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Tapes

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Thickening Agents

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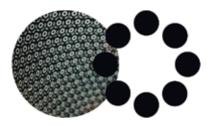
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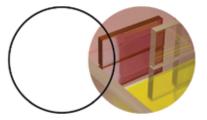
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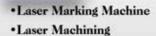
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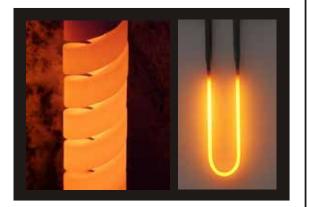
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Crushing, Custom

AVEKA MN Bekeson Glass LLC MS Christy Minerals LLC MO Fluid Energy Processing & Equipment Co PA

Reade Advanced Materials RI Stedman Machine Co IN

Dielectrics

Accuratus Corp NJ AdTech Ceramics TN Advanced Ceramic Technology CA CerPoTech AS Norway Haiku Tech Europe BV The Netherlands Haiku Tech Inc FL Sigma Advanced Materials NY Starfire Systems Inc NY Trans-Tech Inc a subsidiary of Skyworks Solutions Inc MD See ad on page 83

Drying, Custom

AVEKA MN Fluid Energy Processing & Equipment Co PA General Spray Drying Service Inc NJ Ipsen Ceramics IL Reade Advanced Materials RI

Films, Thick

CoorsTek CO ESL ElectroScience PA Gwent Electronic Materials Ltd UK New Tech Ceramics Inc IA P-Ker Engineering NY Sigma Advanced Materials NY Trans-Tech Inc a subsidiary of Skyworks Solutions Inc MD

Films, Thin

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Furnace Rebuilds

Cancarb Limited Canada Fosbel Inc OH Materials Research Furnaces Inc NH **Oxy-Gon Industries Inc NH** See ad on page 89 **TevTech LLC MA**

See ad on page 99

See ad on page 83

Grinding, Custom



Bullen OH Christy Minerals LLC MO **CiDRA Precision Services LLC CT** CoorsTek CO

Du-Co Ceramics Company PA FCT Ingenieurkeramik GmbH Germany Ferro Ceramic Grinding Inc MA Fluid Energy Processing & Equipment Co PA International Ceramic Engineering MA Machined Ceramics Inc KY McDanel Advanced Ceramic Technologies LLC PA Morgan Technical Ceramics Auburn CA Ortech Inc CA PremaTech Advanced Ceramics MA Reade Advanced Materials RI **Refractory Machining Services PA** Refractory Minerals Co Inc PA Refractron Technologies Corp NY RocCera LLC NY Stedman Machine Co IN Union Process OH Valley Design Corp MA Washington Mills NY Zibo Guangtong Chemical Co Ltd China

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Laser Cutting & Scribing Services

Cerlase France CoorsTek CO Laserage Technology Corp IL Ortech Inc CA

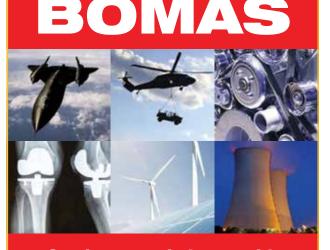
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Milling, Custom

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Nuclear Materials

Dunhua Zhengxing Abrasive Co Ltd China Free Form Fibers NY Morgan Technical Ceramics Auburn CA Peter Pugger Mfg Inc CA Refrac Systems AZ Verity Technical Consultants LLC OH

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APC International Ltd PA CerPoTech AS Norway Electrosciences Ltd UK Haiku Tech Europe BV The Netherlands Haiku Tech Inc FL Meggitt Piezo Technologies IN Piezo by Graco OH Sparkler Ceramics Pvt Ltd India

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CerPoTech AS Norway

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Toll Firing, Contract

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TAM Ceramics NY		
TevTech LLC MA		

Art On Ceramic NY

Decals

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Decorating Equipment

See ad on page 99

See ad on page 58

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Ultrasonic Machining

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DECORATING

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Ceramic Color & Chemical Mfg Co PA

Decal Equipment

Cerinnov France

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Cerinnov France

Decorating Supplies Ceramic Color & Chemical Mfg Co PA

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Engobes

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Frits

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Ceramic Color & Chemical Mfg Co PA Fusion Ceramics Inc OH RISE Research Institutes of Sweden RISE Glass Sweden Trinity Ceramic Supply Inc TX

Glazes

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Glazing Equipment

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Inks

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Stains

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Akron Porcelain & Plastics Co OH Art On Ceramic NY Cerinnov France Sheffield Pottery MA StudioLX - Home Decor IL Tethon 3D NE Wistra GmbH Germany

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Cars, Dryer

Zenith China

Cars, Kiln

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Cars, Transfer

Swindell Dressler Intl Co PA Takasago Industry Co Ltd Japan

Controllers

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Controllers, Combustion

Air Products PA Fives North American Combustion Inc OH

Controllers, Furnace

Carbolite Gero UK Nabertherm Inc DE



Thermcraft NC Verder Scientific Inc PA See ad on page 89

Controllers, Temperature

Applied Test Systems Inc PA Datapaq Inc NH Edward Orton Jr Ceramic Foundation OH Nabertherm Inc DE Optocon AG Germany Paragon Industries LP TX PSH Kilns & Furnaces Canada Verder Scientific Inc PA

Data Acquisition Systems

Applied Test Systems Inc PA Datapaq Inc NH HED INtl Inc NJ Nabertherm Inc DE

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Harrop Industries Inc OH See ad on page 58

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Electrodes

Haiku Tech Europe BV The Netherlands Haiku Tech Inc FL I Squared R Element Co NY

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Environmental Control Systems

Air Products PA Applied Test Systems Inc PA Control Instruments Corp NJ McGill AirClean OH UCC Environmental IL

Furnaces

American Isostatic Presses OH Applied Test Systems Inc PA Carbolite Gero UK



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L&L Special Furnace Co Inc PA

See ad on page 87

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Furnaces, Glass-Melting

Applied Test Systems Inc PA Carbolite Gero UK Ceradyne Inc a 3M Co KY CM Furnaces Inc NJ



Deltech Inc (Deltech Furnaces) CO Inside front cover Deltech Kiln and Furnace Design LLC CO See ad on page 77

