Item		Dense Cordierite	Cordierite
Density	g/cm³	2.42	2.16
	lb/ft³	151.1	134.9
Bulk Density	kg/m³	786.5	700.1
	lb/ft³	49.1	43.7
Thermal Expansion Coefficient	10^{-6}/K	3.5	3.4
	10^{-6}/°F	1.94	1.89
Specific Heat Capacity	J/kg·K	942	1016
	Btu/lb·°F	0.221	0.243
Thermal Conductivity	W/m·K	1.89	1.63
	Btu/ft·h·°F	13.1	11.3
Thermal Shock Resistance	Max K	500	600
	Max °F	900	1080
Softening Temperature	°C	1320	1400
	°F	2408	2552
Maximum Service Temperature	°C	1200	1300
	°F	2278	2372
Average Heat Capacity	kW·h/m³·K	0.206	0.198
	Btu/ft³· °F	10.9	10.6
Water Absorption	%	≤5	15-20
Acid Resistance	%	5.0	15.0

Specifications

- Overall Dimensions – 150 x 150 x 300mm / 5.9 x 5.9 x 11.81 in
- Number of Cells – 60 x 60 = 3600
- Cell Width – 2.0 mm / 0.079 in
- Wall Thickness – 0.45 mm / 0.018 in
- Specific Surface Area – 1310 m²/m³ / 399.3 ft²/ft³
- Void Fraction – 64%

Chemical Composition

Material Composition	Alumina Porcelain	Mullite	Dense Cordierite	Cordierite	Stoneware
SiO_2 (%)	30-35	25-30	45-50	45-50	63-68
Al_2O_3 (%)	60-65	65-70	40-45	40-45	25-30
MgO (%)	≤3.5	≤0.5	5-9	5-9	≤0.5
K_2O+Na_2O+CaO (%)	≤3	<1.5	<2	<1.5	≤5

Please note: Preceding chemical composition is standard to all cellular honeycomb ceramics

150x150x300x(13x13) Cellular Honeycomb Ceramics

Specification

Overall Dimension	150 x 150 x 300 mm / 5.9 x 5.9 x 11.81 in
Number of Cells	13 x 13 = 169
Cell Width	9.0 mm / 0.354 in
Wall Thickness	2.0 mm / 0.079 in
Specific Surface Area	289 m^2/m^3 / 88.1 ft^2/ft^3
Void Fraction	60%
Weight Per Block	Depends on Content

150x150x300x(25x25) Cellular Honeycomb Ceramics

Specification

Overall Dimension	150 x 150 x 300 mm / 5.9 x 5.9 x 11.81 in
Number of Cells	25 x 25 = 625
Cell Width	4.9 mm / 0.193 in
Wall Thickness	0.9 mm / 0.035 in
Specific Surface Area	573 m^2/m^3 / 174.7 ft^2/ft^3
Void Fraction	67%
Weight Per Block	Depends on Content

150x150x300x(32x32) Cellular Honeycomb Ceramics

Specification

Overall Dimension	150 x 150 x 300 mm / 5.9 x 5.9 x 11.81 in
Number of Cells	32 x 32 = 1024
Cell Width	3.8 mm / 0.150 in
Wall Thickness	0.8 mm / 0.031 in
Specific Surface Area	721 m^2/m^3 / 219.8 ft^2/ft^3
Void Fraction	66%
Weight Per Block	Depends on Content

150x150x300x(37x37) Cellular Honeycomb Ceramics

Specification

Overall Dimension	150 x 150 x 300 mm / 5.9 x 5.9 x 11.81 in
Number of Cells	37 x 37 = 1369
Cell Width	3.4 mm / 0.134 in
Wall Thickness	0.6 mm / 0.035 in
Specific Surface Area	856 m^2/m^3 / 260.9 ft^2/ft^3
Void Fraction	70%
Weight Per Block	Depends on Content

150x150x300x(43x43) Cellular Honeycomb Ceramics

Specification

Overall Dimension	150 x 150 x 300 mm / 5.9 x 5.9 x 11.81 in
Number of Cells	43 x 43 = 1849
Cell Width	2.9 mm / 0.114 in
Wall Thickness	0.5 mm / 0.020 in
Specific Surface Area	980 m^2/m^3 / 298.7 ft^2/ft^3
Void Fraction	69%
Weight Per Block	Depends on Content

