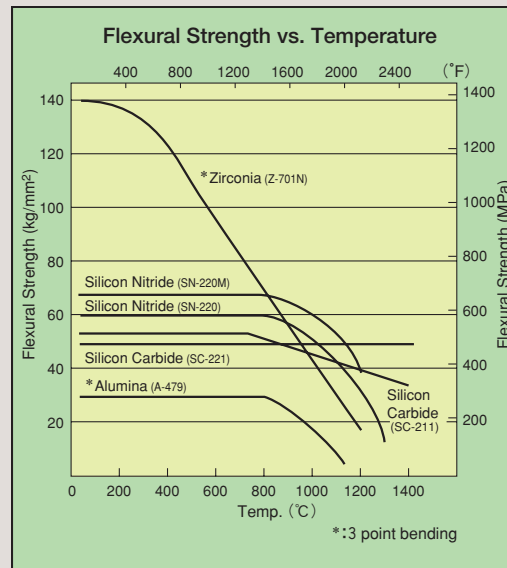
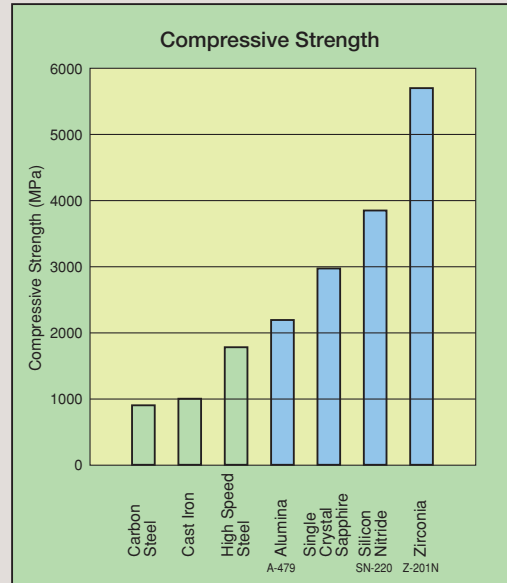
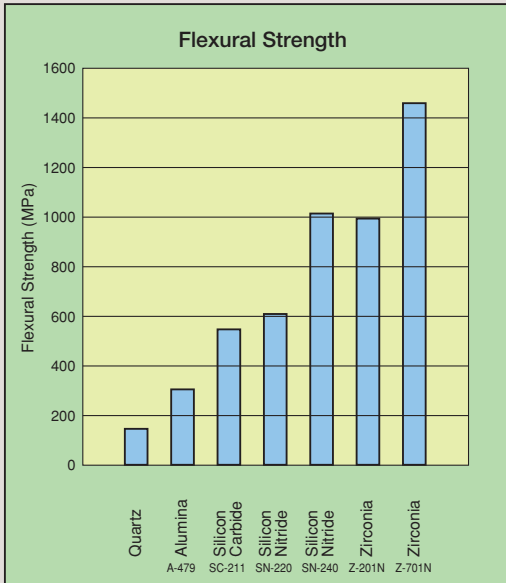
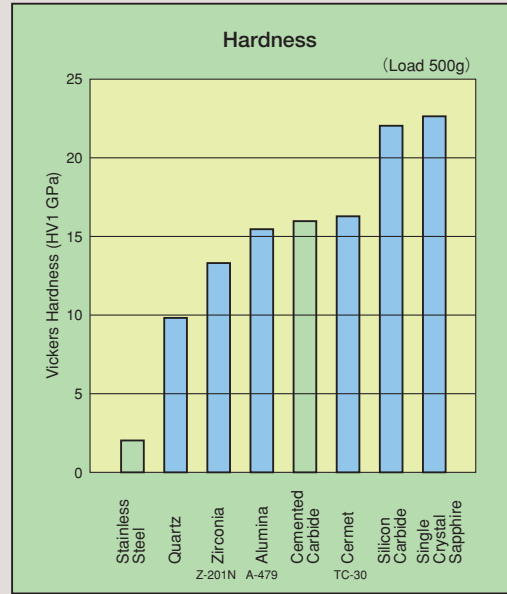
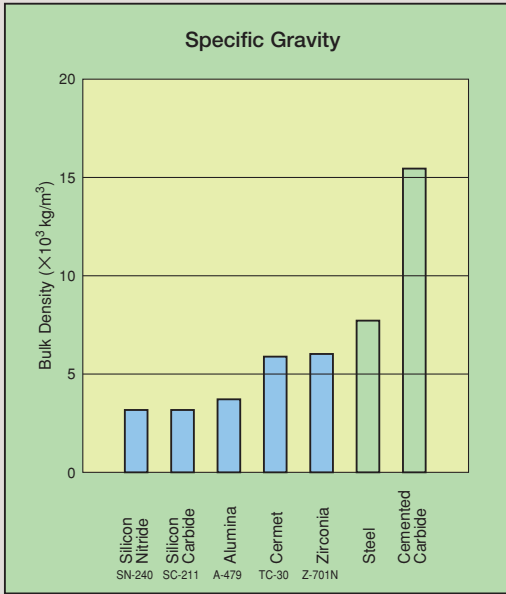