Furnace Products & Services Inc PA General Glass Equipment Co NJ Magneco Metrel Inc IL Nabertherm Inc DE Paragon Industries LP TX PSH Kilns & Furnaces Canada RISE Research Institutes of Sweden RISE Glass Sweden Verder Scientific Inc PA

Furnaces, High-Temperature

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Cober Muegge LLC CT Dalmia Inst of Scientific & Industrial Research India **Deltech Inc (Deltech Furnaces) CO** Inside front cover Detroit Process Machinery MI FCT Systeme GmbH Germany Furnace Products & Services Inc PA **Gasbarre Products Inc PA** See ad on page 95 Harper International NY Harron Industries Inc OH See ad on page 58 HED INtl Inc NJ Lucifer Furnaces Inc PA Materials Research Furnaces Inc NH

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Oxy-Gon Industries Inc NH Plansee SE MA PSH Kilns & Furnaces Canada Quintus Technologies LLC OH RD Webb Company Inc MA Seco/Warwick Corp PA Swindell Dressler Intl Co PA The Furnace Source LLC CT



Furnaces, Ovens & Heat

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Furnaces, Laboratory

Carbolite Gero UK Capovani Brothers Inc NY

Winner Technology Korea



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Materials Research Furnaces Inc NH			
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Oxy-Gon Industries Inc NH	See ad on page 89		
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Furnaces, Vacuum

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CM Furnaces Inc NJ Hotek Alliance Ltd China



I Squared R Element Co NY Keith Co CA

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Kilns, Conveyor

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Kilns, Elevator

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Kilns, Envelope

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Swindell Dressler Intl Co PA

Kilns, Periodic (Batch)

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RD Webb Company Inc MA Recco Furnaces CA Swindell Dressler Intl Co PA Takasago Industry Co Ltd Japan Thermcraft Inc NC

Kilns, Pusher Plate

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Kilns, Roller Hearth

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Kilns, Rotary

Ceritherm France CM Furnaces Inc NJ



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 Harop Industries Inc OH
 See ad on page 58

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Kilns, Shuttle

See ad on page 58

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See ad on page 87 Thermcraft Inc NC Wistra GmbH Germany

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See ad on page 58

Kilns, Test/Lab

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Kilns, Tunnel (Continuous)

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Bharat Heavy Electricals Ltd India Ceralink Inc NY Ceritherm France CM Furnaces Inc NJ Cober Muegge LLC CT Gerling Applied Engineering Inc CA Harper International NY



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Oxygen Supply Air Products PA

Process/Quality Control Systems

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Pyrometric Cones/Plaques

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Sensors, Temperature

Datapaq Inc NH Penn Tool Co NJ Zibo Guangtong Chemical Co Ltd China

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Antennas, Dielectric

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Ceramic-Brazed Assemblies

AdTech Ceramics TN CeramTec North America Corp SC Induceramic Canada Morgan Technical Ceramics Auburn CA Precision Ferrites and Ceramics Inc CA

Conductors

AdTech Ceramics TN CerPoTech AS Norway ESL ElectroScience PA Master Bond Inc NJ NorECs AS Norway

Crystals

Induceramic Canada Kyocera International Inc CA Momentive Performance Materials Inc NY MSE Supplies AZ **TevTech LLC MA** See ad on page 99

Dielectrics

Agostyx OR AVX Corp SC Centerline Technologies MA CerPoTech AS Norway ENrG Inc NY ESL ElectroScience PA Euro Support Advanced Materials The Netherlands Gwent Electronic Materials Ltd UK Morgan Advanced Materials CA NGK Spark Plug Co Ltd Japan Pacific Ceramics Inc CA Advanced Ceramic Technology CA

Ferrites & Ferromagnetics

Ferro Ceramic Grinding Inc MA Pacific Ceramics Inc CA Precision Ferrites and Ceramics Inc CA Spontaneous Materials CO

Filters, Dielectric

CerPoTech AS Norway Euro Support Advanced Materials The Netherlands Murata Manufacturing Co Ltd Japan Trans-Tech Inc a subsidiary of Skyworks Solutions Inc MD See ad on page 83

Fuel Cells, Solid Oxide

AdTech Ceramics TN Associated Ceramics & Technology Inc PA Bharat Heavy Electricals Ltd India Cancarb Limited Canada CerPoTech AS Norway ENrG Inc NY ESL ElectroScience PA Euro Support Advanced Materials The Netherlands Gwent Electronic Materials Ltd UK Morgan Technical Ceramics Auburn CA Nexceris LLC OH NorECs AS Norway Trans-Tech Inc a subsidiary of Skyworks Solutions Inc MD See ad on page 83

High-Voltage Insulators

Akron Porcelain & Plastics Co OH Bharat Heavy Electricals Ltd India Ceramco Inc NH CeramTec North America Corp SC Du-Co Ceramics Company PA Elcon Precision LLC CA Morgan Technical Ceramics Auburn CA Precision Ferrites and Ceramics Inc CA Xiamen Innovacera Advanced Materials Co Ltd China

Hybrid Circuits & Packages

AdTech Ceramics TN AVX Corp SC Precision Ferrites and Ceramics Inc CA Xiamen Innovacera Advanced Materials Co Ltd China

IC Packages

AdTech Ceramics TN Kyocera International Inc CA NGK Spark Plug Co Ltd Japan

Insulators, Electrical/Electronic

Accuratus Corp NJ AdTech CeramicsTN AdValue Technology LLC AZ

See ad on page 67

Akron Porcelain & Plastics Co OH Blasch Precision Ceramics Inc NY Ceramco Inc NH CeramTec North America Corp SC CerCo LLC OH Du-Co Ceramics Company PA ER Advanced Ceramics Inc OH ESL ElectroScience PA Federal-Mogul MI Ferro Ceramic Grinding Inc MA Maryland Ceramic & Steatite Co Inc MD Materion Ceramics AZ Morgan Technical Ceramics Auburn CA NEVZ-Ceramics Close JSC Russia P-Ker Engineering NY Precision Ferrites and Ceramics Inc CA Sonya Ceramics (Export Division) India Superior Technical Ceramics Corp VT Toto Ltd Japan Xiamen Innovacera Advanced Materials Co Ltd China Zircoa Inc OH

Magnets

Spontaneous Materials CO

Microwave Packages

AdTech Ceramics TN Kyocera International Inc CA Precision Ferrites and Ceramics Inc CA

Multilayer Ceramic Capacitors

Euro Support Advanced Materials The Netherlands Murata Manufacturing Co Ltd Japan