150x150x300x(46x46) Cellular Honeycomb Ceramics

Specification

Overall Dimension	150 x 150 x 300 mm / 5.9 x 5.9 x 11.81 in
Number of Cells	46 x 46 = 2116
Cell Width	2.7 mm / 0.106 in
Wall Thickness	0.5 mm / 0.020 in
Specific Surface Area	1044 m^2/m^3 / 318.2 ft^2/ft^3
Void Fraction	68%
Weight Per Block	Depends on Content

Ceramic Honeycomb Monolith

The HTAC technology (High Temperature Air Combustion) is a huge energy-saving and environmental efficacy of new combustion technology and it is also considered as a reliable, industry proven combustion method allowing emissions reduction, combustion process improvement, thermal field flattening and heat transfer increase in high temperature energy intensive applications.

Honeycomb ceramic heat recovery media is a key component of regenerative burner, which is widely used in iron and steel, machinery, building materials, petrochemicals, nonferrous metal smelting and other industries, furnace, hot air furnace, heat treatment furnace, cracking furnace, baking, melting furnace, both in the hot furnace, oil and gas boilers, and furnaces. The technique is to make two ceramic media beds alternating endothermic exothermic by reversing device. Most common applications include: Regenerative Thermal Oxidizer (RTO), Regenerative Catalytic Oxidizer (RCO), metal casting combustor, metal melting industrial furnace, etc.

Compared with other ceramic media, such as saddles or ceramic balls, which have conventionally been used in RTOs. The advantages of honeycomb monolith include a greater thermal efficiency and a lower pressure drop across the heat exchanger bed. The increase in thermal efficiency and lower pressure drop generally results in smaller equipment design, lower capital cost and lower operating cost. Honeycomb ceramic monolith serves as a more efficient alternative for the following reasons: cutting fan load for significant energy saving (low pressure drop owing to straight channels), less volume, thin wall thickness, faster in thermal exchange. Lighter weight, so less structural support is required. Above all, High specific surface area means high conversion efficiency in converters occupying small volumes. All these benefit, especially larger specific surface area make honeycomb ceramic the better performance media across industries.

Ceramic Honeycomb Materials

Alumina Ceramics

Alumina Ceramics is the most widely used advanced ceramic material. Owing to its highly strong ionic inter-atomic bonding, alumina offers good performance in terms of chemical and thermal stability, relatively good strength, thermal and electrical insulation characteristics at a reasonable price. With a range of purities and also the relatively low cost in raw material production it is possible to utilize alumina for wide ranging applications across a variety of different industries.

Mullite Ceramics

Mullite occurs very rarely in nature because it only forms at high temperature, low pressure conditions, so as an industrial mineral, mullite has to be supplied by synthetic alternatives. Mullite is a strong candidate material for advanced ceramics in industrial process for its favourable thermal and mechanica properties: low thermal expansion, low thermal conductivity, excellent creep resistance, suitable high temperature strength and outstanding stability under harsh chemical environments.

Silicon Carbide Ceramics

Silicon carbide is notable for its hardness, high melting-point and high thermal conductivity. It can retains its strength at temperature as high as 1400 °C and offers excellent wear resistance and thermal shock resistance.
It has well-established and wide-spread industrial applications as catalyst supports and hot-gas or molten metal filters because of its low thermal-expansion coefficient and good thermal-shock resistance as well as excellent mechanical and chemical stability at elevated temperature environments.

Cordierite Ceramics

Cordierite has a superior thermal shock resistance due to their intrinsic low coefficient of thermal expansion (CET), coupled with relatively high refractoriness and high chemical stability. Therefore, it is often used as high temperature industrial applications, such as: heat exchangers for gas turbine engines; honeycomb-shaped catalyst carriers in automobile exhaust system.

Zirconia Oxide Ceramics

Ceramics Zirconia can be an ideal material of high-strength and high-toughness when proper compositions, such as: magnesium oxide (MgO), yttrium oxide, (Y_2O_3), or calcium oxide (CaO), are added to control an otherwise destructive phase transformation.The micro structural features of zirconia ceramics also make it an engineering material choice of wear and corrosion resistance, damage and degradation tolerance in a wide range of applications.

