

## Physical properties of carbon materials

### *KU111*

Grade <b>KU111</b> / impregnation none/	
Density – (g / cm <sup>3</sup> )	1,65
Porosity - ( %)	15
Hardness - (HR <sub>B</sub> 5/60)	60
Compressive strength - (MPa)	80
Bending strength - (MPa)	30
Modulus of elasticity (dynamic) - (GPa)	8
Thermal conductivity - (W/mK)	10
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	8
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	3,5
Temperature resistivity	
in oxidizing atmosphere - (°C)	350
Thermal resistivity	
in non oxidizing atmosphere - (°C)	1000

### *KU112*

Grade <b>KU112</b> / impregnation: resin/	
Density – (g / cm <sup>3</sup> )	1,75
Porosity - ( %)	1
Hardness - (HR <sub>B</sub> 5/100)	105
Compressive strength - (MPa)	180
Bending strength - (MPa)	70
Modulus of elasticity (dynamic) - (GPa)	18
Thermal conductivity - (W/mK)	10
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	8
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	3,7
Temperature resistivity	
in oxidizing atmosphere - (°C)	250
Thermal resistivity	
in non oxidizing atmosphere - (°C)	250

## ***KU116***

Grade <b>KU116</b> / impregnation: white metal/	
Density – (g / cm <sup>3</sup> )	2,95
Porosity - (%)	0,2
Hardness - (HR <sub>B</sub> 5/100)	110
Compressive strength - (MPa)	200
Bending strength - (MPa)	70
Modulus of elasticity (dynamic) - (GPa)	25
Thermal conductivity - (W/mK)	15
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	10
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	5
Temperature resistivity	
in oxidizing atmosphere - (°C)	250
Thermal resistivity	
in non oxidizing atmosphere - (°C)	250

## ***KU117***

Grade <b>KU117</b> / impregnation: tin/	
Density – (g / cm <sup>3</sup> )	2,40
Porosity - (%)	0,2
Hardness - (HR <sub>B</sub> 5/100)	105
Compressive strength - (MPa)	180
Bending strength - (MPa)	70
Modulus of elasticity (dynamic) - (GPa)	25
Thermal conductivity - (W/mK)	15
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	11
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	4
Temperature resistivity	
in oxidizing atmosphere - (°C)	210
Thermal resistivity	
in non oxidizing atmosphere - (°C)	210

## ***KU118***

Grade <b>KU118</b> / impregnation: antimony/	
Density – (g / cm <sup>3</sup> )	2,40
Porosity - (%)	0,2
Hardness - (HR <sub>B</sub> 5/100)	114
Compressive strength - (MPa)	220
Bending strength - (MPa)	90
Modulus of elasticity (dynamic) - (GPa)	25
Thermal conductivity - (W/mK)	15
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	12
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	4
Temperature resistivity	
in oxidizing atmosphere - (°C)	350
Thermal resistivity	
in non oxidizing atmosphere - (°C)	400

## ***KU212***

Grade <b>KU212</b> / impregnation: resin/	
Density – (g / cm <sup>3</sup> )	1,80
Porosity - (%)	0,2
Hardness - (HR <sub>B</sub> 5/100)	110
Compressive strength - (MPa)	200
Bending strength - (MPa)	80
Modulus of elasticity (dynamic) - (GPa)	20
Thermal conductivity - (W/mK)	10
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	8
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	3,8
Temperature resistivity	
in oxidizing atmosphere - (°C)	250
Thermal resistivity	
in non oxidizing atmosphere - (°C)	250

## Physical properties of electrographite materials

### ***GU111***

Grade <b>GU111</b> / impregnation:none/	
Density – (g / cm <sup>3</sup> )	1,80
Porosity - ( %)	12
Hardness - (HR <sub>B</sub> 5/100)	50
Compressive strength - (MPa)	70
Bending strength - (MPa)	35
Modulus of elasticity (dynamic) - (GPa)	10
Thermal conductivity - (W/mK)	90
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	70
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	3,8
Temperature resistivity	
in oxidizing atmosphere - (°C)	400
Thermal resistivity	
in non oxidizing atmosphere - (°C)	2400
average grain size - (mm)	0,035

### ***GU118***

Grade <b>GU118</b> / impregnation: antimony/	
Density – (g / cm <sup>3</sup> )	2,80
Porosity - ( %)	0,1
Hardness - (HR <sub>B</sub> 5/100)	85
Compressive strength - (MPa)	160
Bending strength - (MPa)	60
Modulus of elasticity (dynamic) - (GPa)	19
Thermal conductivity - (W/mK)	120
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	90
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	4,5
Temperature resistivity	
in oxidizing atmosphere - (°C)	400
Thermal resistivity	
in non oxidizing atmosphere - (°C)	400
average grain size - (mm)	0,035

## **GU212**

Grade <b>GU212</b> / impregnation: resin/	
Density – (g / cm <sup>3</sup> )	1,93
Porosity - ( %)	0,1
Hardness - (HR <sub>B</sub> 5/100)	95
Compressive strength - (MPa)	125
Bending strength - (MPa)	55
Modulus of elasticity (dynamic) - (GPa)	14
Thermal conductivity - (W/mK)	90
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	70
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	4,5
Temperature resistivity	
in oxidizing atmosphere - (°C)	250
Thermal resistivity	
in non oxidizing atmosphere - (°C)	250
average grain size - (mm)	0,035

## **Physical properties of silicon carbide materials SiSiC**

Grade <b>KU511</b> / reaction bonded/	
Density – (g / cm <sup>3</sup> )	3,05
Porosity - ( %)	0,01
Hardness SiC - (HV 0,2)	2690
Hardness Si - (HV 0,2)	1250
Compressive strength - (MPa)	3500
Bending strength - (MPa)	380
Modulus of elasticity (dynamic) - (GPa)	325
Thermal conductivity - (W/mK)	120
Thermal diffusivity - (10 <sup>-6</sup> m <sup>2</sup> /s)	55
Thermal expansion /20 - 200°C/ - (10 <sup>-6</sup> /K)	3,4
Temperature resistivity	
in oxidizing atmosphere - (°C)	1350
Thermal resistivity	
in non oxidizin atmosphere - (°C)	1350