TECHNICAL DATA SHEET

SIALOX — MULLITE BONDED SILICON CARBIDE

OVERVIEW

A refractory ceramic body combining Silicon Carbide grains and powders within a mullite bonding matrix.

The bond is developed by sintering high purity mullite precursors at temperatures in excess of 1400°C resulting in high mechanical strength and thermo-mechanical integrity over a wide operational temperature range.

PROPERTIES	Mean	Tolerance
CHEMICAL PROPERTIES		
Silicon Carbide	87 %	+ - 3
Mullite	10 %	+ - 1.5
Balance	3 %	
PHYSICAL PROPERTIES		
Open Porosity	16 %	+ - 3
Bulk Density	2.50 g/ml	+ - 0.15
MoR @ 1300°C	8 Mpa	+ - 5
Thermal Expn	4.6 MK-1	
Thermal Conductivity @800°C	11 Kcal/m.hr.°C	
Creep Resistance	Excellent up to 1500°C	
Abrasion resistance	Extremely high	
Corrosion resistance	Exceptionally resistant to most metals and slags	
Maximum operating temp.	1450°C	

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TDS Sialox. Rev 1. 6/2011

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TECHNICAL DATA SHEET

NICARB — SILICON NITRIDE BONDED SILICON CARBIDE

OVERVIEW

A refractory ceramic body combining Silicon Carbide grains and powders with a bond phase comprising a mixture of Silicon Nitride and Silicon Oxynitride.

The bond is developed by reaction bonding process between Silicon metal and Nitrogen gas at temperatures in excess of 1400˚C resulting in high mechanical strength and thermo-mechanical integrity over a wide operational temperature range.

PROPERTIES	Mean	Tolerance
CHEMICAL PROPERTIES		
Silicon Carbide	74 %	+ - 3
Silicon Nitride/Silicon Oxynitride	23 %	+ - 1.5
Balance	2 %	
PHYSICAL PROPERTIES		
Open Porosity	16 %	+ - 3
Bulk Density	2.60 g/ml	+ - 0.2
MoR @ 1300˚C	40 Mpa	+ - 5
Thermal Expn	4.6 MK-1	
Thermal Conductivity @800˚C	12 Kcal/m.hr.˚C	
Creep Resistance	Excellent	
Abrasion resistance	Extremely high	
Corrosion resistance	Exceptionally resistant to most metals and slags	
Oxidation rate	Minimal below 800˚C	
Maximum operating temp.	1500˚C	

TDS Nicarb. Rev 1. 6/2011

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