Corundum Ceramic

1, high purity: Al_2O_3> 99%, good chemical resistance
2, temperature resistance, long-term use at 1600 °C, 1800 °C short-term
3, thermal shock resistance and good resistance to crack
4, slip casting, high density, high purity alumina

Featured Sizes

Specification

L x W x H (mm)	Number of Cells	Cell Width (mm)	Wall Thickness (mm)	Boundary Wall Thickness (mm)	Specific Surface Area (m^2/m^3)	Void Fraction (%)	Shape of Terminal Face
200×100×100	20x9	Circular cell Φ8.5	2.3	2.5	280	51	Flat Surface Slant Single Slot Dual Slots
150×100×100	36x24	Square cell 3x3	1.1	1.2	734	52	
150×100×100	35x20	Hexagon cell Φ4	1.0	1.2	687	65	
150×100×100	10x6	Hexagon cell Φ12	4.0	4.0	210	50	
150×100×100	35x20	Hexagon cell Φ3.5	1.5	1.5	570	50	
150×100×100	17x13	Circular cell Φ7.5	1.2	1.3	366	57	
150×100×100	33x19	Circular cell Φ4	1.0	1.3	568	53	
150×100×100	15x9	Circular cell Φ8.5	2.3	2.5	280	51	
150×100×100	38x22	Hexagon cell Φ3.6	0.9	1.2	696	63	
150×100×100	42x28	Square cell 2.6×2.6	1.0	1.1	815	53	
100×100×100	7x6	Hexagon cell Φ12	4.0	4.0	224	52	
100×100×100	31x31	Square cell 2.65×2.65	0.55	0.7	1065	67	
100×100×100	24x24	Square cell 3×3	1.1	1.2	741	52	
100×100×100	23x20	Hexagon cell Φ4	1.0	1.2	608	64	
100×100×100	10x9	Circular cell Φ8.5	2.3	2.5	280	51	

Physical Performance

Item / Material	Cordierite	Compound of Cordierite and Mullite	Corundum Mullite I	Corundum Mullite II	Chrome Corundum Mullite	Zirconia Corundum Mullite
Bulk Density (g/cm^3)	0.6-0.8	0.6-0.9	0.7-1.0	0.8-1.1	0.9-1.15	0.9-1.15
Thermal Expansion Coefficient (20-1000°C) ($10^{-6}/K$)	1.8-2.3	4-5	5-6	5-6.5	5-6.5	5-6
Specific Heat Capacity (J/g·K)	≥0.85	≥0.90	≥1.0	≥1.10	≥1.15	≥1.15
Thermal Conductivity (W/m·K)	≥1.0	≥1.10	≥1.20	≥1.20	≥1.30	≥1.30
Maximum Service Temperature (°C)	1250	1350	1450	1550	1550	1550
Compressive Strength Axis A/B (MPa)	≥3	≥3	≥4	≥4	≥4	≥4
Compressive Strength Axis C (MPa)	≥20	≥20	≥20	≥20	≥20	≥20

