



MATERION



**ADVANCED
MATERIALS**

Inorganic Chemicals
Manufacturing
Capabilities

SPECIALTY MATERIALS

- Thin Film Coating Materials
- Optical Coating Materials
- Wear-Resistant Coating Materials
- High Purity PVD
- Materials for Thin Film Solar
- Specialty Battery Materials
- Heavy Metals
- Radioactive Materials
- Phosphor Precursors

NEW PRODUCT DEVELOPMENT SMALL SCALE BENCH CHEMISTRY

Will partner with research facilities.

Bench-to-full scale production

- Full R&D Department
- Custom Development
- Custom Alloys & Features

MORE THAN A SUPPLIER, WE ARE YOUR R&D TEAM

Materion's primary mission is to assist you in the successful development of your materials and meet your most challenging requirements. To accomplish that, we offer a broad range of chemistries and capabilities. Our industry experts will determine the best manufacturing and analytical processes and select the appropriate chemistry to produce optimal results. Our choice will depend on the combination of material, particle size, final form and specific characteristics to produce your unique product.

Our R&D department can develop a new product, and when you're ready for market, can manufacture and deliver the production quantities you need – when you need them. You can count on your material to be manufactured consistently to your exact specifications whether for a small or high volume run. With our strong network of technical support, we pride ourselves on our ability to be your quality-driven supplier for the life of your product.



Materion ... Materials to Advance the World's Technologies



MATERIAL EXPERTISE

Materion offers customers expertise in synthesizing new compounds, managing chemicals in controlled atmosphere environments, and meeting their complex particle characteristic requirements.

AIR & MOISTURE SENSITIVE MATERIALS

- Controlled Atmospheres
- Inert Atmosphere Manufacturing
- Specialty & Custom Packaging
- Rigorously Monitored Controls
- Analysis of Sensitive Materials

SPECIALTY CHEMISTRIES

- Phosphor Precursors
- High Purity
- Stoichiometric & Non-Stoichiometric
- Multi Elemental Mixtures
- Challenging Chemistry & Phases

HAZARDOUS MATERIALS

- Heavy Metals
- Radioactive Materials – Thorium Based
- Cadmium, Arsenic, Lead
- Comprehensive Safety Controls
- Responsible Environmental Partner

CHEMICAL PROCESSES

Our expert chemists and engineers use numerous methods, including Wet Chemical Synthesis, Solid State Synthesis and Reactive Gas Processing, to develop new materials and produce established ones.

Wet Chemistry

- Precipitation Reactions
- Bottom-up Chemistry
- Oxidation/Reduction Reactions
- Purification Processes
- Doping Reactions

Reactive Gas Processes

- Halides, Nitrides, Oxides
- Sublimation
- Anion Exchange
- Solid/Gas Phase Reactions

High Temperature Synthesis

- Binary & Ternary Compounds
- Heavy Metal Capabilities (Cd, As, Pb, Sb)
- Sulfide, Selenide, Telluride Compounds
- Borides, Carbides, Oxides, Silicides, Fluorides
- Calcinations
- Combustion Synthesis
- Arc Fusion

- **50+ YEARS EXPERIENCE IN CORE INORGANIC CHEMICALS**
- **FORMERLY KNOWN AS CERAC INC.**
- **85+ YEARS EXPERIENCE WITH PRECIOUS METALS**



TECHNICAL SUPPORT

We provide easy access to our technical experts (PhD scientists, chemists and engineers) who encompass a variety of competencies in R&D and prototype production. Vertical integration allows us to meet the accelerated pace of technical innovation in the industries we serve. Our full range of leading edge capabilities within a one-stop shop include:

- Technical Assistance
- Product Improvement
- Process Improvement
- Cycle Time Reduction
- Partnering with customers to assess specific needs

ANALYTICAL CAPABILITIES

Access to broad range of analytical & testing facilities and state-of-the-art ISO-accredited labs. If a capability is not available in-house, we will partner with organizations that can provide it. We rigorously monitor vital characteristics such as purity, density and homogeneity. The Certificate of Analysis provided with each shipment ensures that the final product meets or exceeds our customer's exact specifications