Multilayer Ceramics, AIN

AdTech Ceramics TN NEVZ-Ceramics Close JSC Russia Xiamen Innovacera Advanced Materials Co Ltd China

Multilayer Ceramics, Custom

AdTech Ceramics TN EBL Products Inc CT ENrG Inc NY Euro Support Advanced Materials The Netherlands Piezo by Graco OH Xiamen Innovacera Advanced Materials Co Ltd China

Piezoelectrics

APC International Ltd PA AVX Corp SC EBL Products Inc CT Meggitt Piezo Technologies IN Morgan Advanced Materials CA Sparkler Ceramics Pvt Ltd India

Resistors, Thick-Film

ESL ElectroScience PA Murata Manufacturing Co Ltd Japan

Resonators

AVX Corp SC Murata Manufacturing Co Ltd Japan NGK Spark Plug Co Ltd Japan Trans-Tech Inc a subsidiary of Skyworks Solutions Inc MD

RF Components

AdTech Ceramics TN Advanced Ceramic Technology CA Advanced Energy CO Murata Manufacturing Co Ltd Japan Precision Ferrites and Ceramics Inc CA Trans-Tech Inc a subsidiary of Skyworks Solutions Inc MD See ad on page 83

Semiconductors

Cancarb Limited Canada Elcon Precision LLC CA Momentive Performance Materials Inc NY **NEVZ-Ceramics Close JSC Russia** Semiconductor Energy Laboratory Co Ltd Japan Toto Ltd Japan

Sensors

AdTech Ceramics TN AVX Corp SC Bullen OH CeramTec North America Corp SC EBL Products Inc CT ENrG Inc NY Gwent Electronic Materials Ltd UK Murata Manufacturing Co Ltd Japan Neoptix Canada Optocon AG Germany Piezo by Graco OH Quality Thermistor Inc ID Sparkler Ceramics Pvt Ltd India Technisonic Research Inc CT

Spark Plugs

Associated Ceramics & Technology Inc PA CerCo LLC OH Federal-Mogul MI Gwent Electronic Materials Ltd UK NGK Spark Plug Co Ltd Japan

Substrates, Alumina Accuratus Corp NJ

Substrates, Alumina

Actech Precision Ceramic (HK) Limited China AdTech Ceramics TN

Bullen OH

Centerline Technologies MA CeramTec North America Corp SC CoorsTek CO **Du-Co Ceramics Company PA** Ferro Ceramic Grinding Inc MA Laserage Technology Corp IL **NEVZ-Ceramics Close JSC Russia** NGK Spark Plug Co Ltd Japan Ortech Inc CA Saint-Gobain NorPro OH Toto Ltd Japan Valley Design Corp MA Xiamen Innovacera Advanced Materials Co Ltd China

Substrates, Aluminum Nitride

Accuratus Corp NJ Actech Precision Ceramic (HK) Limited China AdTech Ceramics TN Bullen OH Centerline Technologies MA CoorsTek CO Laserage Technology Corp IL MSE Supplies AZ NEVZ-Ceramics Close JSC Russia Ortech Inc CA Starfire Systems Inc NY Valley Design Corp MA Xiamen Innovacera Advanced Materials Co Ltd China

Substrates, Glass

Accuratus Corp NJ Bullen OH Centerline Technologies MA Laserage Technology Corp IL RISE Research Institutes of Sweden RISE Glass Sweden Saint-Gobain Recherche France Valley Design Corp MA

New Advanced Research Capabilities at Alfred, NY

- **Ultrafast Materials Science and Engineering** Laboratory (U-Lab)
 - Fernkorngasse, Austria) Pulse energy of 500 nJ, pulse duration less than 50 fs, and repetition rate of 5.1 MHz

See ad on page 83

- Terahertz Science and Engineering Laboratory (T-Lab)
 - Terahertz time-domain spectroscopy and imaging (THz-TDS; Teraview TPS Spectra 3000, Teraview, Cambridge, UK)
 - Custom hybrid scanner THz system at 100 & 280GHz, Terasense Group, Inc.
- **3D-Printing of Materials**
 - Lithoz CeraFab 8500-Lithography-Based Ceramic Manufacturing System (LCM)
- Gyrotron Laboratory (G-Lab)
 - Gyrotron 95 GHz/10 kW system (Bridge 12 Technologies, LLC)

- Nicholas J. Tostanoski (BS '18, PhD '22) examines the femtosecond laser system at U-Lab. A view of sample holder of THz-TDS at T-Lab Nicholas J. Tostanoski (BS '18, PhD '22) loads a glass sample for THz measurements. Nathaniel L. Skeele (BS/BA '22) adjusts settings of dual-camera THz scanner at T-Lab. Lithoz Cerafab 8500 at Alfred 95 GHz/10 kW Gyrotron at G-Lab





Contact: Prof. S. K. Sundaram, Inamori Professor of Materials Science and Engineering, Phone: (607) 871-2789; Fax: (607) 871-2354; E-mail: sundaram@alfred.edu Inamori School of Engineering The Sundaram Group

Substrates, Other

Accuratus Corp NJ Akron Porcelain & Plastics Co OH Bullen OH Centerline Technologies MA CoorsTek CO **Du-Co Ceramics Company PA** ENrG Inc NY Materion Ceramics AZ MSE Supplies AZ NGK Spark Plug Co Ltd Japan Trans-Tech Inc a subsidiary of Skyworks Solutions Inc MD See ad on page 83 Valley Design Corp MA

Substrates, Silicon Carbide

Bullen OH Centerline Technologies MA Ferro Ceramic Grinding Inc MA Ortech Inc CA Toto Ltd Japan Valley Design Corp MA

Superconductors, High-Temperature

ENrG Inc NY Xiamen Innovacera Advanced Materials Co Ltd China

Tapes

Du-Co Ceramics Company PA ESL ElectroScience PA Euro Support Advanced Materials The Netherlands Haiku Tech Europe BV The Netherlands Haiku Tech Inc FL Maryland Ceramic & Steatite Co Inc MD

Thermistors

AVX Corp SC Gwent Electronic Materials Ltd UK Murata Manufacturing Co Ltd Japan Quality Thermistor Inc ID

Transducers

APC International Ltd PA CSC Force Measurement Inc MA EBL Products Inc CT Meggitt Piezo Technologies IN Neoptix Canada Piezo by Graco OH Sparkler Ceramics Pvt Ltd India Technisonic Research Inc CT

