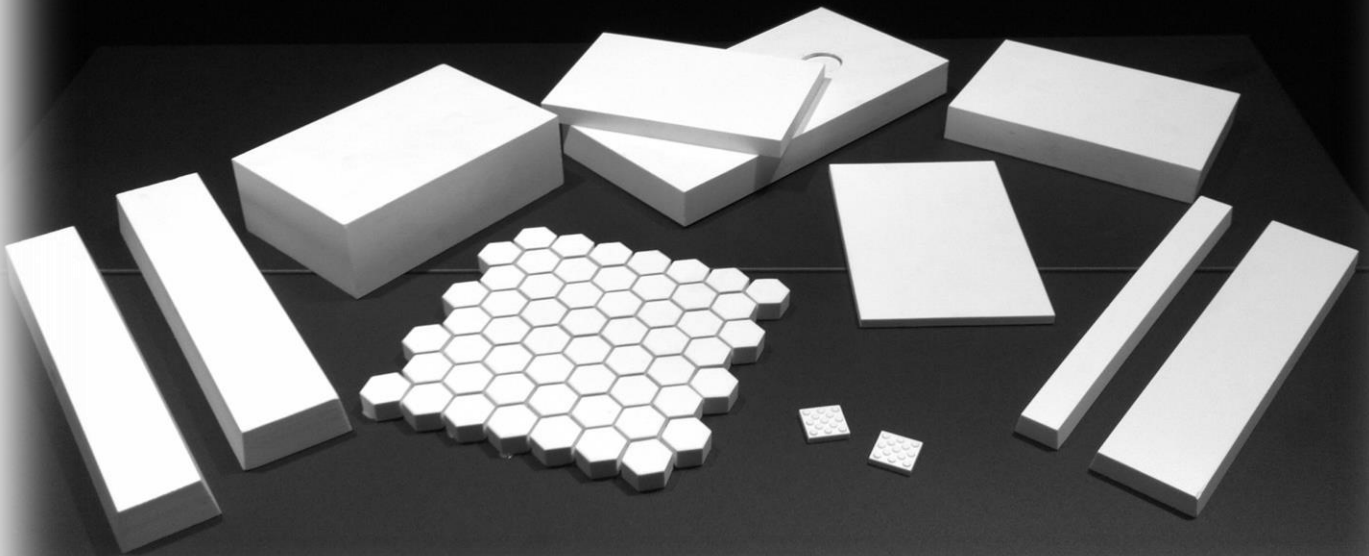




CUMI AMERICA INC.

INDUSTRIAL CERAMICS DIVISION



CERAMIC SOLUTIONS THAT
MAKE A DIFFERENCE

Cumi America, Inc.
Industrial Ceramics
110 Crown Court
Oakdale, PA 15071

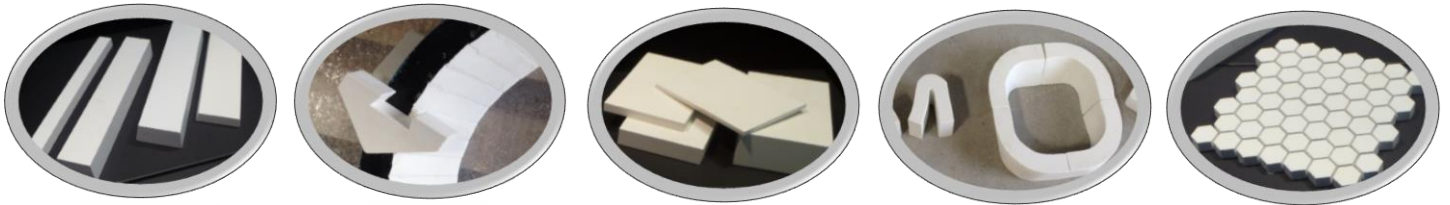
www.cumiamericas.com
724-218-1603 (phone)
724-218-1759 (fax)

COMPANY PROFILE

CUMI was founded in 1954 as a tripartite collaboration between the [Murugappa Group](#), The Carborundum Co., USA and the Universal Grinding Wheel Co. Ltd., U.K. The company pioneered the manufacture of Coated Abrasives and Bonded Abrasives in India in addition to the manufacture of Super Refractories, Electro Minerals, **Industrial Ceramics** and Ceramic Fibers. Today the company's range of over 20,000 different varieties of abrasives, refractory products and electro-minerals are manufactured in ten locations across various parts of the country.