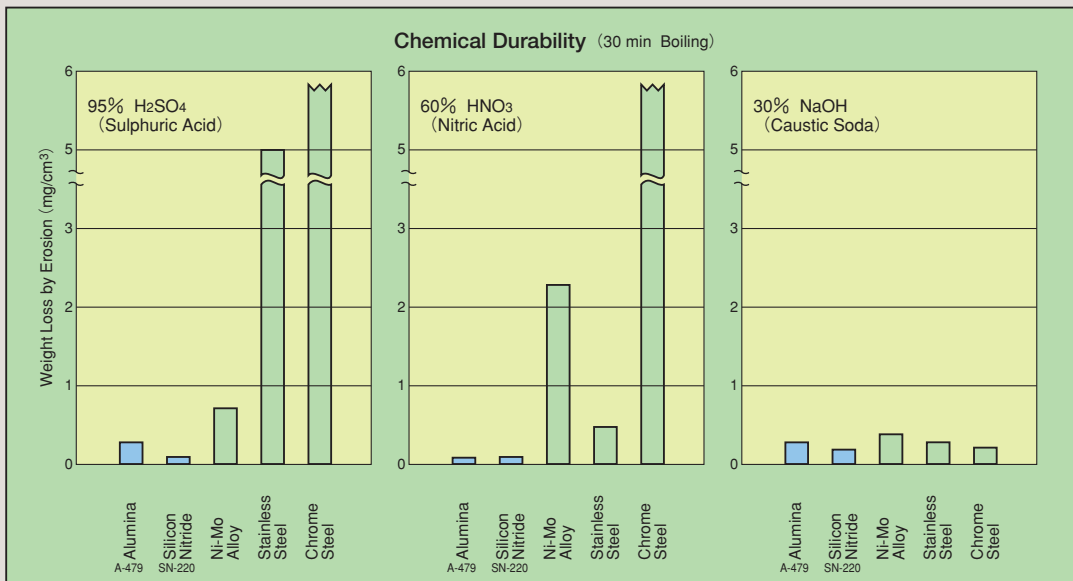
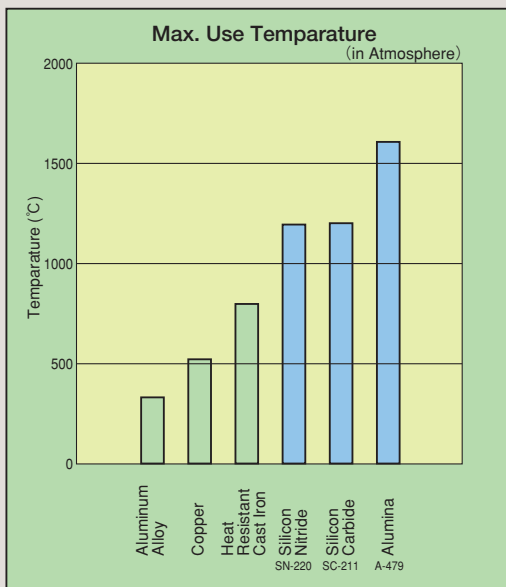
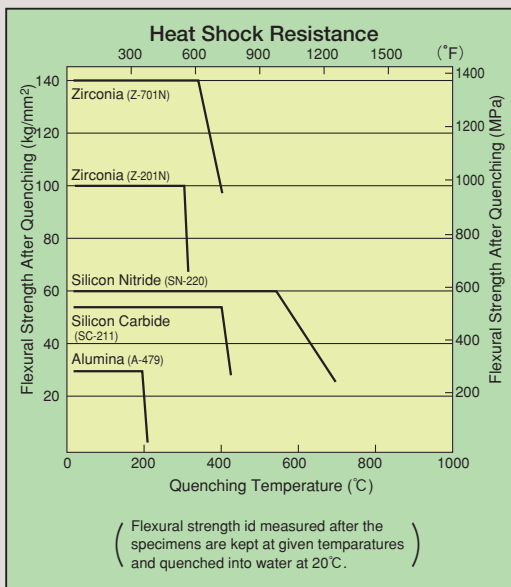
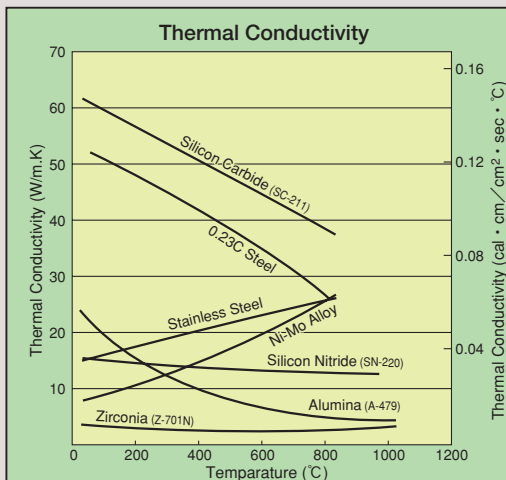
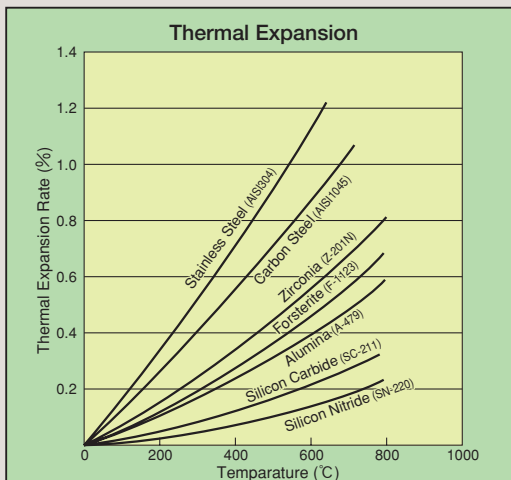
THE NEW VALUE FRONTIER