Transformers

Grand Power Systems formally Warner Power LLC MI RoMan Manufacturing MI

Ultrasonic Ceramics

APC International Ltd PA EBL Products Inc CT Meggitt Piezo Technologies IN Piezo by Graco OH

Varistors

AVX Corp SC Kyocera International Inc CA

FABRICATING & FINISHING

Abrasives

Allied High Tech Products Inc CA Diacut Inc CO Diamond Industrial Tools Inc IL Dianamic Abrasive Products Inc MI Dunhua Zhengxing Abrasive Co Ltd China Dynacut Inc PA Electro Abrasives Corp NY Engis Corp IL FELDCO Intl CA Jet Edge Waterjet Systems MN Reade Advanced Materials RI Saint-Gobain Abrasives MA Sigmadiamant Spain Stahli USA Inc WI Suntech Advanced Ceramics (Shenzhen) Co Ltd China Washington Mills Electro Minerals Co NY

Brickmaking Equipment

Basic Machinery Co Inc NC EZG Manufacturing Inc OH Laeis GmbH Luxembourg Stedman Machine Co IN

Casting Equipment, Pressure

American Isostatic Presses OH Cerinnov France Cerlase France Dorst America Inc PA HED INtl Inc N.I Laguna Clay Co CA Maryland Ceramic & Steatite Co Inc MD

Casting Equipment, Tape

Haiku Tech Europe BV The Netherlands Haiku Tech Inc FL HED INtl Inc NJ

CNC Mills

Elcon Precision LLC CA Liberty Machinery Co IL **OptiPro Systems LLC NY** See ad on page 93 Penn Tool Co NJ Suntech Advanced Ceramics (Shenzhen) Co Ltd China

Coating Equipment

Agostvx OR Allied High Tech Products Inc CA Cerakote Ceramic Coatings OR Dynacut Inc PA Haiku Tech Europe BV The Netherlands Haiku Tech Inc FL Liberty Machinery Co IL

Cold-End Coatings, Glass

RISE Research Institutes of Sweden RISE Glass Sweden

Controllers

Dorst America Inc PA General Glass Equipment Co NJ Laguna Clay Co CA Rockwell Automation Inc WI

Cutting Equipment

Basic Machinery Co Inc NC Diamond Industrial Tools Inc IL General Glass Equipment Co NJ Haiku Tech Inc FL Jet Edge Waterjet Systems MN Liberty Machinery Co IL **OptiPro Systems LLC NY** Penn Tool Co NJ Sigmadiamant Spain Suntech Advanced Ceramics (Shenzhen) Co Ltd China

See ad on page 93

Engis Corp IL Jet Edge Waterjet Systems MN New Tech Ceramics Inc IA Penn Tool Co NJ Sigmadiamant Spain

CVD Equipment

Cutting Tools Diacut Inc CO

Dynacut Inc PA

Advanced Energy CO Capovani Brothers Inc NY Centorr Vacuum Industries NH Liberty Machinery Co IL Strem Catalog, by Ascensus Specialties MA

Deburring Equipment

Engis Corp IL Liberty Machinery Co IL Mohr Corp MI Penn Tool Co NJ

See ad on page 85

Diamond Drills

Diamond Industrial Tools Inc IL Dianamic Abrasive Products Inc MI Greenlee Diamond Tool Co IL Mitsubishi Materials Corporation Japan

Diamond Hones

Diamond Industrial Tools Inc II **Dianamic Abrasive Products Inc MI** Engis Corp IL Greenlee Diamond Tool Co IL Saint-Gobain Abrasives MA Stahli USA Inc WI

Diamond Saw Blades

Allied High Tech Products Inc CA Aremco Products Inc NY Comtrust Architectural Mesh Co Ltd China Diacut Inc CO Diamond Industrial Tools Inc II **Dianamic Abrasive Products Inc MI** Dvnacut Inc PA Engis Corp IL Greenlee Diamond Tool Co IL LECO Corp MI Liberty Machinery Co IL Saint-Gobain Abrasives MA Texers Technical Ceramics Inc Canada

Diamond Saws

Allied High Tech Products Inc CA Aremco Products Inc NY Capovani Brothers Inc NY Diacut Inc CO Dynacut Inc PA Greenlee Diamond Tool Co IL Liberty Machinery Co IL

Diamond Tools

Diamond Industrial Tools Inc IL Dianamic Abrasive Products Inc MI Engis Corp IL Greenlee Diamond Tool Co IL LECO Corp MI Mitsubishi Materials Corporation Japan Penn Tool Co NJ Saint-Gobain Abrasives MA Sigmadiamant Spain

Dicina Equipment

Aremco Products Inc NY Capovani Brothers Inc NY Diacut Inc CO

Diamond Industrial Tools Inc IL Dynacut Inc PA Liberty Machinery Co IL

Dies

Gasbarre Products Inc PA Ram Products Inc OH

Dressing Wheels, Diamond

Diacut Inc CO Diamond Industrial Tools Inc IL Dianamic Abrasive Products Inc MI Dynacut Inc PA Engis Corp IL Greenlee Diamond Tool Co IL

Electroplating Equipment

Haiku Tech Inc FL Liberty Machinery Co IL Penn Tool Co NJ

Extruders

Aadvanced Machinery Inc MI American Art Clay Co Inc IN Basic Machinery Co Inc NC Detroit Process Machinery MI Dorst America Inc PA Ipsen Ceramics IL Laguna Clay Co CA **Mohr Corp MI** North Star Equipment Inc WA Peter Pugger Mfg Inc CA

Feeders

Ingredient Masters Inc OH Isoform Ltd UK Mohr Corp MI Wyssmont Co NJ

Forming Equipment

American Isostatic Presses OH ARBURG GmbH + Co KG Germany Dorst America Inc PA HED INtl Inc NJ Ipsen Ceramics IL Isoform Ltd UK Lithoz GmbH NY **Mohr Corp MI** Quintus Technologies LLC OH Ram Products Inc OH

