AACCM

Association of American Ceramic Component Manufacturers

Membership Listing

www.aaccm.org

Advanced Cerametrics, Inc.
Akron Porcelain & Plastics Co.
Astro Met, Inc.
Blasch Precision Ceramics
Cerco, L.L.C.
Ceramco, Inc.
CeramTec, N.A.
Du-Co Ceramics Co.
Incerco
Isolantite Mfg. Co., Inc.
Keir Manufacturing, Inc.
Metsch Refractories, Inc.
POCO Graphite
Refractron Technologies Corp.
Superior Technical Ceramics Corp.
McDanel Advanced Ceramic Technologies
Zircoa, Inc.

THE ASSOCIATION OF AMERICAN CERAMIC COMPONENT MANUFACTURERS

INDUSTRY MATRIX

THE ASSOCIATION OF AMERICAN CERAMIC COMPONENT MANUFACTURERS

	ELECTRONIC																THERMAL										MATERIALS, HANDLING & PROCESSING										WEAR							STRUCTURAL/ MECHANICAL								RAW MAT'LS PRODUCTION			MISC.	
	APPLIANCE	HIGH VOLTAGE	SPARK PLUGS	ELECTRIC POWER	CERAMIC TO METAL	SENSORS	INSTRUMENTATION	LIGHTING	SEMICONDUCTORS	LASERS	FIBER OPTICS	ULTRASONIC	PIEZOELECTRIC	HEAT TREAT	MOLTEN METAL	INSULATION	COATINGS	WELDING	PLASMA	REFRACTORY	MELTING	FLUID TRANSFER	MINERAL PROCESSING	PAPER PROCESS	CHEMICALS	FILTRATION	TEXTILES	MECHANICAL	VALVES	PUMPS	SEALS	SANDBLAST	LABWARE	COATINGS	EXTRUSIONS	FLUID FILM BEARING	FASTENERS	AUTOMOTIVE	AEROSPACE	OXIDES	NON-OXIDES	COMPOSITES	FIBERS	FLUID BED MEDIA	R&D CONTRACT	BIO CERAMICS	CERAMIC COLOR	
Advanced Cerametrics, Inc.		×			×				×	×	×	×				×	×		×				×	×	×	×	×	×	×												×		×	×		
Akron Porcelain & Plastics Co.	×	×		×		×	×	×				×	×	×				×			×		×		×	×	×	×	×		×		×			×	×	×								
Astro Met, Inc.		×				×	×	×	×				×	×	×	×			×	×	×			×	×		×	×	×	×	×			×	×			×						×		
Blasch Precision Ceramics	×	×		×			×						×	×	×				×	×				×	×		×		×	×									×	×	×	×	×	×			
CeramTec N.A.	×	×		×		×	×										×			×	×	×			×	×	×	×	×	×		×		×			×	×	×					×		
Ceramco, Inc.							×	×	×				×	×	×		×	×			×			×			×				×						×			×	×							
Du-Co Ceramics Co.	×	×	×	×	×	×	×	×					×	×	×		×		×							×	×		×	×				×			×	×	×	×							
Incerco		×		×		×	×		×	×					×		×				×			×		×	×	×	×	×	×			×	×			×	×	×					×		
Isolantite Mfg. Co., Inc.	×	×		×	×			×					×				×																														
KEIR Manufacturing, Inc.	×	×								×					×								×	×	×		×	×			×			×			×			×	×			×			
McDanel Advanced Ceramic Technologies	×	×	×	×		×	×		×	×	×		×	×	×	×		×	×		×	×	×	×	×	×	×	×	×	×	×	×	×				×	×	×	×	×	×				
Refractron Technologies Corp.	×					×								×				×	×		×	×	×	×								×											×			
Superior Technical Ceramics Corp.	×	×	×	×	×	×	×	×	×	×			×	×	×		×	×	×		×		×		×	×	×	×	×	×	×											×	×				
Zircoa, Inc.		×	×			×		×	×	×	×		×	×	×	×		×	×	×		×				×	×	×	×			×	×					×	×				×		×	×

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http://www.aaccm.org/images/industry.pdf

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MEMBERS' CAPABILITIES LISTINGS