**CHARACTERISTICS  
OF  
KYOCERA  
TECHNICAL  
CERAMICS**

# MATERIAL COMPARISON CHARTS





#### Unit Conversion Table

■ Stress			
MPa or N/mm <sup>2</sup>	Kgf/mm <sup>2</sup>	Kgf/cm <sup>2</sup>	10 <sup>3</sup> lb/in <sup>2</sup> (Kpsi)
1	1.0197 × 10 <sup>-1</sup>	1.0197 × 10	0.145
9.807	1	1 × 10 <sup>2</sup>	1.422
9.807 × 10 <sup>-2</sup>	1 × 10 <sup>-2</sup>	1	1.422 × 10 <sup>-2</sup>
6.895	0.703	70.3	1

■ Thermal Conductivity		
W/m · k	Kcal/m · h · °C	cal/cm · sec · °C
1	0.86	2.39 × 10 <sup>-3</sup>
1.163	1	2.78 × 10 <sup>-3</sup>
418.7	360	1

# CHARACTERISTIC of Kyocera Fine Ceramics (1)

Item		Material	ALUMINA (Al <sub>2</sub> O <sub>3</sub> )												
Kyocera No.			A-482R	A-459	A-445	A-471	A-473	A-484	A-476	A-479	A-479SS	A-479M A-479G			
Appearance			Porous		Dense										
Color			Pink	Russet	Dark Brown	White	White	White	White	White	Ivory	Ivory			
Alumina Content (%)			Al <sub>2</sub> O <sub>3</sub> 76	89	90	92	92	92	96	99	99.5	99.5			
Main Characteristics		High Mechanical Strength, High Temperature Resistance, High Frequency Insulation, High Chemical Resistance													
		<ul style="list-style-type: none"> <li>High Heat Resistance</li> </ul>	<ul style="list-style-type: none"> <li>Good for Metallizing</li> </ul>	<ul style="list-style-type: none"> <li>Light Intercepting,</li> <li>High Heat Dissipation</li> </ul>	<ul style="list-style-type: none"> <li>Wear Resistant</li> </ul>	<ul style="list-style-type: none"> <li>Good for Metallizing,</li> <li>Mechanically Strong</li> </ul>	<ul style="list-style-type: none"> <li>Wear Resistant</li> </ul>	<ul style="list-style-type: none"> <li>Good Surface Smoothness</li> </ul>	<ul style="list-style-type: none"> <li>Hard and Chemically Stable</li> </ul>	<ul style="list-style-type: none"> <li>Hard and Chemically Stable,</li> <li>Fine Grain Strong and Smooth</li> </ul>	<ul style="list-style-type: none"> <li>High Chemical Resistance,</li> </ul>				
Main Applications		<ul style="list-style-type: none"> <li>Welding Nozzle,</li> <li>Nozzle for Glass Fiber Manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>Magnetron</li> </ul>	<ul style="list-style-type: none"> <li>IC Packages</li> </ul>	<ul style="list-style-type: none"> <li>Liner</li> <li>Pulverizer</li> </ul>	<ul style="list-style-type: none"> <li>IC Multi-Layer Packages,</li> <li>Electron-tube Housing</li> </ul>	<ul style="list-style-type: none"> <li>Wire-Drawing Parts,</li> <li>Capstans,</li> <li>Mechanical Seal Rings</li> </ul>	<ul style="list-style-type: none"> <li>Hybrid IC Substrates</li> </ul>	<ul style="list-style-type: none"> <li>Heat, Corrosion and Wear Resistant Parts</li> </ul>	<ul style="list-style-type: none"> <li>Pump</li> <li>Shafts</li> </ul>					