Chemical Composition

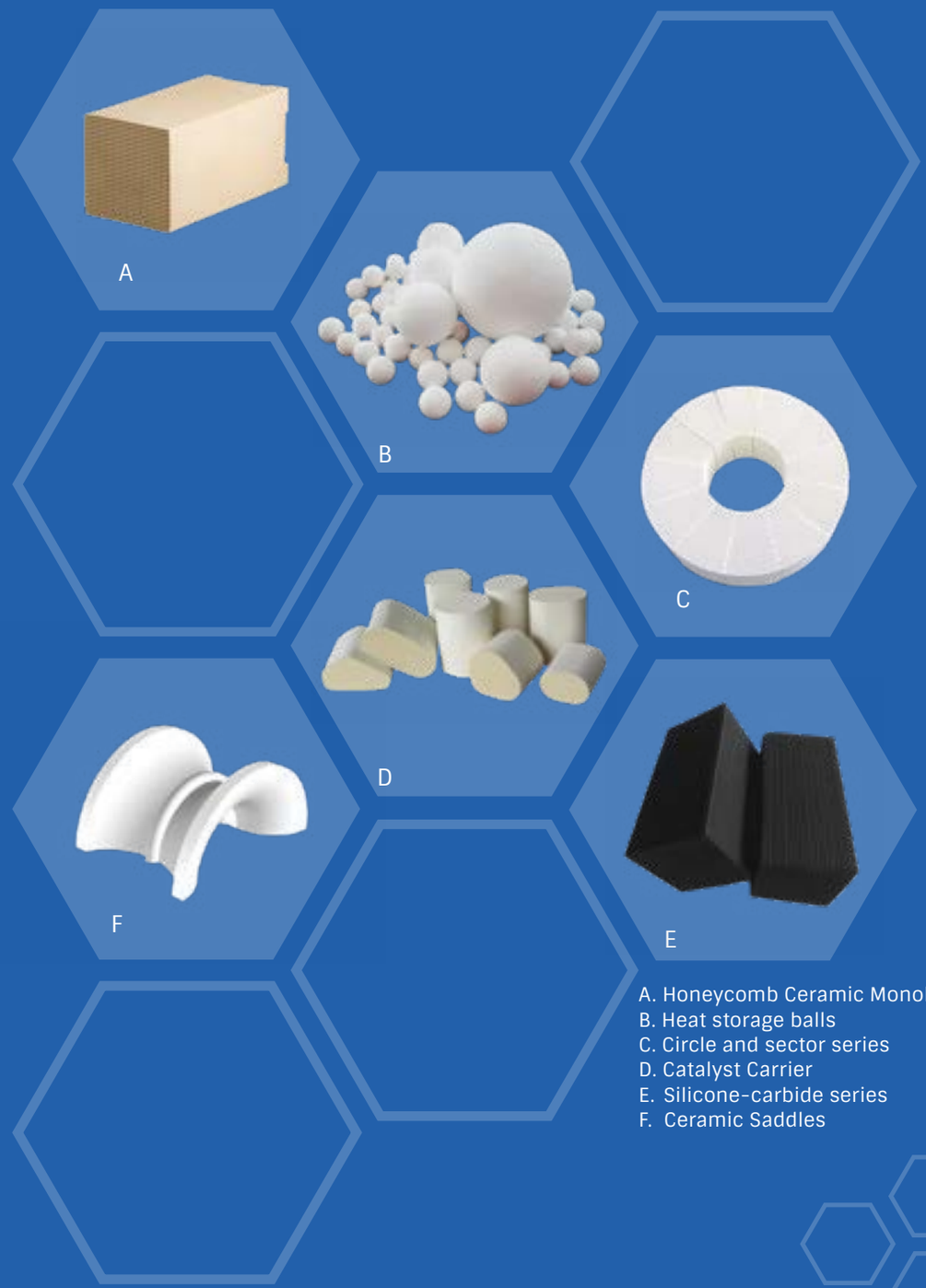
Material / Composition	Cordierite	Compound of Cordierite and Mullite	Corundum Mullite I	Corundum Mullite II	Chrome Corundum Mullite	Zirconia Corundum Mullite
SiO_2 (%)	48-52	45-50	35-38	25-30	23-28	23-28
$A1_2O_3$ (%)	33-36	40-50	58-62	65-70	65-70	65-70
MgO (%)	12-15	6-9	≤0.5	≤0.5	≤0.5	≤0.5
Fe_2O_3 (%)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
K_2O+Na_2O+CaO (%)	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2

HONEYCOMB CERAMIC MONOLITH, SUBSTRATE, BAFFLE BRICKS, HEAT STORAGE BALLS, AND CERAMIC SADDLES

Compared with traditional combustion technology, our green, energy-saving high-temperature air combustion (HTAC) system can reduce fuel intake between 20%-50%. Productivity is also improved as oxidation burning less is reduced by 20% and NOx emission is decreased by over 40%. The honeycomb ceramic regenerator has the following advantages: high heat exchange per unit volume, quick heat transfer, small airflow resistance, small heat penetration depth and high thermal efficiency. Our electrocast chrome corundum is synthesized at over 2000 ºC, producing high quality honeycomb ceramic regenerators, baffle bricks and heat storage balls. This allows the advantages of high refractoriness under load, slag and shock resistance and quick heat transfer to take place. These products also have the ability for good anti-scouring, heavy volume weight and large heat capacity.

Our technology also addresses common problems such as blocking, melting, slagging, cracking or stripping which translates into a longer service life. In addition, our catalytic combustion occurs between the added catalyst and the CO and HC compounds at 600C which further improves the recovery of waste heat and reduces the emission of polluted gas.

We customize all products and materials to individual customer needs and specifications.



A. Honeycomb Ceramic Monolith
B. Heat storage balls
C. Circle and sector series
D. Catalyst Carrier
E. Silicone-carbide series
F. Ceramic Saddles

CERAMIC HONEYCOMB CATALYTST CARRIER

Chemical Gas & Liquid Treatment

Application: Petrochemical, Pharmacy Industrial & Wast incineration

Ceramic honeycomb catalyst carrier use the properties of honeycomb ceramic: large specific surface area, small airway resistance, neat and strong, and are coated with active rare earth metals, transition metals, precious metals on the surface, after reduction firing to obtain a range of practical performance, are widely used in petrochemical, waste incineration, paint and paint charter waste gas treatment, industrial waste gas and waste water treatment.

