

# MATERIAL PROPERTIES

## CRYSTON® CN178

Cryston® CN178 is Saint-Gobain's unique high performance nitride-bonded silicon carbide ceramic with exceptional resistance to abrasion, erosion, high temperature, and harsh chemical environments. Cryston® CN178 is an effective solution to severe environments where conventional refractories wear out or corrode at unacceptable rates. Its durability far exceeds that of other ceramics, manganese steel, high chrome, rubber, or plastics.

Cryston® CN178 can be cast or pressed, which provides a wide degree of design latitude. Large and complex shapes are entirely practical, and in every case, you can depend on dimensional tolerances well within design specifications.

To learn more about our high performance Cryston® CN178 family of products, please contact your Saint-Gobain representative.

Property		SI Units	English Units
<b>Chemical Analysis</b>			
Silicon Carbide		75%	75%
Bond (Si <sub>3</sub> N <sub>4</sub> )		23%	23%
Oxides		2%	2%
Bulk Density		2.77 g/cm <sup>3</sup>	173 lbs./ft. <sup>3</sup>
Young's Modulus (MoE)	20 °C	235 GPa	34 × 10 <sup>6</sup> psi
Vickers Hardness	20 °C	23.0 GPa	3.3 × 10 <sup>6</sup> psi
Modulus of Rupture	RT	69 MPa	10 × 10 <sup>3</sup> psi
	1250 °C	82.8 MPa	12 × 10 <sup>3</sup> psi
	1450 °C	75.9 MPa	11 × 10 <sup>3</sup> psi
Thermal Conductivity,	316 °C	16.3 W/m·K	113 (BTU·in)/(hr·ft <sup>2</sup> ·°F)
	649 °C	17.3 W/m·K	120 (BTU·in)/(hr·ft <sup>2</sup> ·°F)
	982 °C	15.0 W/m·K	104 (BTU·in)/(hr·ft <sup>2</sup> ·°F)
	1149 °C	14.4 W/m·K	100 (BTU·in)/(hr·ft <sup>2</sup> ·°F)
Thermal Expansion	30 °C – 1500 °C	3.2 × 10 <sup>-6</sup> /°C	1.5 × 10 <sup>-6</sup> /°F
Maximum Use Temperature		1,590 °C	2900 °F
Apparent Porosity		8%	8%
Specific Heat	RT	0.75 kJ/(kg·°C)	0.18 BTU/(lb·°F)

All of the above statements, recommendations, suggestions and data concerning the subject material are based on laboratory and field results, and although we believe the same to be reliable, we expressly do not represent, warrant or guarantee the accuracy, completeness or reliability of same, of the material, or the result to be obtained from the use thereof. Nor do we warrant that any such use, either alone or in combination with other materials, shall be free of the rightful claim of any third party by way of **INFRINGEMENT** or the like, and Saint-Gobain Ceramic Materials **DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**



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