SINTER-PUR®
Non-Oxide Ceramics
Sinter-Pur® Ceramic Powders:

Sinter-Pur® are high performance sub-micron Silicon Carbide & Boron Carbide powders for the Advanced Ceramics Industry, which includes applications such as ceramic wear parts and ceramic armor. Our highly sinterable Beta Silicon Carbide, Alpha Silicon Carbide, and Boron Carbide powder, is ideal for processing into parts due to its proven sintered mechanical properties, along with traditional corrosion/oxidation resistance, high hardness and thermal conductivity. Superior Graphite employs state-of-the-art milling technologies to create these advanced non-oxide ceramic powders. We manufacture virgin powders, as well as ready-to-press formulations. The finest grades of Alpha SiC, Beta-SiC, and Boron Carbide (B₄C) can be processed into sintered shapes that exhibit the excellent mechanical properties, hardness, corrosion resistance, and thermal conductivity required for high-performance applications.

**Beta SiC**

Our Beta SiC is synthesized in our continuous Electro-Thermal Treatment/Purification Technology. It is cubic in structure, microcrystalline, provides wear resistance in coatings and composites, and is highly sinterable in submicron size. It is used in high performance wear parts, such as seal rings and pump parts. Beta SiC is also used as an additive to toner for increased flowability and internal printer cleaning, and as additive to nickel, chrome, aluminum and other materials for strength.

**Applications:**
Toner, sintered ceramic parts, abrasive applications, such as high performance brake parts, wire-sawing.

**Alpha SiC**

Alpha SiC is hexagonal in structure with relatively large single crystals. It is harder than beta, and is highly sinterable in sub-micron size. Alpha SiC is used in high performance wear parts, such as seal rings and pump parts, armor, and abrasive applications.

**Applications:**
Seals, nozzles, sintered wear parts, ceramic armor, mechanical seals and armor, composite and coating additive, specialty filter, abrasive for polishing.

**Boron Carbide**

B₄C has a complex crystal structure, and is an extremely hard ceramic with Vickers hardness >30 MPa and a high cross section for absorbing neutrons. It is used in wear parts, abrasives (for ultrasonic cutting and lapping), nuclear shielding, ceramic armor, and as a sintering aid.

**Applications:**
Wear parts, abrasives (for ultrasonic cutting and lapping), nuclear shielding, ceramic armor, and also used as a sintering aid.
Sinter-Pur® materials are used for ballistic armor, abrasives, composites, brake linings, heating elements, nozzles and igniters due to their extreme hardness.

Sinter-Pur® promotes the lowest temperature sintering of parts using our unique, domestically synthesized, Beta-SiC, which also has a fine particle size distribution to penetrate pores and fiber interstices.
Sinter-Pur® Solutions

Issue
Additive manufacturing: there can be difficulty with achieving optimum sintered part density.

Solution
Using controlled and tight particle size powders, Superior Graphite provides multiple additive manufacturing (3D printing) technologies with the ideal particle sizes for their process.

Issue
Advanced sintering processes: this application can experience part failure, or sub-optimal density parts, if materials with lower purity or incorrect particle size distribution are utilized. The requirement for rapid part consolidation can be a problem with an unsuitable powder composition.

Solution
We offer binderless powders without any additives to complement a historic portfolio of powders with sintering aids and binders. These products are suitable for Field Assisted (FAST), Spark Plasma (SPS), and Direct Current (DCS) Sintering, and other advanced processes.

Issue
Micro-abrasives: ultra-fine lapping and polishing surfaces for semiconductor applications and other processes, such as chemical-mechanical planarization (CMP), demand extremely fine, uniform, sub-micron particles.

Solution
Superior Graphite offers ultra-fine SiC and B₄C powders, with controlled particle size distributions, for the finest grain and grit abrasives, with superior hardness.

Issue
The demands on armor ceramics can be difficult to meet with a single ceramic powder.

Solution
Superior Graphite’s decades long experience as a world class producer of sinterable and hot pressable powders, with or without binders, enable users to customize their armor formulations to meet specific threats. In addition, Superior Graphite offers blending and mixing of these powders to achieve custom specifications.

Our Mission:
We create value for our customers by providing SUPERIOR SOLUTIONS - utilizing our unique technologies, processes and talents - while contributing to the company’s long-term success.

North & South America
Superior Graphite
10 S Riverside Plaza, Suite 1470
Chicago, Illinois 60606
Phone +1 312 559 2999,
Toll Free +1 800 325 0337
CustomerServiceUSA@SuperiorGraphite.com

Europe/Africa/Asia/Australia
Superior Graphite Europe Ltd.
Box 13000 SE-850 13, Sundsvall, Sweden
Phone +46 60 134118
CustomerServiceEU@SuperiorGraphite.com

China
Superior Graphite Import & Export (Shanghai) Co. Ltd.
Room 821, No. 4229 Bao’an Road
Jiading District, Shanghai 201814
Phone +86 21 595 800 78, Ext 103
CustomerServiceChina@SuperiorGraphite.com

www.superiorgraphite.com

©2018 Superior Graphite
Printed in the U.S.A. • Rev. 6/2018