We customize all products and materials to individual customer needs and specifications.

50 - 600 Cells Catalytic Converter Substrate

Specification

Number of Cells (CPSI)	Wall Thickness	Cell Width	Cell Area	Void Fraction	Specific Surface area	Density
50	0.69 mm	2.95 mm	8.70 mm^2	65%	650 m^2/m^3	565 kg/m^3
	0.027 in	0.116 in	0.013 in^2		198.12 ft^2/ft^3	35.27 lb/ft^3
50	0.67 mm	2.97 mm	8.82 mm^2	66%	659 m^2/m^3	565 kg/m^3
	0.026 in	0.117 in	0.014 in^2		200.86 ft^2/ft^3	35.27 lb/ft^3
50	0.64 mm	3.00 mm	9.00 mm^2	67%	672 m^2/m^3	565 kg/m^3
	0.025 in	0.118 in	0.014 in^2		204.83 ft^2/ft^3	35.27 lb/ft^3
100	0.40 mm	2.13 mm	4.55 mm^2	71%	1323 m^2/m^3	465 kg/m^3
	0.016 in	0.084 in	0.007 in^2		403.25 ft^2/ft^3	29.03 lb/ft^3
100	0.38 mm	2.15 mm	4.64 mm^2	72%	1334 m^2/m^3	465 kg/m^3
	0.015 in	0.085 in	0.007 in^2		406.61 ft^2/ft^3	29.03 lb/ft^3
100	0.35 mm	2.18 mm	4.78 mm^2	74%	1354 m^2/m^3	465 kg/m^3
	0.014 in	0.086 in	0.007 in^2		412.70 ft^2/ft^3	29.03 lb/ft^3
200	0.26 mm	1.53 mm	2.34 mm^2	72%	1859 m^2/m^3	435 kg/m^3
	0.010 in	0.060 in	0.004 in^2		566.63 ft^2/ft^3	27.16 lb/ft^3
200	0.24 mm	1.55 mm	2.40 mm^2	74%	1920 m^2/m^3	435 kg/m^3
	0.009 in	0.061 in	0.004 in^2		585.22 ft^2/ft^3	27.16 lb/ft^3
200	0.21 mm	1.58 mm	2.49 mm^2	77%	1957 m^2/m^3	435 kg/m^3
	0.008 in	0.062 in	0.004 in^2		596.50 ft^2/ft^3	27.16 lb/ft^3
300	0.25 mm	1.22 mm	1.48 mm^2	67%	2200 m^2/m^3	500 kg/m^3
	0.010 in	0.048 in	0.002 in^2		670.56 ft^2/ft^3	31.21 lb/ft^3
300	0.22 mm	1.25 mm	1.55 mm^2	70%	2260 m^2/m^3	500 kg/m^3
	0.009 in	0.049 in	0.002 in^2		688.85 ft^2/ft^3	31.21 lb/ft^3
300	0.19 mm	1.28 mm	1.63 mm^2	74%	2310 m^2/m^3	500 kg/m^3
	0.007 in	0.050 in	0.003 in^2		704.09 ft^2/ft^3	31.21 lb/ft^3

Specifications

- Number of Cells – 50 CPSI to 600 CPSI
- Cell Width – 0.81 mm - 2.95 mm / 0.032 in - 0.116 in
- Wall Thickness – 0.17 mm - 0.69 mm / 0.007 in - 0.027 in
- Specific Surface Area – 650 m^2/m^3 - 3225 m^2/m^3
- Void Fraction - 65% - 77%

50 - 600 Cells Catalytic Converter Substrate

Specification

Number of Cells (CPSI)	Wall Thickness	Cell Width	Cell Area	Void Fraction	Specific Surface area	Density
400	0.23 mm	1.04 mm	1.08 mm^2	67%	2579 m^2/m^3	480 kg/m^3
	0.009 in	0.041 in	0.043 in^2		786.09 ft^2/ft^3	29.97 lb/ft^3
400	0.20 mm	1.07 mm	1.75 mm^2	71%	2654 m^2/m^3	480 kg/m^3
	0.008 in	0.042 in	0.069 in^2		808.95 ft^2/ft^3	29.97 lb/ft^3
400	0.17 mm	1.10 mm	1.21 mm^2	75%	2728 m^2/m^3	480 kg/m^3
	0.007 in	0.043 in	0.048 in^2		831.50 ft^2/ft^3	29.97 lb/ft^3
600	0.23 mm	0.81 mm	0.65 mm^2	61%	3002 m^2/m^3	580 kg/m^3
	0.009 in	0.032 in	0.026 in^2		915.02 ft^2/ft^3	36.21 lb/ft^3
600	0.20 mm	0.84 mm	0.70 mm^2	65%	3114 m^2/m^3	580 kg/m^3
	0.008 in	0.033 in	0.028 in^2		949.15 ft^2/ft^3	36.21 lb/ft^3
600	0.17 mm	0.87 mm	0.75 mm^2	70%	3225 m^2/m^3	580 kg/m^3
	0.007 in	0.034 in	0.030 in^2		982.99 ft^2/ft^3	36.21 lb/ft^3

