

# Snow Shoe Refractories, LLC

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## SPARTAN® 90

### Product Data

#### Scope:

A burned, phosphate bonded 90% alumina brick formulated from high purity alumina materials and designed for harsh applications. It has low porosity, high strength, and good abrasion resistance. It will find use in a wide variety of severe conditions including tundish linings, induction furnace linings, glass tank walls and ports, carbon black furnaces, and incinerators.

#### Chemical Analysis (Wt.% - Calcined Basis)

SiO <sub>2</sub>	4.9
Al <sub>2</sub> O <sub>3</sub>	92.9
TiO <sub>2</sub>	0.1
Fe <sub>2</sub> O <sub>3</sub>	0.1
CaO	0.0
MgO	0.0
Alkalies	0.4
P <sub>2</sub> O <sub>5</sub>	1.6

PCE: 40 - 41

#### Physical Properties

	<u>English Units</u>		<u>SI Units</u>	
	<u>Average</u>	<u>Standard Deviation</u>	<u>Average</u>	<u>Standard Deviation</u>
<b>Bulk Density</b>		(lbs/ft <sup>3</sup> )		(kg/m <sup>3</sup> )
	196.5	3.5	3,150	60
<b>Apparent Porosity (%)</b>	15.0	1.5		
<b>Modulus of Rupture</b>		(psi)		(MPa)
at 68°F (20°C)	3,470	835	24.0	5.7
at 2500°F (1371°C)	1,000 - 1,500		6.9 - 10.3	
at 2700°F (1482°C)	800 - 1,000		5.5 - 6.9	
<b>Crushing Strength</b>		(psi)		(MPa)
at 68°F (20°C)	12,000 - 15,000		83 - 103	
<b>Linear Change (%)</b>				
after 2910°F (1600°C) reheat		± 0.0		
<b>ASTM C704 Abrasion Loss (cc)</b>		< 10		

The data given above are average results of our common sized products and are subject to variation. One standard deviation is given when adequate data is available. These results should not be used for specification purposes.