		Bulk Density	kg/m <sup>3</sup>	JIS C2141	3.6×10 <sup>3</sup>	3.6×10 <sup>3</sup>	3.8×10 <sup>3</sup>	3.6×10 <sup>3</sup>	3.6×10 <sup>3</sup>	3.6×10 <sup>3</sup>	3.7×10 <sup>3</sup>	3.8×10 <sup>3</sup>	3.9×10 <sup>3</sup>	3.9×10 <sup>3</sup>	
Water Absorption	%	JIS C2141	0.6	0	0	0	0	0	0	0	0	0			
Mechanical Characteristics	Vickers Hardness Load 500g	(GPa)	JIS R1610	9.0	12.1	12.7	11.8	12.3	12.3	13.7	15.2	16.0	15.7		
	Flexural Strength	MPa	JIS R1601	120	310	320	390	340	370	350	310	360	370		
	Compressive Strength	MPa	—	—	—	—	—	2,300	—	—	2,160	2,350	—		
	Young's Modulus of Elasticity	GPa	JIS R1602	160	280	320	280	280	280	280	320	360	370	370	
	Poisson's Ratio	—		0.17	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	
	Fracture Toughness	MPa √m	JIS R1607	—	—	—	—	—	—	—	—	3~4	4	—	
Thermal Characteristics	Coefficient of Linear Thermal Expansion	40~400°C	×10 <sup>-6</sup> /°C	JIS R1618	7.1	7.0	7.3	7.1	6.9	6.8	7.2	7.2	7.2	7.2	
		40~800°C			7.5	7.9	8.1	7.9	7.8	7.7	7.9	8.0	8.0	8.0	
	Thermal Conductivity	20°C	W/(m·K)	JIS R1611	8	14	12	16	18	17	24	29	32	32	
	Specific Heat		J/(kg·K)	JIS R1611	0.75×10 <sup>3</sup>	0.75×10 <sup>3</sup>	0.75×10 <sup>3</sup>	0.79×10 <sup>3</sup>	0.78×10 <sup>3</sup>	0.78×10 <sup>3</sup>	0.78×10 <sup>3</sup>	0.79×10 <sup>3</sup>	0.78×10 <sup>3</sup>	0.78×10 <sup>3</sup>	
	Heat Shock Resistance (Put in water)		°C	—	320	—	—	200	200	200	200	200	250	—	
Electrical Characteristics	Dielectric Strength		V/m	JIS C2141	12×10 <sup>6</sup>	15×10 <sup>6</sup>	12×10 <sup>6</sup>	16×10 <sup>6</sup>	16×10 <sup>6</sup>	14×10 <sup>6</sup>	15×10 <sup>6</sup>	15×10 <sup>6</sup>	15×10 <sup>6</sup>	15×10 <sup>6</sup>	
	Volume Resistivity	20°C	Ω·cm		>10 <sup>14</sup>	>10 <sup>14</sup>	10 <sup>11</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>
		300°C			10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>7</sup>	10 <sup>12</sup>	10 <sup>12</sup>	10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>13</sup>	10 <sup>13</sup>	
		500°C			10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>5</sup>	10 <sup>9</sup>	10 <sup>10</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>10</sup>	10 <sup>10</sup>	
	Dielectric Constant	(1MHz)	—		8.4	8.8	9.8	8.9	9.0	8.9	9.4	9.9	9.9	9.9	
	Dielectric Loss Angle	(1MHz)	(×10 <sup>-4</sup> )		180	6	20	6	6	9	4	2	1	1	
	Loss Factor		(×10 <sup>-4</sup> )		1,500	52	190	53	54	80	38	20	10	10	
Chemical Characteristics	Nitric Acid (60%) 90°C		WT Loss mg/cm <sup>2</sup> /day	—	—	—	—	—	0.32	0.14	—	0.10	0.07	—	
	Sulphuric Acid (95%) 95°C				—	—	—	—	0.65	0.34	—	0.33	0.25	—	
	Caustic Soda(30%) 80°C				—	—	—	—	0.91	0.95	—	0.26	0.05	—	

※The values are typical material properties and may vary according to products configuration and manufacturing process. For more details, please feel to contact us.