Chemical Composition

Material Composition	Stoneware	Cordierite	Mullite Cordierite	Mullite
SiO_2 (%)	69-71	46-48	45-50	27-28
Al_2O_3 (%)	18-30	34-37	45-50	70-71
MgO (%)	0.15-0.20	12.00-14.00	6.00-9.00	--
K_2O+Na_2O+CaO (%)	3.00-3.30	2.50-2.90	0.70-0.90	0.80-1.20
Fe_2O_3	0.70-0.90	0.70-0.90	0.50-0.70	0.50-0.70
TiO_2+BaO	0.20-0.25	0.30-0.40	--	--

Please note: Preceding chemical composition is standard to all cellular honeycomb ceramics

50 - 600 Cells Catalytic Converter Substrate

Physical Performance

Material Item		200 CPSI	400 CPSI
Compressive Strength (MPa)	A Axis	15.0	15.0
	B Axis	1.5	1.5
	C Axis	0.2	0.2
Water Absorption (%)	Minimum	18.6	17.8
	Maximum	23.4	20.7
	Average	22.1	19.6
Pore Volume	cm^3/g	0.18-0.24	0.18-0.24
Thermal Expansion Coefficient	20-1000°C (10^{-6}/K)	1.5	1.8
Thermal Conductivity	25-600°C (W/m·K)	1.5-1.6	1.5-1.6
Specific Heat Capacity (J/g·K)	100 °C	0.80	0.80
	200 °C	0.95	0.95
	300 °C	2.00	2.00
Softening Temperature	°C	1380	1380
Shrinkage Ratio (%) After 100h	1200 °C	0.5	0.1
	1450 °C	2.0	2.5
Heating Rate (°C/min)	20-1000 °C	5.0	5.0

Bulk Density

- 100 CPSI – 0.46 g/cm^3 ±15%
- 200 CPSI – 0.43 g/cm^3 ±15%
- 300 CPSI – 0.50 g/cm^3 ±15%
- 400 CPSI – 0.48 g/cm^3 ±15%

Specification

Number of Cells	50 CPSI to 600 CPSI
Cell Width	0.81 mm - 2.95 mm / 0.032 in - 0.116 in
Wall Thickness	0.17 mm - 0.69 mm / 0.007 in - 0.027 in
Specific Surface Area	650 m^2/m^3 - 3225 m^2/m^3
Void Fraction	65% - 77%

We customize all products and materials to individual customer needs and specifications.

CERAMIC SADDLES & SUPPER SADDLES

Air Purification

Application: Ceramic Random Packing Media

For years, we have been fulfilling the honeycomb ceramic needs of European, American and Chinese customers. These products specifically apply to gas purification in the regenerative thermal oxidizer (RTO) and the regenerative catalytic oxidizer (RCO). This types of ceramic meda is commonly used in RTO, RCO or scrubber to provide heat retention by acting as a heat exchanger for preheating the incoming waste gas stream.

We customize all products and materials to individual customer needs and specifications.

Ceramic Saddles & Supper Saddles

Specification of Ceramic Saddles

Size		Unit	Deck Diamter (mm)	Outside Diameter (mm)	Height (mm)	Wall Thickness (mm)	Width (mm)
1/2”	12mm	mm	12	20	10	2.0	10
		inch	0.472	0.787	0.394	0.079	0.394
5/8”	16mm	mm	16	24	12	2.0	12
		inch	0.630	0.945	0.472	0.079	0.472
3/4”	19mm	mm	19	28	14	2.5	14
		inch	0.748	1.102	0.551	0.098	0.551
1”	25mm	mm	25	38	19	3.0	20
		inch	0.984	1.496	0.748	0.118	0.787
1.5”	38mm	mm	38	60	30	4.0	30
		inch	1.496	2.362	1.181	0.157	1.181
2”	50mm	mm	50	80	40	5.0	40
		inch	1.969	3.150	1.575	0.197	1.575
3”	76mm	mm	76	114	57	9.0	57
		inch	2.992	4.488	2.244	0.354	2.244