In-house Competencies

- Powder X-Ray Diffraction
- Elemental Analysis
- ICP-MS, ICP-OES, DC Arc & Atomic Absorption
- Classic Quantitative Wet Analytical Techniques
- Combustion Analysis
- TGA/DTA
- Specific Surface Area (BET)
- Particle Size
- Laser Diffraction, Mesh Size Analysis

Analyze for:

- Element/compound concentration in a material
- Trace metal impurities (ppm)
- Oxygen/nitrogen/carbon/sulfur content
- Average particle size, particle size distribution, and mesh size
- Density
- Crystal structure
- Other characteristic tests upon request

Quality Controls

- ISO 9001
- ISO 17025 Lab Accreditation

MATERIAL CUSTOMIZATION AND MANUFACTURING

We combine our extensive manufacturing technology and our employees' wide-ranging knowledge to provide the optimal inorganic chemical product for your application. Materials are available in a wide variety of compositions and forms specialized for our customers' processes. Particle size distributions can be custom tailored to improve material performance for specific applications.

Standard Forms

- Ingots
- Rods
- Chunks
- Pellets
- Pieces
- Powders

Particle Size

- Large Materials to Small Materials
- Small Materials to Larger Materials
- Consolidation – hot press or cold press
- Crushing – jaw & roll
- Grinding/Milling – ball mills, grinding vibro-energy mills, mortar & pestle
- Blending – V-Blender, cone blender, stir blender, ball mills, turbula blender, fluid medium blender
- Sieving – hand screens, vibratory screeners, air classifier

Sputtering Targets

& Evaporation Materials

Inorganic Chemicals, Precious Metals, and Non-Precious Metals available in Custom Compounds, Shapes & Sizes.

- Vacuum Melting
- Various Powder Pressing
- Pelletization
- Various Ceramic Technologies
- Air & Vacuum Sinter
- Continuous Casting



MARKETS SERVED

Advances in technology require change. This change might be a chemical property of an existing material or the need for a whole new material. Materion has the resources and technologies to produce new realized materials, which is critical in the markets we serve.

- Optical Coating Materials
- Semiconductor Coating Materials
- Alternative Energy
- Specialty Battery
- Large Area Glass
- Led Lighting
- Medical
- Other Chemical Markets

CORE INORGANIC CHEMICALS

From research and development to full production, Materion is your single reliable source for the quality materials you require, whether custom-made to your exact specifications, or selected from our comprehensive inventory of ready-to-ship items. For information regarding our standard material offerings such as; availability, prices, shipping terms, SDS, and warranty, please contact us or visit our website at www.materion.com/InorganicChemicalsCatalog.

MATERIAL FORMS	PRODUCTS & SERVICES	MATERIAL FAMILIES	
<ul style="list-style-type: none">■ Powders■ Pieces■ Pellets■ Evaporation Cones■ Billets/Ingots■ Rods■ Chunks■ Planar Targets■ Special Shapes	<ul style="list-style-type: none">■ Evaporation Materials■ Sputtering Targets■ Powders■ New Product Development■ Custom Alloys, Size & Forms■ On-site Assistance■ Backing Plates■ Target Bonding	<ul style="list-style-type: none">■ Arsenides■ Borides■ Carbides■ Fluorides■ Hydrides■ Nitrides■ Oxides	<ul style="list-style-type: none">■ Precious Metals■ Phosphides■ Phosphor Precursors■ Selenides■ Silicides■ Sulfides■ Tellurides■ And More



MATERION

ADVANCED MATERIALS

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MATERION CORPORATION
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MATERION ADVANCED MATERIALS is a global supplier of over 2,000+ inorganic chemicals manufactured to meet your exact specifications. Among our offerings are: Borides, Carbides, Fluorides, Hydrides, Nitrides, Oxides, Phosphides, Selenides, Silicides, Sulfides, Tellurides plus customized compounds. Our inorganic chemicals are available in a range of forms from granules, pellets to powders and can be produced in small R&D quantities to full production lots. Because of our industry experts and extensive manufacturing capabilities, we are able to meet our customers' requirements for consistent quality, reliability and repeatability.