		SAPPHIRE		MULLITE (3Al <sub>2</sub> O <sub>3</sub> · 2SiO <sub>2</sub> )	CORDIERITE (2MgO · 2Al <sub>2</sub> O <sub>3</sub> · 5SiO <sub>2</sub> )		STEATITE (MgO · SiO <sub>2</sub> )		FORSTERITE (2MgO · SiO <sub>2</sub> )			YTTRIA (Y <sub>2</sub> O <sub>3</sub> )	TITANIA		
A-480S	A-601D A-601L	SA-100		ML-652	CO210	CO710	S-210	S-211	F-1120	F-1023	FC112M	Y0100A	T-716	T-716H	T-792H
		Dense		Dense	Dense	Dense	Dense		Dense			Dense	Dense		
Ivory	Ivory	Transparent		Dark Brown	White	White	White	Dark Brown	Light Yellow		Black	White	Light Brown	Light Brown	Grayish Yellow
99.7	99.9	99.99			—	—	—	—	—	—	—	—	—	—	—
		Single Crystal		●Low Thermal Expansion	●Very Low Thermal Expansion		●Thermal Insulator	●Good Light Shield	●Good Surface Finish	●High Thermal Expansion	●Electro Static Ossipation ●Less Voids	●Good Plasma Resistance	Good Surface Finish		
●Good Anti-Plasma, ●Wear Resistance ●High Purity		●High Heat Resistance, ●High Chemical Resistance											●CaTiO <sub>3</sub>		●BaTiO <sub>3</sub>
●Wear Resistant Parts ●Chemically Resistant Parts ●Semiconductor Processing Equipment Parts		●Thin Film Substrates, ●Windows, ●Chemically Resistant Parts		●IC Packages	●Semiconductor Processing Equipment Parts		●Various Circuit Parts		●Substrate For Resistor ●Core For Resistor		●HDD Parts	●SPE Parts	●Slider Pads for Disk Drive Heads		
3.9×10 <sup>3</sup>	3.9×10 <sup>3</sup>	3.97×10 <sup>3</sup>		3.2×10 <sup>3</sup>	2.6×10 <sup>3</sup>	2.7×10 <sup>3</sup>	2.8×10 <sup>3</sup>	3.1×10 <sup>3</sup>	3.0×10 <sup>3</sup>	3.0×10 <sup>3</sup>	3.6×10 <sup>3</sup>	4.9×10 <sup>3</sup>	3.9×10 <sup>3</sup>	4.0×10 <sup>3</sup>	4.5×10 <sup>3</sup>
0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
17.2	17.5	22.5		10.8	7.2	7.7	5.8	6.7	7.3	5.9	8.7	6.0	8.5	8.8	8.1
380	400	690		280	150	170	190	220	180	160	210	130	320	320	230
—	—	2,940		—	—	—	—	—	—	—	—	—	—	—	—
380	380	470		210	140	140	120	130	150	150	190	160	260	270	180
0.23	0.23	—		0.27	0.31	0.31	0.22	0.22	0.24	0.24	0.27	—	—	—	—
—	5~6	—		—	—	—	—	—	—	—	1~2	1.1	—	—	—
7.2	7.2	Parallel to Axis C	5.3	5.0	<   0.1	<   0.1	7.7	9.2	9.7	10.1	10.5	7.2	11.5	11.5	9.6
8.0	8.0	Vertical to Axis C	4.5	5.8	(22~23°C)	(22~23°C)	8.0	10.4	—	—	12.0	7.6	12.1	12.1	—
32	34	41		5	4	4	2	3	5	5	4	14	4	4	2
0.79×10 <sup>3</sup>	0.78×10 <sup>3</sup>	0.75×10 <sup>3</sup>		0.75×10 <sup>3</sup>	0.73×10 <sup>3</sup>	0.73×10 <sup>3</sup>	0.75×10 <sup>3</sup>	0.72×10 <sup>3</sup>	0.78×10 <sup>3</sup>	0.75×10 <sup>3</sup>	0.77×10 <sup>3</sup>	0.45×10 <sup>3</sup>	0.71×10 <sup>3</sup>	0.71×10 <sup>3</sup>	0.59×10 <sup>3</sup>
—	—	—		—	—	—	—	—	—	—	—	—	—	—	—
15×10 <sup>6</sup>	15×10 <sup>6</sup>	48×10 <sup>6</sup>		15×10 <sup>6</sup>	19×10 <sup>6</sup>	19×10 <sup>6</sup>	18×10 <sup>6</sup>	14×10 <sup>6</sup>	17×10 <sup>6</sup>	13×10 <sup>6</sup>	—	11×10 <sup>6</sup>	—	—	—
>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>		>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>13</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	10 <sup>4</sup>	>10 <sup>13</sup>	10 <sup>12</sup>	10 <sup>12</sup>	10 <sup>12</sup>
10 <sup>13</sup>	10 <sup>13</sup>	—		10 <sup>12</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>10</sup>	10 <sup>9</sup>	10 <sup>13</sup>	10 <sup>9</sup>	—	10 <sup>10</sup>	—	—	—
10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>11</sup>		10 <sup>9</sup>	10 <sup>11</sup>	10 <sup>11</sup>	10 <sup>7</sup>	10 <sup>7</sup>	10 <sup>10</sup>	10 <sup>9</sup>	—	10 <sup>7</sup>	—	—	—
9.9	9.9	Parallel to Axis C	11.5	7.4	4.8	4.8	6	8	6.5	6.5	—	11	—	—	—
		Vertical to Axis C	9.3												
1	1	<1		18	10	10	18	750	3	5	—	5	—	—	—
10	10	—		148	48	48	108	6,000	20	30	—	55	—	—	—
0.05	0.03	≒0.00		—	—	—	—	—	—	—	—	—	—	—	—
0.22	0.19	≒0.00		—	—	—	—	—	—	—	—	—	—	—	—
0.04	0.03	≒0.00		—	—	—	—	—	—	—	—	—	—	—	—

