


***Advanced Materials and
Specialized Products
for Demanding Applications***



CeraNova

**CeraNova Corporation
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CeraNova was founded in 1992 as a developer of ceramic components for advanced applications. Since that time, the company has grown into a leading worldwide innovator of high technology ceramics, providing processing solutions, materials engineering, and manufactured components for customers with demanding system applications. CeraNova's expertise includes product development, feasibility and prototyping, process development, and pilot / low volume manufacturing.



With extensive experience in processing and characterization of ceramics and ceramic composites, the company is well positioned to provide contract technology development and LRIP (low rate initial production) manufacturing for ceramic-based components in demanding applications. In addition, CeraNova seeks partnerships with established component manufacturers and system integrators to support major Department of Defense program insertion.

As many corporations have reduced their in-house capabilities in ceramic materials development, there has been an increasing need for outside expertise, which CeraNova provides. CeraNova's agility and well-equipped facility allow for quick product development turn-around and small production jobs - providing capability not economically viable at larger firms.



Mission

CeraNova's goal is to provide customers with the highest quality products, engineering expertise, service and robust technical solutions that implement the latest ceramic technology advances.

Vision

Provide the US military and commercial sectors with a superior technological advantage through advanced ceramic-based components.

Values

CeraNova's core values are formed on mutual respect and appreciation for our innovative employees who are dedicated to providing the highest quality products, services, and support to our customers who require the best possible tools to accomplish their missions. We are focused on maintaining a corporate culture based on integrity and trust promoting open communication, conflict resolution, team effort, excellence in innovation and celebration of achievement.

Core Capabilities

Material Systems

- Alumina
- Spinel
- Yttria
- Zirconia
- Optical Composites
- Structural Composites

Applications

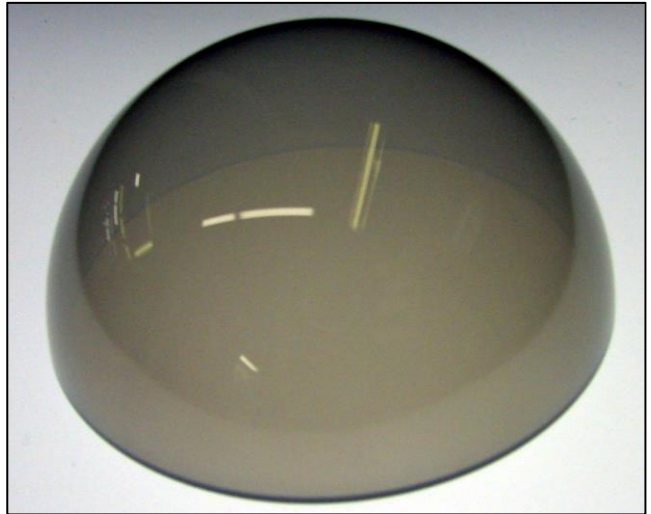
- Optical Ceramic Components
- Transparent Ceramics
- Fine Grain Ceramics
- Controlled Microstructures
- High Hardness & High Strength Ceramics
- Solid State Ceramic Laser & Scintillator Materials
- Filtration and Separation
- Dental Ceramics

Processing Technologies

- Mixing: High Shear, Compounding, Roller Milling, Attritor Milling,
- Powder Processing and Net-Shape Forming: Pressing, Casting, Extrusion, Nano-Material and Colloidal
- Thermal Treatment: Air Ovens, and Controlled Air, Inert, Oxygen, and Hydrogen Furnaces
- Thermal and Atmosphere-Controlled Annealing
- Optical Fabrication: Grinding (Generating) & Polishing of Flat (Plano), Spherical and Aspherical Shapes

Characterization & Evaluation

- Microstructure Analysis
- Mechanical Properties Testing
- Spectrographic Analysis in the UV, VIS and IR
- Dilatometry and Thermal Expansion
- Metrology and Surface Analysis (CMM / Profilometry / Interferometry)



Products

Optical Windows and Domes

CeraNova offers optically transparent ceramics that are essential for an increasing number of military, industrial, and commercial products such as laser-guided missiles, transparent armor, high intensity lighting and high temperature furnace windows. In many cases, only ceramics are able to withstand the high temperatures, corrosive environments, and other extreme physical conditions present in these applications, while maintaining the required optical transmission.