With state-of-the-art facilities and strategic alliances with global partners, CUMI has achieved a reputation for quality and innovation. CUMI is one of the five manufacturers in the world with fully integrated operations that include mining, fusing, wind and hydro power stations, manufacturing, marketing and distribution. All of CUMI's ten manufacturing facilities have received the ISO 9001:2000 accreditation for international quality standards and environment-friendly ISO 14001 manufacturing practices. A well connected marketing and distribution network of offices and warehouses ensure that service to customers is given prime importance. CUMI's constant innovation and product upgradation, through in-house R&D and strategic alliances with global leaders has ensured market leadership and international recognition.

CUMI America, Inc. is a subsidiary of Carborundum Universal Limited, India (CUMI) Industrial Ceramics Division, an ISO-9001 accredited manufacturing facility. CUMI America Inc.'s Industrial Ceramic Division, located in Oakdale, PA, USA services the North America region directly and warehouses for immediate delivery a wide range of wear-resistant alumina ceramic products including plain and weldable standard tiles, matted hex tiles, pipe tiles, ceramic liners, grinding media, ceramic cylinders, spheres and mesh beads, and customer specific pre-engineered tile and liners. As CUMI has grown to be one of the largest suppliers of highest quality wear resistant alumina ceramics throughout the US and Canada over the last decade thru various channels, Cumi America Inc. recently formed the NA Industrial Ceramic Division in an effort to offer our high quality products directly and better service the demands of the North American market.



CUMITUFF MATERIAL FEATURES

PROPERTIES		UNITS	TEST	CUMITUFF 90
Chemical				90% ALUMINA
Physical	DENSITY	gm/cc	ASTM C373-88(2006)	3.55
	COLOUR	--	--	White
	WATER ABSORPTION	%	ASTM C373-88(2006)	0
Mechanical	ELASTIC MODULUS	Gpa	ASTM C1198-08	275
	POISSON'S RATIO	--	ASTM C1198-08	0.22
	FLEXURAL STRENGTH	MPa	ASTM C1161-02c (2008)	270
	COMPRESSIVE STRENGTH	MPa	ASTM C1424-04	1750
	FRACTURE TOUGHNESS	MPa.m ^{0.5}	ASTM C1421-01b (2007)	(3-4)
	VICKERS HARDNESS	R45N (Gpa, 1000g)	ASTM C1327-03	75 (11.8)
Thermal	THERMAL CONDUCTIVITY	W/m-k	ASTM C1470-06	16.7
	COEFFICIENT OF THERMAL EXPANSION @ 25-1000°C	10 ⁻⁶ /°C	ASTM C1470-06	8.1
	SPECIFIC HEAT	J/kg-k	ASTM C1470-06	920
	MAX USE TEMPERATURE	°C	No load condition	1500
	THERMAL SHOCK, Tc	°C	ASTM C1525-04	250
Electrical	DIELECTRIC STRENGTH	ac-kv/mm (3.18mm)	ASTM D149-97a(2004)	8.3
	DIELECTRIC LOSS	25°C @ 1MHZ	ASTM D2520-01	0.0004
	VOLUME RESISTIVITY	25°C, ohm-cm	ASTM D1829	>10 ¹⁴
		25°C, ohm-cm		4x10 ⁸
		1000°C, ohm-cm		5x10 ⁵

This chart is intended to illustrate typical properties of CUMITUFF ceramic materials. The design should recognize that exact properties may vary according to product configuration and can sometimes be tailored to meet specific requirements. The information set forth herein is not to be construed as absolute engineering data or as constituting a warranty or representation for which we assume legal responsibility.