THE ASSOCIATION OF AMERICAN CERAMIC COMPONENT MANUFACTURERS

	Materials															Forming Methods									Machining and Finishing										
	Alumina	Cordierite	Fused Silica	Mullite	Steatite	Titania	Zirconia	Zirconia Toughened Alumina	Zircon	Silicon Nitride / SiAlON	Silicon Carbide	Other Non-Oxides	Porous Ceramics	Composites / Fibers	Machinable Ceramics	Extrusion	Dry Pressing (uniaxial)	Wet Pressing (uniaxial)	Cold Iso-Static Pressing	Hot Iso-Static Pressing	Slip / Thixotropic Casting	Injection Molding	Unfired Machining	After-Fired Machining	Glazing	Refractory Metallizing	Conductive Coating	Bonding / Assembling	Other
Advanced Cerametrics, Inc.	X					X	X				X		X	X		X	X	X	X			X	X	X	X	X					X
Akron Porcelain & Plastics Co.	X	X		X			X									X	X	X								X					
Astro Met, Inc.	X						X	X							X	X			X	X				X	X						
Blasch Precision Ceramics	X		X	X			X			X	X	X	X	X								X									
CeramTec N.A.	X	X		X	X	X	X		X							X	X		X				X	X	X	X	X	X	X		
Ceramco, Inc.	X			X		X	X																X	X	X						
Du-Co Ceramics Co.	X	X			X										X	X	X							X	X	X			X		
Incerco	X						X									X	X		X	X			X	X	X						
Isolantite Mfg Co. Inc.					X											X	X							X		X			X		
KEIR Manufacturing, Inc.	X					X						X				X	X						X	X	X	X				X		
McDanel Advanced Ceramic Technologies	X		X	X			X			X	X		X	X		X	X		X				X		X	X	X			X	X	X
Refractron Technologies Corp.	X			X							X		X			X	X	X	X				X		X	X						
Superior Technical Ceramics Corp.	X	X		X	X		X					X	X		X	X	X		X						X	X	X	X	X	X		
Zircoa, Inc.							X		X								X		X				X		X	X						

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http://www.aaccm.org/images/capabilities.pdf

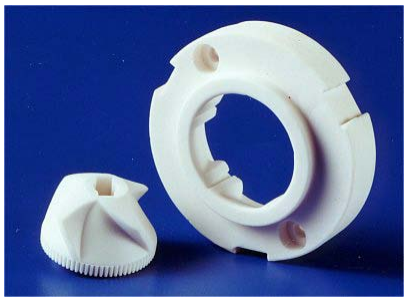
THE ASSOCIATION OF AMERICAN CERAMIC COMPONENT MANUFACTURERS

Success Story

The issue: performance deterioration of spice grinders

The solution: cutting components made from alumina instead of metal

- wear resistant...longer life
- does not corrode…no contamination
- does not dull…uniform grinding
- cost effective



Ceramic rotors and blades for a consumer spice grinder are said to last four times longer than their metal counterparts. Advanced Cerametrics, Lambertville, NJ, produces the parts with a proprietary injection-molding technique.

Excerpt from “Cutting Edge” Technology
@www.aaccm.org/cutedge.html

Ceramco, Inc

Success Story

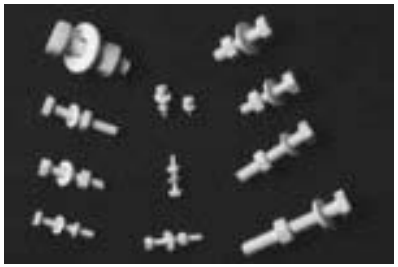
The issue: application problem solving

The solution: People seeing alumina nuts and bolts on display for promotional purposes as a solution for non-stress fastening problems

in elevated temperature environments

in corrosive environments

where electrical conductivity is undesirable



Injection-molded ceramic fasteners from Ceramco, Center Conway, NH, come in handy for non-stress applications in electrical equipment, replacing fasteners made of plastic. They are electrically insulating and work well in corrosive or high-temperature environments such as metal plating and industrial kilns.

Excerpt from The Nuts & Bolts of Ceramics
@www.aaccm.org/nutbolt.html

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Success Story

The issue: enhancing the productivity of the continuous casting of steel billets

The solution: development of a composite nozzle with a thin-wall impervious fine grain zirconia liner supported by a conventional coarse grain zirconia holder

- enhanced resistance to erosion
- enhanced resistance to corrosion
- longer nozzle life resulting in less scrap
- reduced costs associated with relining required at nozzle change

A tundish nozzle for manufacturing steel, developed by Zircoa, Solon, OH, has a fine-grained zirconia liner inside a more conventional coarse-grained nozzle. The insert has higher density and strength, and lower porosity than the surrounding material. This improves dimensional stability and resistance to erosion and corrosion.

