



MATERION



**ADVANCED
MATERIALS GROUP**

Phosphor
Materials

Phosphor Materials

The Challenge

The LED industry is rapidly evolving to meet market demands for better colorization, improved performance/price ratios, longer lifetime and superior energy efficiency. A critical component in LEDs is phosphor material, which is difficult to produce. Manufacturers must meet stringent requirements for purity, oxygen levels & moisture protection. Innovative companies are in need of high quality products with improved shelf life as well as trusted partners to assist with new product development.

The Solution

Materion offers a full line of high purity phosphor precursors for the fabrication of LED phosphors and services to support the development of new products.

Improved Material Characteristics

- Broad range of chemistries
- Unique manufacturing capabilities
- Richer color displays
- Increased levels of luminous output
- High quality alkali earth nitrides; rare earth nitrides and hydrides

Research & Development

- Partnering from prototype to full production
- Materials expertise
- Customizable alloys, size and purity
- New experimental materials with tailored physical properties

BENEFITS

- Reactive gas processing produces the broadest variety of unique materials
- Controlled atmosphere handling of environmentally sensitive materials improves performance
- Particle size, purity & packaging optimized for customer processes
- Convenient worldwide facilities
- Scaled manufacturing quantities from R&D to full production levels
- Customized phosphor processing, material synthesis & chemical analysis

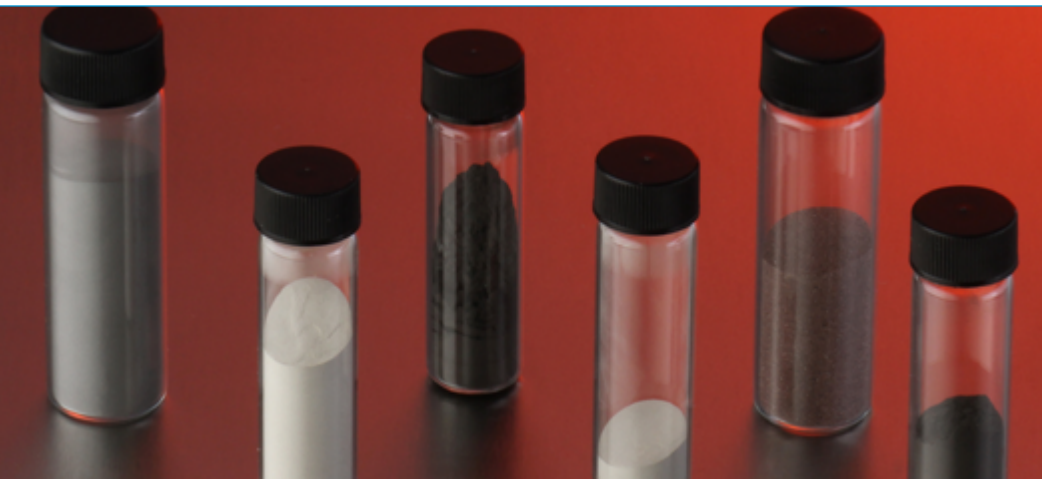
MATERIALS

- Granules & powders available from 20 mesh to -325 mesh
- Purities up to 99.9% to produce higher yields with less down time
- Oxygen levels typically <0.75 wt% with lower available upon request
- Compositions Available:

- | | |
|---|---|
| ■ Aluminum Nitride, AlN | ■ Lanthanum Nitride, LaN |
| ■ Barium Hydride, BaH ₂ | ■ Lutetium Nitride, LuN |
| ■ Barium Nitride, Ba ₃ N ₂ | ■ Magnesium Nitride, Mg ₃ N ₂ |
| ■ Calcium Hydride, CaH ₂ | ■ Silicon Nitride, Si ₃ N ₄ |
| ■ Calcium Nitride, Ca ₃ N ₂ | ■ Strontium Hydride, SrH ₂ |
| ■ Cerium Nitride, CeN | ■ Strontium Nitride, Sr-N* |
| ■ Europium Nitride, EuN | ■ Ytterbium Nitride, YbN |
| ■ Gadolinium Nitride, GdN | ■ Yttrium Nitride, YN |
| ■ Gallium Nitride, GaN | |

*Multiple Stoichiometries

Note: Additional Rare Earth Hydrides and Nitrides Available by Request.



MATERION

ADVANCED MATERIALS GROUP

2978 Main Street
Buffalo, NY 14214 USA
Phone: +1 800.327.1355
advancedmaterials@materion.com
www.materion.com/advancedmaterials

MATERION ADVANCED MATERIALS TECHNOLOGIES AND SERVICES KOREA

#1044, 10F, ITECO Bldg, 762 Dukupung-Dong
Hanam-Si, Kyunggi-Da, Korea 465-736
peter.kim@materion.com or suktaek.kim@materion.com

MATERION CORPORATION

www.materion.com



MATERION ADVANCED MATERIALS GROUP 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. Our technical staff is at the forefront of developing innovative new materials.