See ad on page 85

See ad on page 85

See ad on page 101

See ad on page 85

See ad on page 95

Glass Finishing Equipment

General Glass Equipment Co NJ Liberty Machinery Co IL Lithoz GmbH NY



OptiPro Systems LLC NY

Glass Forming Equipment General Glass Equipment Co NJ

Glass Shear Spray RISE Research Institutes of Sweden RISE Glass Sweden

Glass Supplies

Grinders, Centerless

Diamond Industrial Tools Inc IL Liberty Machinery Co IL Precision Ferrites and Ceramics Inc CA Suntech Advanced Ceramics (Shenzhen) Co Ltd China

Grinders, Cylindrical

Diamond Industrial Tools Inc IL Liberty Machinery Co IL Suntech Advanced Ceramics (Shenzhen) Co Ltd China

Grinders, Finished Product

DCM Tech MN Ipsen Ceramics IL Liberty Machinery Co IL **OptiPro Systems LLC NY** Stahli USA Inc WI

Grinding Wheels

Allied High Tech Products Inc CA Diacut Inc CO Diamond Industrial Tools Inc IL Dynacut Inc PA Engis Corp IL Greenlee Diamond Tool Co IL Penn Tool Co NJ Sigmadiamant Spain Stahli USA Inc WI

Hydraulic Systems

Isoform Ltd UK Ram Products Inc OH

Injection-Molding Equipment

ARBURG GmbH + Co KG Germany Goceram AB Sweden
 Mohr Corp MI
 See ad on page 85

 Rockwell Automation Inc WI
 Suntech Advanced Ceramics (Shenzhen) Co Ltd China

Jiggering Equipment

Cerinnov France Ram Products Inc OH

Lapping Equipment

Allied High Tech Products Inc CA Capovani Brothers Inc NY Diamond Industrial Tools Inc IL Dynacut Inc PA Engis Corp IL Liberty Machinery Co IL **OptiPro Systems LLC NY** Sigmadiamant Spain Stahli USA Inc WI

See ad on page 93

Lapping Supplies

Allied High Tech Products Inc CA Diamond Industrial Tools Inc IL Dunhua Zhengxing Abrasive Co Ltd China Engis Corp IL FELDCO Intl CA Stahli USA Inc WI

Laser Scribers

Centerline Technologies MA Cerlase France Laserage Technology Corp IL

Machining Equipment

Dynacut Inc PA Ferro Ceramic Grinding Inc MA International Ceramic Engineering MA Liberty Machinery Co IL

5 AXIS MACHINING

OF GEODESIC DOME



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Pentagon side: 27mm

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OptiPro Systems LLC NY Penn Tool Co NJ Stahli USA Inc WI

See ad on page 93

Mandrels, Diamond

Diacut Inc CO Diamond Industrial Tools Inc IL Dianamic Abrasive Products Inc MI Engis Corp IL Greenlee Diamond Tool Co IL

Molds, Case

Petro Mold Company PA Ram Products Inc OH

Molds, Ceramic-Forming

Akron Porcelain & Plastics Co OH Cerinnov France Cerlase France Goceram AB Sweden Ipsen Ceramics IL Isoform Ltd UK Laeis GmbH Luxembourg Laguna Clay Co CA Petro Mold Company PA Ram Products Inc OH Viridis3D LLC MA

Molds, Models

Petro Mold Company PA Ram Products Inc OH Viridis3D LLC MA

Plasma Etching Systems

Advanced Energy CO Capovani Brothers Inc NY Liberty Machinery Co IL

Pneumatic Systems

Cyclonaire Corp NE Ingredient Masters Inc OH Ram Products Inc OH Young Industries Inc PA

Polishing Equipment

Allied High Tech Products Inc CA Capovani Brothers Inc NY Diamond Industrial Tools Inc IL Dynacut Inc PA Engis Corp IL LECO Corp MI Liberty Machinery Co IL **OptiPro Systems LLC NY** Penn Tool Co NJ Sigmadiamant Spain Stahli USA Inc WI

Polishing Powder & Supplies

Baikowski Malakoff Inc NC C&L Development Corp CA Dianamic Abrasive Products Inc MI Engis Corp IL Sigmadiamant Spain Stahli USA Inc WI

Presses, Compacting

Detroit Process Machinery MI Digital Press Inc PA Dorst America Inc PA Gasbarre Products (PTX Pentronix) PA See ad on page 95

GASBA

POWDER COMPACTION SOLUTIONS

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Gasbarre Products Inc PA Mohr Corp MI Quintus Technologies LLC OH See ad on page 95 See ad on page 85



Aadvanced Machinery Inc MI Dorst America Inc PA Gasbarre Products Inc PA Maryland Ceramic & Steatite Co Inc MD Suntech Advanced Ceramics (Shenzhen) Co Ltd China

Presses, Extrusion

Dorst America Inc PA Maryland Ceramic & Steatite Co Inc MD Mohr Corp MI See ad on page 85 Peter Pugger Mfg Inc CA

Presses, Hot

See ad on page 101

See ad on page 93

American İsostatic Presses OH Centorr Vacuum Industries NH FCT Ingenieurkeramik GmbH Germany FCT Systeme GmbH Germany Materials Research Furnaces Inc NH Oxy-Gon Industries Inc NH Refrac Systems AZ

Presses, Hot Isostatic

American Isostatic Presses OH AVS Inc MA FCT Ingenieurkeramik GmbH Germany Quintus Technologies LLC OH

Presses, Hydraulic

Aadvanced Machinery Inc MI ARBURG GmbH + Co KG Germany AVS Inc MA Capovani Brothers Inc NY Digital Press Inc PA Dorst America Inc PA **Gasbarre Products Inc PA** Laeis GmbH Luxembourg Materials Research Furnaces Inc NH **Mohr Corp MI** Ram Products Inc OH

Presses, Isostatic

Aadvanced Machinery Inc MI American Isostatic Presses OH Capovani Brothers Inc NY Cerinnov France Cerlase France Detroit Process Machinery MI Dorst America Inc PA Gasbarre Products (PTX Pentronix) PA See ad on page 95

See ad on page 95

See ad on page 85



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 Gasbarre Products Inc PA
 See ad on page 95

 Haiku Tech Europe BV The Netherlands
 Haiku Tech Inc FL

 Isoform Ltd UK
 See ad on page 85

 Quintus Technologies LLC 0H
 RocCera LLC NY

 Suntech Advanced Ceramics (Shenzhen) Co Ltd China

Presses, Other ARBURG GmbH + Co KG Germany Isoform Ltd UK

Presses, Pressure Casting Cerlase France Dorst America Inc PA Peter Pugger Mfg Inc CA Ram Products Inc OH