1kgf/mm<sup>2</sup>=9.807MPa

1cal/cm · sec · °C=418.7W/(m · K)

1cal/g · °C=4.18J/g · K=4.187×10<sup>3</sup>J/(kg · K)

# CHARACTERISTIC of Kyocera Fine Ceramics (2)

Item		Material	SILICON CARBIDE (SiC)		SILICON NITRIDE (Si <sub>3</sub> N <sub>4</sub> )		ALUMINIUM NITRIDE (AlN)				Z-220		
			SC-211	SC1000	SN-220	SN-240	AN215	AN217	AN216A	AN2000			
Kyocera No.			SC-211	SC1000	SN-220	SN-240	AN215	AN217	AN216A	AN2000	Z-220		
Appearance			Dence		Dence		Dence						
Color			Black	Black	Black	Black	Black	Russet	Gray	Ivory	Yellow		
Alumina Content (%)			—	—	—	—	—	—	—	AlN 99.9	—		
Main Characteristics			<ul style="list-style-type: none"> <li>•High Temperature Strength</li> <li>•High Chemical Resistance,</li> <li>•Excellent Thermal Conductivity</li> </ul>		<ul style="list-style-type: none"> <li>•High Temperature Strength</li> <li>•Wear Resistant</li> <li>•Excellent Thermal Shock Resistance,</li> <li>•Light Weight</li> </ul>		<ul style="list-style-type: none"> <li>•High Electrical Insulation,</li> <li>•High Thermal Conductivity</li> </ul>				<ul style="list-style-type: none"> <li>•High Purity,</li> <li>•Good Plasma Resistance</li> </ul>		
			•Fracture Toughness	•Chemical Resistance					•Excellent Thermal Conductivity				
Main Applications			<ul style="list-style-type: none"> <li>•Mechanical Seal,</li> <li>•High Temperature Resistance Parts</li> </ul>		<ul style="list-style-type: none"> <li>•Internal Combustion Engine Parts,</li> <li>•Molten Metal Parts,</li> <li>•Gas Turbine Parts</li> <li>•Metal Forming Tool</li> </ul>		•IC Packages		<ul style="list-style-type: none"> <li>•Heat Uniformity Parts,</li> <li>•High Temperature Treatment Fixtures,</li> <li>•Semiconductor Processing Equipment Parts</li> </ul>				
Bulk Density	kg/m <sup>3</sup>	JIS C2141	3.2×10 <sup>3</sup>	3.16×10 <sup>3</sup>	3.2×10 <sup>3</sup>	3.3×10 <sup>3</sup>	3.4×10 <sup>3</sup>	3.4×10 <sup>3</sup>	3.4×10 <sup>3</sup>	3.2×10 <sup>3</sup>	5.6×10 <sup>3</sup>		
Water Absorption	%	JIS C2141	0	0	0	0	0	0	0	0	0		
Mechanical Characteristics	Vickers Hardness Load 500g	(GPa)	JIS R1610	22.0	23.0	13.9	14.0	10.8	10.4	10.4	11.2	10.7	
