



# GNP Graystar

Specialty Materials

## TECHNICAL DATA SHEET

### Beta Silicon Carbide ( $\beta$ -SiC)

#### Typical Chemistry

Silicon Carbide (SiC)	97 - 99.99 %
Free Carbon (C)	0 - 0.30 %
Silicon Dioxide (SiO <sub>2</sub> )	0 - 1.20 %
Free Silicon (Si)	0 - 0.20 %
Iron (Fe <sub>2</sub> O <sub>3</sub> )	0 - 0.30 %
Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	< 0.03 %
Magnesium Oxide (MgO)	< 0.03 %
Calcium Oxide (CaO)	< 0.03 %

\* Can be processed according to customer requirements

#### Physical Characteristics

Crystal Form:	Cubic (Beta SiC)
True Density:	3.21 g/cm <sup>3</sup>
Melting Point:	Dissociates at Approx. 2500°C
Hardness:	Mohs: 9.5 - 9.75

#### Available Sizes (Microns) - via Malvern

Size	D10	D50	D90	D100	Tap Density (g/cm <sup>3</sup> )
W0.5	0.3 ± 0.1	0.6 ± 0.1	1.4 ± 0.3	≤ 3	0.9 ± 0.05
W1	0.4 ± 0.2	1 ± 0.25	2.5 ± 0.2	≤ 5	0.87 ± 0.05
W1.5	0.6 ± 0.2	1.5 ± 0.2	2.6 ± 0.4	≤ 5	0.88 ± 0.05
W2.5	1.35 ± 0.3	2.5 ± 0.2	3.82 ± 0.5	≤ 6	1.30 ± 0.05
W3.5	1.94 ± 0.3	3.5 ± 0.2	5.8 ± 0.5	≤ 7.64	1.44 ± 0.05
W5	2.8 ± 0.4	4.5 ± 0.4	7.15 ± 0.45	≤ 11.2	1.63 ± 0.05
W7	4.1 ± 0.15	6.5 ± 0.3	10.3 ± 0.8	≤ 15	1.64 ± 0.05
W10	6.6 ± 0.5	9.7 ± 0.8	15.0 ± 3.0	≤ 21.2	1.70 ± 0.05
W14	8.35 ± 0.35	12.7 ± 1.2	18.9 ± 2.6	≤ 24.1	1.72 ± 0.05
W20	11.7 ± 0.7	18.4 ± 1.6	28.5 ± 3.1	≤ 40.1	1.75 ± 0.05
W28	16.0 ± 0.7	23.5 ± 1.0	34.5 ± 2.7	≤ 51.8	1.80 ± 0.05
W40	23.4 ± 0.3	35.8 ± 1.6	54.4 ± 3.9	≤ 76.0	1.85 ± 0.05

Custom Sizes (Both Coarser and Finer) are also available upon request.

#### Northern Office

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#### Southern Office

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#### Description:

**GNP Graystar's** Beta Silicon Carbide is a synthetic SiC with a cubic structure, like diamond, which gives it superior physical and chemical properties. Its Mohs hardness is second only to diamond's 10 on the Mohs scale. In addition to high hardness,  $\beta$ -SiC has good chemical stability, high thermal conductivity, low thermal expansion, wide band gap, high electro drift velocity, high electronic mobility, and special resistance temperature characteristics. Therefore, it has superior abrasion resistance, high temperature resistance, thermal shock resistance, radiation resistance, and semiconductive properties

#### Applications:

**GNP Graystar's**  $\beta$ -SiC is used in applications such as electronics, information technology, precision machining, military and aerospace, high-grade refractories, special ceramic materials, high-grade grinding materials, and reinforcing materials.

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