Presses, Refractory Shapes Laeis GmbH Luxembourg

Presses, Rotary Aadvanced Machinery Inc MI

Presses, Rotary Materials Research Furnaces Inc NH

Presses, Tile (Ceramic)

Laeis GmbH Luxembourg Peter Pugger Mfg Inc CA

Pug Mills

Aadvanced Machinery Inc MI Basic Machinery Co Inc NC Dorst America Inc PA **Mohr Corp MI** Peter Pugger Mfg Inc CA Sheffield Pottery MA Young Industries Inc PA

See ad on page 85

PVD Equipment

Capovani Brothers Inc NY Liberty Machinery Co IL Teeter Marketing Services LLC FL

Roofing Tile Machinery Laeis GmbH Luxembourg

Setting Equipment Basic Machinery Co Inc NC

Slab Rollers North Star Equipment Inc WA

Spray Booths Treibacher Industrie AG Austria

Sputtering Equipment Advanced Energy CO Capovani Brothers Inc NY FCT Ingenieurkeramik GmbH Germany

Superabrasives Diamond Industrial Tools Inc IL Dynacut Inc PA Engis Corp IL Greenlee Diamond Tool Co IL Liberty Machinery Co IL Teeter Marketing Services LLC FL

Surface Modification Systems Teeter Marketing Services LLC FL

Tilemaking Equipment Basic Machinery Co Inc NC

Peter Pugger Mfg Inc CA Ram Products Inc OH

Tools, Modeling Sheffield Pottery MA Viridis3D LLC MA

Turning Machines, Insulator Liberty Machinery Co IL

Ultrasonic Machining Equipment

Bullen OH International Ceramic Engineering MA Liberty Machinery Co IL



OptiPro Systems LLC NY

Used Equipment

Aadvanced Machinery Inc MI Basic Machinery Co Inc NC Capovani Brothers Inc NY Cerinnov France Diamond Industrial Tools Inc IL Dorst America Inc PA Dynacut Inc PA Liberty Machinery Co IL Mohr Corp MI Ram Products Inc OH Viridis3D LLC MA

See ad on page 85

See ad on page 93

Vibratory Finishing Equipment

Capovani Brothers Inc NY Liberty Machinery Co IL Penn Tool Co NJ Rockwell Automation Inc WI

Weighing/Scales

Optimation - Klug Systems NY

Wheels, Cutoff & Grinding

Diacut Inc CO Diamond Industrial Tools Inc II Dianamic Abrasive Products Inc MI Dynacut Inc PA Engis Corp IL Greenlee Diamond Tool Co IL LECO Corp MI Liberty Machinery Co IL Penn Tool Co NJ

Wheels, Diamond

Aremco Products Inc NY Diacut Inc CO Diamond Industrial Tools Inc IL **Dianamic Abrasive Products Inc MI** Dynacut Inc PA

Engis Corp IL Greenlee Diamond Tool Co IL LECO Corp MI Sigmadiamant Spain Stahli USA Inc WI

■ GLASS PRODUCTS

Automotive Glass Arkema Inc PA RISE Research Institutes of Sweden RISE Glass Sweden Saint-Gobain Recherche France Schott North America Inc NY

Beads/Spheres

Bekeson Glass LLC MS Ceradyne Inc a 3M Co KY Maryland Ceramic & Steatite Co Inc MD



Mo-Sci Corp MO

See ad on page 97

Bioglass

Ceradyne Inc a 3M CoKY Matexcel NY



Mo-Sci Corp MO See ad on page 97 RISE Research Institutes of Sweden RISE Glass Sweden Specialty Glass Inc FL

Borosilicate Glass

Bekeson Glass LLC MS Bullen OH Elan Technology GA Garg Process Glass India Pvt Ltd India RISE Research Institutes of Sweden RISE Glass Sweden Schott North America Inc NY Specialty Glass Inc FL Valley Design Corp MA

Chemically Strengthened Glass

Arkema Inc PA Garg Process Glass India Pvt Ltd India RISE Research Institutes of Sweden RISE Glass Sweden Saint-Gobain Recherche France Saxon Glass Technologies Inc NY Schott North America Inc NY Vesuvius SC



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Container Glass

Arkema Inc PA Cerinnov France Owens-Illinois Inc OH RISE Research Institutes of Sweden RISE Glass Sweden Saint-Gobain Recherche France Vesuvius SC

Fibers, Continuous Saint-Gobain Recherche France Verity Technical Consultants LLC OH

Fibers, Optical

Adamant Co Ltd Japan Corning Incorporated NY Optocon AG Germany Schott North America Inc NY

Flat & Safety Glass

Arkema Inc PA RISE Research Institutes of Sweden RISE Glass Sweden Saint-Gobain Recherche France Vesuvius SC

Fused Silica Glass

Accuratus Corp NJ Arkema Inc PA Bullen OH Ferro Ceramic Grinding Inc MA Imerys Refractory Minerals GA RISE Research Institutes of Sweden RISE Glass Sweden Valley Design Corp MA

Glass-Ceramics

Accuratus Corp NJ Advanced Ceramic Technology CA Arkema Inc PA Bekeson Glass LLC MS Bullen OH Cerlase France Elan Technology GA Ivoclar Vivadent Inc Principality of Liechtensteinen Petro Mold Company PA PremaTech Advanced Ceramics MA Schott North America Inc NY Specialty Glass Inc FL StudioLX - Home Decor IL TevTech LLC MA See ad on page 99 Texers Technical Ceramics Inc Canada Valley Design Corp MA Xiamen Innovacera Advanced Materials Co Ltd China

Glass-to-Metal Seals

Bekeson Glass LLC MS Elan Technology GA ESL ElectroScience PA RISE Research Institutes of Sweden RISE Glass Sweden Schott North America Inc NY Specialty Glass Inc FL

Laboratory & Technical Glass

Arkema Inc PA Garg Process Glass India Pvt Ltd India LECO Corp MI RISE Research Institutes of Sweden RISE Glass Sweden Saxon Glass Technologies Inc NY Schott North America Inc NY Specialty Glass Inc FL TevTech LLC MA See ad on page 99

Laminated Glass

Arkema Inc PA RISE Research Institutes of Sweden RISE Glass Sweden Vesuvius SC

Laser Glasses

Cerinnov France Israel Ceramic & Silicate Inst Israel RISE Research Institutes of Sweden RISE Glass Sweden