Specification of Ceramic Supper Saddles

Size		Unit	Deck Diamter (mm)	Outside Diameter (mm)	Height (mm)	Wall Thickness (mm)	Width (mm)
1”	25mm	mm	25	38	19	3.0	20
		inch	0.984	1.496	0.748	0.118	0.787
1.5”	38mm	mm	38	60	30	4.0	30
		inch	1.496	2.362	1.181	0.157	1.181
2”	50mm	mm	50	80	40	5.0	40
		inch	1.969	3.150	1.575	0.197	1.575
3”	76mm	mm	76	114	57	9.0	57
		inch	2.992	4.488	2.244	0.354	2.244

Ceramic Saddles Random Packing Media

Physical Performance of Ceramic Saddles

Item \ Size	1/2" 12mm	5/8" 16mm	3/4" 19mm	1" 25mm	1.5" 38mm	2" 50mm	3" 76mm
Number per m^3	610,000	269,000	146,000	59,000	19,680	8,243	2,400
Bulk Density (kg/m^3)	780	700	670	630	580	550	530
Free Space (%)	68	71	75	77	80	79	75
Specific Surface Area m^2/m^3	647	535	350	254	180	120	91
Density (g/m^3)	2.3						
Water Absorption (%)	<0.3						
Acid Resistance (%)	>99.6						
Maximum Service Temperature	1100 °C						
Porosity (%)	<1						
Moh's Hardness	>6.5						
Specific Heat Capacity (J/g·K)	850-900						
Thermal Conductivity (W/m·K)	0.9-1.0						

Chemical Composition

SiO_2 (%)	>73	MgO (%)	<0.5
Al_2O_3 (%)	17-23	K_2O+Na_2O (%)	2-4
Fe_2O_3 (%)	<1.0	Other (%)	<0.1
CaO (%)	<0.5		

Ceramic Supper Saddles Random Packing Media

Physical Performance of Ceramic Super Saddles

Item \ Size	1" 25mm	1.5" 38mm	2" 50mm	3" 76mm
Number per m^3	39,200	21,500	8,500	3,000
Bulk Density (kg/m^3)	645	600	570	580
Free Space (%)	77	78	79	80
Specific Surface Area m^2/m^3	260	210	140	105
Density (g/m^3)	2.3			
Water Absorption	<0.2 %			
Acid Resistance	>99.98 %			
Maximum Service Temperature	1320 °C			
Porosity (%)	<1			
Moh's Hardness	7-8			
Specific Heat Capacity (J/g·K)	840-900			
Softening Point	>1400 °C			
Thermal Expansion	4.7 x (10^{-6}/ °C)			
Compressive strength (MPa)	390-420			

Chemical Composition

SiO_2 (%)	>69	MgO (%)	<0.2
Al_2O_3 (%)	15-23	K_2O+Na_2O (%)	2-4
$SiO_2+ Al_2O_3$ (%)	>92	Fe_2O_3 (%)	<1
CaO (%)	<0.25	Other (%)	<1

HEAT STORAGE BALLS

We design and manufacture heat storage balls (diameter: 11mm to 22mm) made of materials such as high alumina, corundum mullite, chrome corundum mullite and zirconia corundum mullite.
This brings the advantages of high slag resistance, quick heat transfer, heavy volume weight and large storage capacity. Chrome corundum mullite storage balls overcome common problems such as slagging and pulverization. This is a popular product as our storage balls save energy and have a long service life.

Note: It is recommended to keep the termperature 100°C to 200°C below the maximum service temperature if the three above-mentioned products need to be used for a long period of time.