	Flexural Strength	MPa	JIS R1601	540	450	610	1,020	290	310	310	220	750	
	Compressive Strength	MPa	—	—	—	3,820	—	—	—	—	—	—	
	Young's Modulus of Elasticity	GPa	JIS R1602	430	440	290	300	320	320	320	310	200	
	Poisson's Ratio	—		0.16	0.17	0.28	0.28	0.24	0.24	0.24	0.24	0.31	
	Fracture Toughness	MPa √m	JIS R1607	4~5	2~3	5	7	—	—	—	—	7~8	
Thermal Characteristics	Coefficient of Linear Thermal Expansion	40~400°C	×10 <sup>-6</sup> /°C	JIS R1618	3.7	3.7	2.6	2.8	4.8	4.8	4.6	4.6	10
		40~800°C		4.4	4.4	3.2	3.3	5.4	5.4	5.3	5.2	10.5	
	Thermal Conductivity	W/(m · K)	JIS R1611	60	200	20	27	150	160	150	67	3	
	Specific Heat	J/(kg · K)	JIS R1611	0.67×10 <sup>3</sup>	0.67×10 <sup>3</sup>	0.66×10 <sup>3</sup>	0.65×10 <sup>3</sup>	0.71×10 <sup>3</sup>	0.72×10 <sup>3</sup>	0.71×10 <sup>3</sup>	0.72×10 <sup>3</sup>	0.46×10 <sup>3</sup>	
Heat Shock Resistance (Put in water)	°C	—	400	—	550	>800	—	—	—	—	450		
Electrical Characteristics	Dielectric Strength		V/m	JIS C2141	—	—	10×10 <sup>6</sup>	13×10 <sup>6</sup>	12×10 <sup>6</sup>	16×10 <sup>6</sup>	14×10 <sup>6</sup>	16×10 <sup>6</sup>	13×10 <sup>6</sup>
	Volume Resistivity	20°C	Ω · cm		10 <sup>5</sup>	10 <sup>8</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>	>10 <sup>14</sup>
		300°C			10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>12</sup>	10 <sup>12</sup>	10 <sup>9</sup>	10 <sup>9</sup>	10 <sup>10</sup>	10 <sup>11</sup>	10 <sup>6</sup>
		500°C			10 <sup>3</sup>	10 <sup>3</sup>	10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>7</sup>	10 <sup>7</sup>	10 <sup>8</sup>	10 <sup>9</sup>	10 <sup>4</sup>
	Dielectric Constant	(1MHz)	—		—	—	9.6	8.7	8.7	8.6	8.5	28	
	Dielectric Loss Angle	(1MHz)	(×10 <sup>-4</sup> )		—	—	—	19	3	2	3	2	17
	Loss Factor	(×10 <sup>-4</sup> )	—		—	—	—	—	26	17	26	17	476
Chemical Characteristics	Nitric Acid (60%) 90°C		WT Loss mg/cm <sup>2</sup> /day	—	0.04	≒0.00	1.00	1.11	—	—	—	—	
	Sulphuric Acid (95%) 95°C				0.01	≒0.00	0.40	0.00	—	—	—	—	
	Caustic Soda(30%) 80°C				≒0.00	≒0.00	0.36	0.20	—	—	—	—	

※ The values are typical material properties and may vary according to products configuration and manufacturing process. For more details, please feel to contact us.