Lenses TevTech LLC MA

Lighting Osram Sylvania Inc MA

Manufacturing Bekeson Glass LLC MS

Mirrors Valley Design Corp MA

Optical & Optoelectronic Ceramics

NEVZ-Ceramics Close JSC Russia Specialty Glass Inc FL **TevTech LLC MA** Vesuvius SC

Optical Substrates

Bullen OH FELDCO Intl CA Schott North America Inc NY Specialty Glass Inc FL Valley Design Corp MA Vesuvius SC Optical Thin Films Agostvx OB

FELDCO Intl CA Schott North America Inc NY TevTech LLC MA

Solar

Ceradyne Inc a 3M Co KY FELDCO Intl CA **TevTech LLC MA** Texers Technical Ceramics Inc Canada Vesuvius SC

Specialty Glass

Bekeson Glass LLC MS Ceradyne Inc a 3M Co KY Corning Incorporated NY Fusion Ceramics Inc OH Garg Process Glass India Pvt Ltd India Israel Ceramic & Silicate Inst Israel Keeling & Walker Ltd UK Refrac Systems AZ RISE Research Institutes of Sweden RISE Glass Sweden Saint-Gobain Recherche France Saxon Glass Technologies Inc NY Schott North America Inc NY Specialty Glass Inc FL Vesuvius SC

Technical Glass

Bekeson Glass LLC MS Ceradyne Inc a 3M Co KY Elan Technology GA RISE Research Institutes of Sweden RISE Glass Sweden Saxon Glass Technologies Inc NY Schott North America Inc NY Specialty Glass Inc FL Vesuvius SC

Tubing & Rod

AdValue Technology LLC AZSee ad on page 67Garg Process Glass India Pvt Ltd IndiaMorgan Advanced Materials CASpecialty Glass Inc FL

■ LABORATORY EQUIPMENT & SUPPLIES

Chemicals

See ad on nage 99

See ad on page 99

See ad on page 99

Agostyx OR Arkema Inc PA Bayville Chemical Supply Co Inc NY Lubrizol Performance Coating OH Nanofilm OH RocCera LLC NY

Colorimeters

HunterLab VA

Density Measurement Instruments

Hitachi High-Tech America Inc MD Micromeritics Instrument Corp GA Particle Technology Labs IL Penn Tool Co NJ Quantachrome Instruments FL RocCera LLC NY

Detectors

Control Instruments Corp NJ Penn Tool Co NJ Rockwell Automation Inc WI Siemens Process Industries and Drives GA

Dimension Measurement Instruments

CSC Force Measurement Inc MA Penn Tool Co NJ

Dryers

Applied Test Systems Inc PA B&P Littleford MI Ceramic Services Inc PA Cober Muegge LLC CT Detroit Process Machinery MI EIRICH Machines Inc IL Goceram AB Sweden Recco Furnaces CA Wyssmont Co NJ

Fiberoptic Illuminators

Carl Zeiss Mircolmaging Inc NY

Glass Testing Instruments

Mo-Sci Corp MO See ad on page 97 RISE Research Institutes of Sweden RISE Glass Sweden Taber Industries NY

Glassware

AdValue Technology LLC AZ See ad on page 67 Garg Process Glass India Pvt Ltd India RISE Research Institutes of Sweden RISE Glass Sweden

Glossimeters

Horiba Instruments Inc CA

Hardness Measurement Instruments

Allied High Tech Products Inc CA Buehler Ltd IL Carl Zeiss Mircolmaging Inc NY LECO Corp MI Nanoscience Instruments AZ Penn Tool Co NJ Taber Industries NY

Hot Plates

RocCera LLC NY Zhengzhou Mission Ceramic Products Co Ltd China

Lab Crucibles AdValue Technology LLC AZ See ad on page 67 Ceramco Inc NH

CoorsTek CO Materion Ceramics A7 McDanel Advanced Ceramic Technologies LLC PA Robocasting Enterprises LLC NM Xiamen Innovacera Advanced Materials Co Ltd China Zhengzhou Mission Ceramic Products Co Ltd China

Lab Furnace Tubes

AdValue Technology LLC AZ See ad on page 67 Carbolite Gero LIK McDanel Advanced Ceramic Technologies LLC PA Nabertherm Inc DE Xiamen Innovacera Advanced Materials Co Ltd China

Zhengzhou Mission Ceramic Products Co Ltd China

Lab Furnaces

Aadvanced Machinery Inc MI American Isostatic Presses OH Applied Test Systems Inc PA AVS Inc MA Carbolite Gero UK



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TevTech LLC MA See ad on page 99 The Furnace Source LLC CT Thermcraft Inc NC Trent Inc PA Verder Scientific Inc PA Zhengzhou Mission Ceramic Products Co Ltd China

Light Sources

Allied High Tech Products Inc CA Carl Zeiss Mircolmaging Inc NY Spectronics Corp NY

Mechanical Property Measurement Instruments

Applied Test Systems Inc PA Buehler Ltd IL BuzzMac Intl LLC ME CSC Force Measurement Inc MA Nanoscience Instruments AZ TA Instruments DE Taber Industries NY

Microscopes, Hot Stages

Carl Zeiss Mircolmaging Inc NY Dalmia Inst of Scientific & Industrial Research India TA Instruments DE

Microscopes, Interference

Buehler Ltd IL Carl Zeiss Mircolmaging Inc NY

Microscopes, Other

AdValue Technology LLC AZ Allied High Tech Products Inc CA Carl Zeiss Mircolmaging Inc NY Nanoscience InstrumentsAZ TA Instruments DE

See ad on page 67

Microscopes, Scanning Electron

Hitachi High-Tech America Inc MD Nanoscience Instruments AZ SEMTech Solutions Inc MA

Microscopes, Polarizing

Carl Zeiss Mircolmaging Inc NY

JTF Microscopy Services LLC NY

Allied High Tech Products Inc CA

Carl Zeiss Mircolmaging Inc NY

Microscopes, Reflected Light

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Ruehler I td II

LECO Corp MI

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Microscopes, Transmission Electron

Hitachi High-Tech America Inc MD Horiba Instruments Inc CA

Mills, Laboratory

Advanced Ceramics Manufacturing AZ Custom Processing Services PA Detroit Process Machinery MI Fluid Energy Processing & Equipment Co PA Fritsch GmbH - Milling and Sizing Germany Fritsch Milling & Sizing Inc NC Ivoclar Vivadent Inc Principality of Liechtensteinen MSE Supplies AZ Stedman Machine Co IN Union Process OH

