



## TECHNICAL DATA SHEET

### CERTS-ZN CARBON BONDED FLUXED SILICON CARBIDE

#### OVERVIEW

A refractory ceramic body combining Graphite with Silicon Carbide grains and powders within a fluxed carbon bond matrix.

The complex bond phase is developed by reduced atmosphere firing at 900°C which develops a carbon skeleton integrally protected by a fluxed matrix.

The matrix generates high mechanical strength and thermo-mechanical integrity at temperatures up to 800°C.

Addition of active oxygen receptors enhances the oxidation resistance in service

PROPERTIES	Mean	Tolerance
<b>CHEMICAL PROPERTIES</b>		
Silicon Carbide	62 %	+ - 3
Carbon	28 %	+ - 2
Borosilicate glass	5 %	+ - 1
<b>PHYSICAL PROPERTIES</b>		
Others	5 %	+ - 1
Open Porosity	16 %	+ - 3
Bulk Density	2.35 g/ml	+ - 0.15
MoR @ 20°C	8 Mpa	+ - 1.5
Thermal Expn	4.6 MK-1	
Thermal Conductivity @800°C	36 Kcal/m.hr.°C	
Corrosion resistance	Exceptionally resistant to most metals and slags	
Maximum operating temp.	1250°C	

TDS Certs -ZN. Rev 1. 6/2011



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### 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
<b>CHEMICAL PROPERTIES</b>		
Silicon Carbide	74 %	+ - 3
Silicon Nitride/Silicon Oxynitride	23 %	+ - 1.5
Balance	2 %	
<b>PHYSICAL PROPERTIES</b>		
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	

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