CeraNova has developed and continues to improve innovative and cost-effective manufacturing processes for components made from transparent ceramics, including hemispherical domes for legacy missile systems and improved aerodynamic dome geometries for next-generation platforms. In addition, CeraNova's net shape processing enables unique designs for conformal windows and large panels. These new geometries require innovative manufacturing and metrology methods to achieve performance, quality, and durability requirements, while keeping manufacturing costs competitive.

For applications requiring transparency in the UV-Vis-MWIR range, CeraNova manufactures ceramic windows from materials such as alumina, magnesium aluminate spinel, and yttrium oxide.



In addition to military and defense applications, CeraNova continues to explore nonmilitary uses and applications for its fine grain and transparent ceramics.



Spinel Disks

Services / Capabilities

- Contract R &D
- Product Development
- Process Development
- Prototypes
- Small Volume Manufacturing
- Low Rate Initial Production (LRIP)
- Turn-Key Process Systems

Customers / Collaborators

DoD Prime Contractors

Government / National Labs

- NASA –Marshall Space Flight Center
- ARMY- RDECOM, ARDEC, AMRDEC
- NAVY – ONR, NAVAIR, NSMA
- Air Force – AFOSR, AFRL, AFML
- DARPA
- DOE – Los Alamos, ORNL, Sandia

Industrial / Consumer Products

- Lighting, Automotive, Dental, Optical

Academic Institutions

- Univ. of Dayton Research Institute
- Penn State University / EOC
- Johns Hopkins University
- University of Rochester

Profile

CeraNova Corporation is a privately held company specializing in materials product development for defense, industrial and commercial markets. Founded in 1992, CeraNova has extensive experience in processing and manufacturing of advanced ceramics. Over the last 25 years, the company has been awarded numerous government and commercial contracts for process technology and product development. In 1996 CeraNova spun off Specific Surface Corporation, a venture-funded business, to manufacture ceramic particulate filters for high-temperature gases using additive manufacturing technology licensed from MIT. For the last decade, CeraNova has focused on advanced transparent ceramic components.

Dr. John Gannon is Managing Director of CeraNova. He has over 20 years of experience in research, development, characterization, and testing of advanced materials and engineered products. Dr. Gannon has extensive experience in project management and process improvement, with training in project leadership, six sigma practices and ISO standards implementation. He is a certified Project Management Professional. Prior employment includes Senior Technical Manager at American Superconductor and Senior Engineer / Program Manager at Foster-Miller, Inc.

Dr. Marina Pascucci is the Director of Government Programs & Contracts. She has extensive experience in processing and characterization of ceramic materials. Previous employment includes research and development positions with Battelle Columbus Labs and GTE Laboratories, and Assistant Professor at Worcester Polytechnic Institute. Dr. Pascucci began working on transparent and translucent ceramics at GTE in the 1980's. She received the New England Distinguished Ceramist Award and Alfred University's Alumni Career Achievement Award. Pascucci is a Fellow of the American Ceramic Society and recently served as the Society's President.

Dr. Mark Parish is founder and Technical Director of CeraNova. He was also a founding member of Ceramics Process Systems and CPS Superconductor and a co-founder of Specific Surface Corporation, recipient of the 1998 Filtration Society's Product of the Year. Dr. Parish has extensive experience in powder processing of ceramic materials. At CeraNova, he developed superconductor current leads for NASA satellites, HF antennas for the Army and piezoelectric fibers for smart skin actuators. He received Alfred University's Alumni Career Achievement Award and the New England Distinguished Ceramist Award.

CeraNova Corporation has extensive experience in processing, characterization, development and pilot-scale manufacturing of innovative, high technology ceramics and ceramic composites.

CeraNova seeks application partners and commercialization opportunities for the technology it develops.



Core Advantage

CeraNova's core advantage is its nationally recognized ceramics experts, state-of-the-art processing and characterization capabilities, innovative process systems, and highest quality engineered and manufactured components.

Value Proposition

CeraNova provides defense and commercial customers with innovative, cost-effective, and robust solutions for ceramic-based components in critical applications.

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