# CHARACTERISTIC of Plastic Composite Material

ZIRCONIA (ZrO <sub>2</sub> )			CERMET	
Z-201N	Z-701N	Z21H04	TC-30	TC-50
Dence			Dence	
Ivory	Ash Black	Black	Silver	Silver
—	—	—	—	—
<ul style="list-style-type: none"> <li>•High Mechanical Strength,</li> <li>•Excellent Wear Resistance,</li> <li>•Good Surface Finish,</li> <li>•High Fracture Toughness</li> </ul>			<ul style="list-style-type: none"> <li>•High Mechanical Strength,</li> <li>•Excellent Wear Resistance,</li> <li>•High Heat Shock Resistance,</li> <li>•Electrical Conductivity</li> </ul>	
<ul style="list-style-type: none"> <li>•Pump Parts, Dies, Knives,</li> <li>•Cutting Blades, Spikes,</li> <li>•Club Faces, Scissors</li> </ul>			<ul style="list-style-type: none"> <li>•Cutting Tool Tips,</li> <li>•Wear Resistant Parts,</li> <li>•Metal Forming Tools</li> </ul>	
6.0×10 <sup>3</sup>	6.0×10 <sup>3</sup>	5.6×10 <sup>3</sup>	6.0×10 <sup>3</sup>	7.7×10 <sup>3</sup>
0	0	0	0	0
13.2	12.7	10.8	16.2	14.2
1,000	1,470	710	1,470	1,860
5,690	—	—	3,430	3,430
200	220	210	440	410
0.31	0.31	—	0.21	0.23
4~5	4~5	3~4	—	—
10.5	10.8	10.3	7.4	7.8
11.0	11.3	11.4	8.3	—
3	3	3	17	13
0.46×10 <sup>3</sup>	0.46×10 <sup>3</sup>	0.48×10 <sup>3</sup>	—	—
300	350	—	310	360
11×10 <sup>6</sup>	—	—	—	—
10 <sup>13</sup>	—	10 <sup>8</sup>	10 <sup>-4</sup>	10 <sup>-4</sup>
10 <sup>6</sup>	—	—	—	—
10 <sup>3</sup>	—	—	—	—
33	—	—	—	—
16	—	—	—	—
520	—	—	—	—
≒0.00	≒0.00	—	6.0	2.6
0.04	0.04	—	0.26	0.73
0.08	0.08	—	0.02	0.03

1kgf/mm<sup>2</sup>=9.807MPa

1cal/cm · sec · °C=418.7W/(m · K)

1cal/g · °C=4.18J/g · K=4.187×10<sup>3</sup>J/(kg · K)

Item	Material	Plastic Composite Material (α compo)					
Kyocera No.		PC1500	PA2310	PA231B	PP3100		
Appearance		—	—	—	—		
Color		Black	Black	Black	—		
Alumina Content (%)		—	—	—	—		
Main Characteristics		PF+CF (Slider)	PF+Al <sub>2</sub> O <sub>3</sub> (Heat Resistant)	(Radio Wave Absorptive)			
		•Good Slidability	•High Heat Resistance •High Electrical Insulation •Anti tracking Property	•Radio Wave Absorptive •High Heat Resistance •High Thermal Conductivity			
Main Applications		•Slider Parts •Pivot Bearing	•Heat Resistant Parts •Electric Insulator Parts	•Millimeter-Wave PKG Parts •Optical PKG Parts			
Bulk Density	kg/m <sup>3</sup>	JIS K6911	1.2×10 <sup>3</sup>	2.3×10 <sup>3</sup>	2.1×10 <sup>3</sup>	5.9×10 <sup>3</sup>	
Water Absorption	%	JIS K6911	0.1	<0.1	0.3	0.2	
Mechanical Characteristics	Flexural Strength	MPa	JIS K6911	80	75	73	70
	Coefficient of Friction	—	—	0.1~0.2	—	—	—
Thermal Characteristics	Coefficient of Linear Thermal Expansion	20~100°C ×10 <sup>-6</sup> /°C	JIS K7197	20	25	25	15(40-400°C) JIS R 1618
		20~250°C ×10 <sup>-6</sup> /°C		50	—	—	
	Thermal Conductivity	W/(m · K)	JIS R1611	0.5	1.01	1.05	3.6
	Specific Heat	J/(kg · K)	JIS K7123	0.90	0.83	0.83	4,500
	Load Flexure Temperature	°C	JIS K7123	250	207	280	—
	Anti Flammability	—	UL94	94HB	V-0	V-0	Equivalent
	Glass Transition Point	°C	TMA	—	—	—	≥400
Electrical Characteristics	Dielectric Strength	V/m	JIS C2110	—	13×10 <sup>6</sup>	10×10 <sup>6</sup>	—
	Volume Resistivity	Ω · cm	JIS K6911	—	>10 <sup>14</sup>	>10 <sup>14</sup>	≥10 <sup>4</sup>
	Dielectric Constant	—	JIS K6911	—	6.2	6.3	—
	Dielectric Loss Angle	(×10 <sup>-4</sup> )	JIS K6911	—	120	136	—
	Anti Trucking Property	V	JIS C2134	—	250	250	—



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