



- McDanel was founded in Beaver Falls, PA in 1919 and manufactures high-performance ceramics mainly in tubular or container shapes for heat, corrosion, and wear resistance applications in various industries.
- Alumina / Zirconia / Mullite / Sialon Products

A CENTURY OF EXCELLENCE



A FUTURE OF INNOVATION



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- Tony Finoli, PhD, R&D Manager
 - Customer-Focused New Product Development
 - Manufacturing Improvements
 - Technical Sales Support

Advanced Ceramic Properties

Advantages

- High temperature resistance
- Superior corrosion resistance
- High thermal conductivity compared to refractories
- High wear resistance
- Low density compared to metals and cermets
- Electrically insulating (generally)
- Properties can enable new technologies, increase lifetime, and increase productivity

Limitations

- Lower thermal shock resistance than metals and porous refractories
- Lower CTE causes 'mating' issues at elevated temperatures
- Brittle failure
- Shape and Size Limitations
- Cost – can be significantly more expensive than traditional materials especially if post-fired machining is necessary

Strategy

Know your products

- Advantageous properties
- Limitations of advanced ceramics

Know the targeted industry

- Jargon
- What materials are commonly used and why?
- How are the parts handled?
- What environment are parts subjected to?
- Is there any opportunity for improved technology?

Be honest with the customer

- What material is the best choice?
- Will a design change need to be made?
- Education/training on how to use ceramics properly
- What are the options?