Excerpt from A New Kind of "Composite"
@www.aaccm.org/composit.html

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BLASCH
PRECISION CERAMICS

Success Story

The issue: improving the performance of existing degassing systems in the production of aluminum parts

The solution: a composite material of silicon carbide and alumina to replace the traditional graphite used for this application and a proprietary process
- enabling different levels of porosity designed into a single component
- good mechanical strength
- erosion resistance
- enhanced durability and lifespan
- improved degassing efficiency

This composite-ceramic degasser removes hydrogen gas from molten aluminum. A combination of freeze molding and injection molding lets Blasch Precision Ceramics, Albany, NY, make a permeable ceramic from a silicon carbide/alumina composite. The process generates <5µm pores in the degasser head but a stronger, denser shaft.

Excerpt from Pores without Holes
@www.aaccm.org/pores.html

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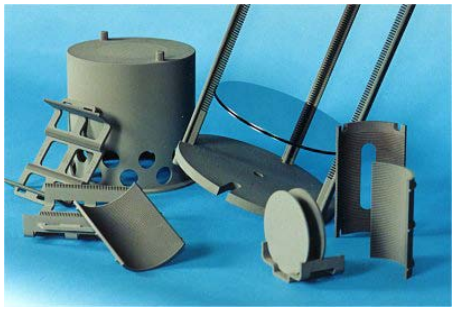
Poco Graphite

Success Story

The issue: improving the dimensional stability of wafer carriers used in the semi-conductor industry to reduce manufacturing cost

The solution: development of a proprietary process to convert a machined graphite structure to silicon carbide

- a cost effective manufacturing method
- a material stable at high temperatures
- material purity levels compatible with current semiconductor requirements



Wafer carriers and other components used in semiconductor fabrication are traditionally made from quartz, but these are silicon carbide. A proprietary process from Poco Graphite, Decatur, TX, converts the machined graphite structure to silicon carbide. The carriers do not deform at temperatures as high as 1250°C and stand up well to hydrofluoric and mitric acid cleaning baths.

Excerpt from Making a Difference in Semiconductor Fabrication @www.aaccm.org/mkngdiff.html

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Refractron TECHNOLOGIES CORP.

Success Story

Advanced Engineered Ceramics For Your Most Challenging Applications

The issue: increasing the efficiency of gas diffusion systems used in the aeration and oxidation of various liquids

The solution: Utilizing a proprietary porous ceramic material to develop an improved product called the Solidome™

- a material that survives in corrosive environments
- high transfer efficiencies
- low pressure drops
- narrow bubble size distribution
- useful in many severe environments although originally designed for high concentration ozone systems

Excerpt from Put and End to Diffusion Confusion
@www.aaccm.org/Putanend.html

Porous ceramic replaces plastic, sintered metal, and exotic alloys in gas diffusers for corrosive, abrasive, and high-temperature applications. The Solidome™ gas diffuser made by Refractron Technologies, Newark, NY, is used in the aeration and oxidation of various liquids. A ceramic-membrane coating process produces diffusers with pore sizes from 0.1 to 30 µm.

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Success Story

The issue: Increase the life of steam traps utilized for process fluids

The solution: A patented design that dramatically reduces thermal conductivity by changing a portion of the unit from steel to ceramic.

50% reduction in unit cycling time

resultant increase in the life of the trap

the cap can be touched without getting burned

Du-Co Ceramics Company's sales and engineering records

Extrusion process in Du-Co Ceramics facilities

AACCM Members Report

Growth; especially in niche markets in which they have developed an expertise

Increased R&D efforts to expand material capabilities and improve production efficiencies

Ongoing facility programs aimed at cost reduction and improved customer service

Increased collaboration among member companies

Opportunity arising from new or changing technology

Increased interest in ceramic materials

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AACCM Perspective on the Future of Ceramics

Ceramic materials have a bright future!

- Individual company perspectives vary dependent on markets served
- The use of ceramic materials is increasing
- Design engineers are more interested in looking at ceramics as a problem solving material
- Continued R&D efforts are required
- Events such as this First International Conference on Ceramics are important to the future of ceramics as a mainstream material

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