

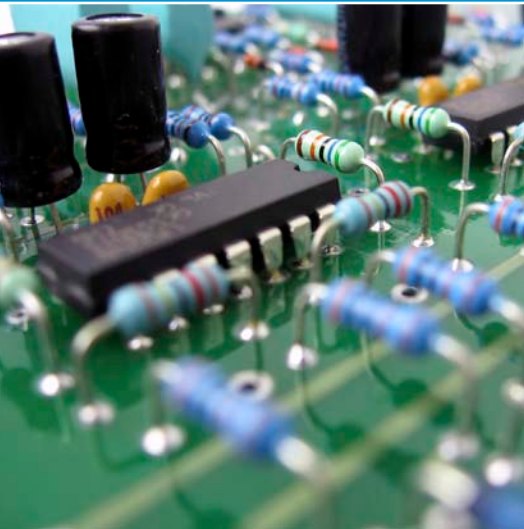


MATERION



CERAMICS

SOLUTIONS DELIVERED



MATERION is the new name for Brush Engineered Materials Inc. and all of its businesses, including what you have known as Brush Ceramic Products Inc. Now under the Materion brand, the renamed **MATERION CERAMICS** is a global leader in beryllium oxide ceramics (BeO) and other high-performance materials that enable customers to achieve superior levels of product strength, reliability, miniaturization, weight savings and thermal management.

THE CERAMIC THAT MATTERS

Beryllia ceramics convey an exceptional combination of properties. In many instances, no other material can deliver the same performance and reliability demanded of today's high-tech products and systems. Here are some of the technical reasons why.

WHEN THERMAL MANAGEMENT IS CRITICAL

In high-performance electronics, heat dissipation is the limiting factor in electrical circuit efficiency. Thermal management becomes a critical design consideration when the size of the device or the enclosure is reduced, the device is exposed to high ambient temperatures, airflow or liquid cooling is impractical or not cost-competitive, and greater reliability is required. Materion Ceramics offers solutions to these demanding requirements in the form of BeO (Beryllia) ceramics.

IN HIGH DEMAND IN THE ELECTRONICS INDUSTRY

The properties of customized beryllia ceramics make it the material of choice for critical components that require superior performance at high temperatures. This makes BeO ceramics useful in heat-producing circuits such as those carrying high currents or that have very dense circuitry. Beryllia ceramic's low dielectric constant allows for improved electrical performance, particularly at higher frequencies. That is why beryllia ceramics are in high demand in the electronics industry. They can be found in missile guidance systems, in radar and other homeland security applications, and in transmitters for radio frequency applications such as cell phones and base stations. In the medical arena, BeO ceramic is integral to critical and sometimes life-saving technologies, including MRI machines, medical lasers and even portable defibrillators.

FULLY INTEGRATED FROM MINE TO MILL

With the Western world's sole developed source of beryllium ore, Materion is the world's only fully integrated developer and supplier of engineered beryllium materials, from mining to R&D to full production. We produce beryllium materials at our center in Elmore, Ohio, and manufacture ceramic products at our Tucson, Arizona, location. Our products are distributed globally through direct sales and independent sales agents.

NEW PRODUCTS AND SOLUTIONS

Beryllia ceramics offer solutions to any component that must provide high thermal conductivity in conjunction with electrical resistivity. And now, building on our unique combination of materials forming, firing and fabrication technologies, we are rapidly expanding our product portfolio to include high-purity alumina and a variety of solar energy materials. Our engineering staff is ready to assist you in solving your ceramic, metal matrix ceramic challenges and maximizing the electrical, thermal and mechanical properties of your product. We have a long history of partnering with our customers to help them take their products to the next level. Call us about your application.

2 SECOND ONLY TO DIAMOND among electrical insulating materials, premium BeO ceramics provide a thermal conductivity dissipating nearly 325 W/mk at room temperature.

6.7 LOW DIELECTRIC CONSTANT (6.7) and low loss index (.0012 at 1 MHz), permitting improved circuit performance at high frequencies.

9 A COEFFICIENT OF THERMAL EXPANSION (CTE) of 9 ppm (BU1) intermediate to silicon or gallium arsenide and metals.

10 TIMES GREATER THERMAL CONDUCTIVITY than alumina ceramics.

60 YEARS OF PIONEERING and developing beryllia ceramic technology.

MARKETS SERVED

- Photonics / Lasers
- Medical
- Energy
- Defense / Aerospace
- Wireless / Telecommunications
- Semiconductor Manufacturing

KEY PRODUCTS

- BeO Ceramics
- High-purity Alumina
- Solar Materials
- Metal Matrix Ceramics (Electronic Material)

SERVICES & TECHNOLOGIES

- Metallization & Plating
- Dry Press / Isopress / Extrude
- Complex & Custom-designed
- Brazing / Glazing
- Post Machine Firing / Machining
- Laser Cutting
- Lapping / Dicing / Diamond Saw



MATERION

CERAMICS LOCATIONS

Tucson, Arizona

International Sales Offices

Reading, England

Shanghai, China

Singapore

Tokyo, Japan

International Sales Agencies

Kirchheim unter Teck, Germany

Paris, France

ABOUT MATERION

Materion is the new name for Brush Engineered Materials Inc., its Brush Wellman Inc. subsidiary and all of the company's businesses worldwide. Materion is among the world's premier providers of advanced materials solutions and services. Now under the one Materion brand, we are better aligned to deliver a broader scope of products, services and expertise needed to drive our customers' growth and profitability and become their first choice in a partner. Materion Corporation common stock trades on the New York Stock Exchange under the symbol MTRN.

MATERION BUSINESSES

Advanced Chemicals

Barr Precision Optics & Thin Film Coatings

Brush Beryllium & Composites

Brush Performance Alloys

Ceramics

Electrofusion

Large Area Coatings

Microelectronics & Services

Natural Resources

Technical Materials

CERAMICS

6100 South Tucson Blvd.

Tucson, Arizona 85706

Phone: +1 520.746.0699

www.materion.com/ceramics

email: ceramics@materion.com

Europe: +44 (0)118.945.2670

Japan: +81 03.3230.2996

Singapore: +86 021.5237.2328