Cumi America, Inc. -Industrial Ceramics Division
Serving North and South America
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 Oakdale, PA 15071
 724-218-1603 (phone) 724-218-1759 (fax)



CUMITUFF ADVANTAGE

- **Hardness and Abrasion, Corrosion, Erosion Resistance**
- **Extend Life of your Equipment**
- **Reduce Downtime, Increase Production, Reducing Manufacturing Costs**
- **Chemical Resistance**
- **Low Weight, less than half the weight of carbon steel, Ni-hard, AR steel or Stainless**
- **Smooth Surface**
- **FDA approved**
- **Retrofit Ability and Thin Sizes available to avoid volume loss**
- **Ease of Installation and array of Methods of Attachment to suit your Application**
- **Key material used in conjunction with composite materials for wear solutions in Heavy Impact Applications, Dynamic Parts, Noise Reduction**
- **Ability to Install with Adhesives, avoiding hazardous welding repairs**

CERAMIC SOLUTIONS THAT MAKE A DIFFERENCE

WHY CUMI

- **State-of-the-Art manufacturing facility**
- **ISO-9001 and ISO-14001 certified**
- **Superior Quality Products and Solutions**
- **Leading Global Supplier**
- **Exceptional Customer Service and Support**
- **Custom Stocking Programs Available**
- **Broad Range of Standard Stock Products**
- **Inventory of your Ceramic Requirements for Immediate Shipping**
- **Cost Effective Products and Solutions at the most affordable prices**
- **Key Material Source for Industry Leading Installers, Wear Distributors, OEM's and Design Engineering Companies**
- **Solution Provider ~ Ensuring the right materials for your Wear or Corrosion Application. Cumi provides Engineering, Design and Installation support . We consider all aspects of equipment design, environment and operating parameters for optimum performance.**
- **R&D facility working diligently on product development and efficiency enhancement , available to work with you on custom manufacturing development projects per your specifications**



MARKETS SERVED Fine Grain High Alumina Wear Resistant Ceramic Solutions have proven to dramatically Extend the life of material handling, storage and processing equipment in a variety of Industry Applications including, but not limited too...

AGGREGATE	FERTILIZER	GYPSUM	PULP & PAPER
ASPHALT	FIBERGLASS	IRON&STEEL	QUARRY
CEMENT	FLY ASH	MINERAL PROCESSING	RECYCLING
CHEMICAL	FOOD PROCESSING	MINING	ROOFING MATERIALS
COAL FIRED	FOUNDRY	OIL SANDS	SAND&GRAVEL
POWER	FRAC SAND	OIL&GAS	SUGAR
COAL PROCESSING	GLASS&FRIT	PETROCHEMICAL	WASTEWATER
DREDGING	GRAIN	POTASH	POWDER/BULK MATERIAL HANDLING

APPLICATIONS Fine Grain High Alumina Wear Resistant Ceramic Solutions have proven to dramatically extend the life of....

Apexes	Classifier Cones	Exhauster Housings	Nozzles	Scrubbers	Tanks
Augers	Converter Heads	Fan Blades/Parts	Orifice Rings	Separator Bodies	Transitions
Batchers	Conveyor Components	Feeders	Piping	Silos	Troughs
Bottom Ash Pipe	Crushers	Flights	Pneumatic Systems	Skip Cars	Turn Boxes
Bucket Elevators	Cyclones	Fuel Elbows	Pumps	Skirt boards	Turrets
Buckets	Distributors	Gates	Reducers	Spouts	Valves
Burner Pipes	Diverters	Head Chutes	Riffles	Spray Dryers	Valve Gates
Canoe liners	Drag Conveyors	Hoppers	Scrapers	Spray Nozzles	Venturi Vanes
Centrifuges	Ducts	Hydrocyclones	Screens	Storage Bins	Wash Boxes
Chippers	Dust Collectors	Journals	Screw Conveyors	Surge Bins	Wastewater Piping
Chutes	Elbows	Multiports	Scrolls	Tanks	

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A Division of Carborundum Universal Ltd

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