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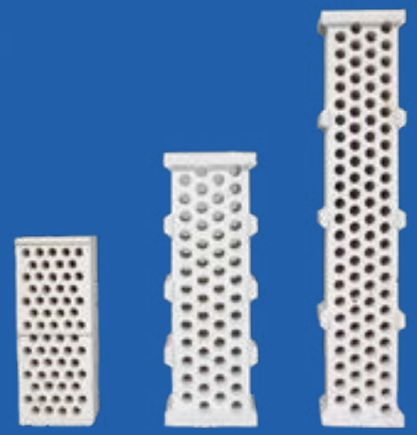
Physiochemical Performance Indicators

Item / Material	High Alumina Q65/70	Corundum Mullite QM70	Chrome Corundum Mullite QCr-70	Zirconia Corundum Mullite QZr-70
Content of $A1_2O_3$ (%)	≥65/70	≥70	≥70	≥70
Bulk Density (g/cm^3)	≥2.4	≥2.5	≥2.6	≥2.6
Density (kg/m^3)	1500-1700	1450-1650	1550-1800	1550-1800
Specific Surface Area (m^2/m^3)	Φ11-13mm: 120-160 Φ14-16mm: 105-120 Φ17-19mm: 95-105 Φ20-22mm: 80-95			
Thermal Expansion Coefficient (20-1000°C) ($10^{-6}/K$)	≤6.5	≤5.5	≤6.5	≤6.5
Specific Thermal Capacity (J/g·K)	≥1.05	≥1.0	≥1.05	≥1.05
Thermal Conductivity (W/m·K)	≥1.5	≥1.6	≥1.7	≥1.7
1100 °C-20 °C Water Cooling Times (Times)	≥25	≥30	≥30	≥35
Maximum Service Temperature (°C)	1500/1550	1600	1600	1600

BAFFLE BRICKS



Common materials to produce baffle bricks include mullite, corundum mullite and electrocast corundum. Our company also manufactures baffle bricks made of chrome corundum and zirconia corundum mullite. These can specifically be used in bad conditions while boasting high slag resistance and good anti-scouring.

Note: Physiochemical performance indicators of baffle bricks made of chrome and zirconia mullite are basically the same as preceding indicators, Specifications comply with customers requests.

We customize all products and materials to individual customer needs and specifications.

Physiochemical Performance Indicators

Item / Material	Corundum Mullite DBZ-60	Corundum Mullite DBZ-70	Corundum Mullite DBZ-75	Electrocast Corundum DBZ-80	Electrocast Corundum DBZ-85
Content of $A1_2O_3$ (%)	≥60	≥70	≥75	≥80	≥85
Bulk Density (g/cm^3) 1500°C x 3h	≥2.5	≥2.5	≥2.55	≥2.6	≥2.65
Compressive Strength (MPa) 1500°C x 3h	≥70	≥80	≥90	≥100	≥110
Flexural Strength (MPa) 1500°C x 3h	≥8.0	≥8.5	≥9.5	≥11	≥12
Linear Change (%) 1500°C x 3h	≤±0.6	≤±0.5	≤±0.4	≤±0.3	≤±0.2
Maximum Service Temperature (°C)	1450	1550	1550	1600	1650

HONEYCOMB CERAMIC FILTER PLATES

Recurring problems with straight through filter plates has lead our company into the production of honeycomb ceramic filter plates. Our plates improve heat shock resistance, increased high temperature strength, raises the porosity and offers an increased surface area. Meeting the highest international standards, our products filter and absorb fine impurities in molten metal while preventing bubbles from entering the metal itself. This reduces turbulence and enables molten metal to be homogenized. In addition, the filter plates can be coated with various catalysts. While impurities are being filtered, corresponding chemical reactions can be conducted to improve the quality of the castings.

Note: The overall dimension is provided by customers or designed by the company.

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Physiochemical Performance Indicators

Item / Material	Cordierite	Compound of Cordierite and Mullite	Mullite	Corundum Mullite	Zirconia Mullite
Content of $A1_2O_3$ (%)	35-37	40-50	50-60	68-73	68-73
Cell Shape	Round/ Square	Round/ Square	Round/ Square	Round/ Square	Round/ Square
Number of Cells/ $inch^2$	60-400	60-400	60-400	60-400	60-400
Micro Cell (μm)	2-3	2-3	2-3	2-3	2-3
Thermal Expansion Coefficient (10^{-6}/K)	≤1.8	≤3	≤5.0	≤5.5	≤5
Softening Temperature (°C)	1380	1500	1550	1700	1700
Comprehensive Strength at Normal Temperatures (MPa)	≥12	≥15	≥15	≥15	≥15
Application	casting alumina alloy	Casting nodular iron and gray iron			casting stainless steel

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SPECIAL STATEMENT

The preceeding technical indicators are collected from tested samples and are only used for reference. We specialize in designing and manufacturing products according to the working environment and customer specifications. Our company is constantly striving to improve our products and maintaining the high standard our customers have come to expect from Kexing Special Ceramics.