Mixers, Laboratory

B&P Littleford MI Custom Processing Services PA Detroit Process Machinery MI EIRICH Machines Inc IL Fritsch GmbH - Milling and Sizing Germany Lancaster Products PA Peter Pugger Mfg Inc CA Ram Products Inc OH Verder Scientific Inc PA

Moisture Testing

LECO Corp MI Micromeritics Instrument Corp GA

Optical Comparitors

Penn Tool Co NJ

Optical Property Measurement

Instruments Fritsch GmbH - Milling and Sizing Germany

pH Meters

Horiba Instruments Inc CA Mettler-Toledo Inc OH Ocean Optics Inc FL

Porosimeters

Micromeritics Instrument Corp GA Particle Technology Labs IL Quantachrome Instruments FL

Powders Samplers

Fritsch Milling & Sizing Inc NC Quantachrome Instruments FL

Recorders

CSC Force Measurement Inc MA Datapaq Inc NH Rockwell Automation Inc WI Siemens Process Industries and Drives GA

Rheometers

Particle Technology Labs IL TA InstrumentsDE

Sample Preparation Equipment

Allied High Tech Products Inc CA Buehler Ltd IL Fritsch GmbH - Milling and Sizing Germany Fritsch Milling & Sizing Inc NC Micromeritics Instrument Corp GA Ram Products Inc OH Verder Scientific Inc PA

Thermometers

Optocon AG Germany Penn Tool Co NJ Xiamen Innovacera Advanced Materials Co Ltd China

Viscosity Measurement Instruments

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CSC Force Measurement Inc MA Mettler-Toledo Inc OH Penn Tool Co NJ Rockwell Automation Inc WI Siemens Process Industries and Drives GA

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Auger Analysis

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Composition

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Hitachi High-Tech America Inc See ad on page 103

RISE Research Institutes of Sweden RISE Glass Sweden Setaram Instrumentation France TA Instruments DE Technology of Materials CA

Electron Microprobe Analysis

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Nondestructive Testing SEMTech Solutions Inc MA Activation Laboratories Ltd Canada CHEMIR - A Division of Evans Analytical Group MO Rensselaer Polytechnic Inst NY

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See ad on page 103

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 Mitter-Toledo Inc DE
 See ad on page 111

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Transmission Electron Microscopy

Evans Analytical Group LLC CA GrainBound LLC PA High Temperature Materials Lab TN



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Barcode Labels Rockwell Automation Inc WI

Batching Equipment

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See ad on page 101

Laguna Clay Co CA Lancaster Products PA Mohr Corp MI - -

Mohr Corp MI See ad on page 85 Nol-Tec Systems Inc MN Optimation - Klug Systems NY Rockwell Automation Inc WI Siemens Process Industries and Drives GA Young Industries Inc PA

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JADCO Manufacturing, Inc PA Optimation - Klug Systems NY

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See ad on page 101

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Conveyors, Belt

Applicon Co IN Carolina Material Technologies NC **Ingredient Masters Inc OH** See ad on page 101 Mixer Systems Inc WI

Conveyors, Bucket

Applicon Co IN **Ingredient Masters Inc OH**

Conveyors, Pneumatic

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Conveyors, Screw

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Conveyors, vibrating	Conveyors,	Vibrating
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Crushers, Hammermill AVEKA MN

Glen Mills Inc NJ See ad on page 105 Mixer Systems Inc WI Stedman Machine Co IN Verder Scientific Inc PA Williams Patent Crusher & Pulverizer Co Inc MO

Crushers, Impact

Wyssmont Co NJ

See ad on page 101

See ad on page 101

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Applicon Co IN Glen Mills Inc NJ See ad on page 105 Stedman Machine Co IN Williams Patent Crusher & Pulverizer Co Inc MO Wyssmont Co NJ

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Texers Technical Ceramics Inc Canada

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Fluid Energy Processing & Equipment Co PA
Fritsch GmbH - Milling and Sizing Germany
Fritsch Milling & Sizing Inc NC
Glen Mills Inc NJ
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Mohr Corp MI
See ad on page 85
Netzsch Premier Technologies LLC PA
Stedman Machine Co IN
Verder Scientific Inc PA
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Grinding Media

CerCo LLC OH CoorsTek CO Dunhua Zhengxing Abrasive Co Ltd China ER Advanced Ceramics Inc OH Federal-Mogul MI Fritsch GmbH - Milling and Sizing Germany Fritsch Milling & Sizing Inc NC **Glen Mills Inc NJ** See ad on page 105 Jyoti Ceramic Industries Pvt Ltd India MSE Supplies AZ Netzsch Premier Technologies LLC PA Texers Technical Ceramics Inc Canada Union Process OH Verder Scientific Inc PA Zibo Guangtong Chemical Co Ltd China Zircoa Inc OH

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Fritsch GmbH - Milling and Sizing Germany Fritsch Milling & Sizing Inc NC

Gunning Equipment, Refractory

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Union Process OH

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 Fritsch GmbH - Milling and Sizing Germany

 Glen Mills Inc NJ
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 Verder Scientific Inc PA

Mills, Hammer

AVEKA MN Glen Mills Inc NJ See ad on page 105 Stedman Machine Co IN Verder Scientific Inc PA Williams Patent Crusher & Pulverizer Co Inc MO

Mills, Jar

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Mills, Planetary

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Mixers, Drum Glen Mills Inc NJ See ad on page 105 Hockmeyer Equipment Corp NC

Mixers, Pneumatic

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Mixers, Portable Jiffy Mixer Co Inc CA Mixer Systems Inc WI Peter Pugger Mfg Inc CA

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Ocean Optics Inc FL

Refractory Production

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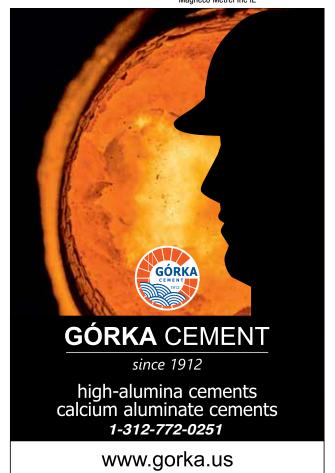
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