LTS Research Laboratories, Inc.
Safety Data Sheet
Gadolinium Barium Copper Oxide

## 1. Product and Company Identification

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| Trade Name: | Barium copper oxide |
| Chemical Formula: | $GdBa_2Cu_3O_7$ |
| Recommended Use: | Scientific research and development |
| Manufacturer/Supplier: | LTS Research Laboratories, Inc. |
| Street: | 37 Ramland Road |
| City: | Orangeburg |
| State: | New York |
| Zip Code: | 10962 |
| Country: | USA |
| Tel #: | 855-587-2436 / 855-lts-chem |
| 24-Hour Emergency Contact: | 800-424-9300 (US & Canada)<br>+1-703-527-3887 (International) |

## 2. Hazards Identification

Signal Word: Warning

Hazard Statements:
H302+H332: Harmful if swallowed or if inhaled.
H319 Causes serious eye irritation.

Precautionary Statements:
P261 Avoid breathing dust/fume/vapor.
P264: Wash thoroughly after handling.
P280 Wear eye protection/ face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312: Call a POISON CENTER or doctor/physician if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

HMIS Health Ratings (0-4):

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| Health: | 2 |
| Flammability: | 0 |
| Physical: | 0 |

## 3. Composition

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| Chemical Family: | Ceramic |
| Additional Names: | None |

Gadolinium Barium Copper Oxide ($GdBa_2Cu_3O_7$):

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|---|---|
| Percentage: | 100 wt% |
| CAS #: | N/A |
| EC #: | N/A |

## 4. First Aid Procedures

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| General Treatment: | Seek medical attention if symptoms persist. |
| Special Treatment: | None |
| Important Symptoms: | None |
| Inhalation: | Remove victim to fresh air. Supply oxygen if breathing is difficult. Seek immediate medical attention. |
| Ingestion: | Seek medical attention. |
| Skin: | Wash affected area with mild soap and water. Seek immediate medical attention. |
| Eyes: | Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. |

## 5. Firefighting Measures

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| Flammability: | Non-flammable |
| Extinguishing Media: | No special restrictions – use suitable extinguishing agent for surrounding material and type of fire. |
| Spec. Fire Fighting Procedure: | Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products. |

## 6. Accidental Release Measures

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| If Material Is Released/Spilled: | Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust. Avoid breathing vapors, mist or gas. |
| Environmental Precautions: | Isolate runoff to prevent environmental pollution. Do not let product enter drains. |

## 7. Handling and Storage

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| Handling Conditions: | Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Wash thoroughly after handling. |
| Storage Conditions: | Store in a cool dry place in a tightly sealed container, under inert gas. Store apart from materials and conditions listed in section 10. |
| Work/Hygienic Maintenance: | Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. |
| Ventilation: | Provide sufficient ventilation to maintain concentration at or below threshold limit. |

## 8. Exposure Controls and Personal Protection

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| Permissible Exposure Limits: | 0.1 $mg/m^3$ as Cu, long-term value |
| Threshold Limit Value: | 0.2 $mg/m^3$ as Cu, long-term value |
| Special Equipment: | None |
| Respiratory Protection: | For lower exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). |
| Protective Gloves: | Nitrile rubber gloves |
| Eye Protection: | Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). |
| Body Protection: | Protective impervious work clothing. Wear close-toed shoes and long sleeves/pants. |

## 9. Physical and Chemical Characteristics

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| Color | N/A |
| Form: | Powder, Granules, Pellets, Sputtering target, Custom parts |
| Odor: | N/A |
| Water Solubility: | N/A |
| Boiling Point: | N/A |
| Melting Point: | N/A |
| Flash Point: | N/A |
| Autoignition Temperature: | N/A |
| Density: | N/A |
| Molecular weight: | N/A |



## 10. Reactivity

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| Stability: | Stable under recommended storage conditions |
| Reacts With: | Oxidizing agents, Strong acids |
| Incompatible Conditions: | None |
| Hazardous Decomposition Products: | Metal oxide fume, Barium oxide, Gadolinium oxides |

## 11. Toxicological Information

Potential Health Effects:

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| Eyes: | Causes irritation |
| Skin: | Causes irritation |
| Ingestion: | Harmful if swallowed |
| Inhalation: | Harmful if inhaled |
| Chronic: | Barium compounds may cause severe gastroenteritis, including abdominal pain, vomiting and diarrhea, tremors, faintness, paralysis of the arms and legs, and slow or irregular heartbeat. Severe cases may produce collapse and death due to respiratory failure, soluble barium compounds are more likely to cause the effects than insoluble compounds. Inhalation of fumes may cause sore throat, coughing, labored breathing, and irritation of the respiratory tract as well as the above symptoms.<br>Copper compounds may irritation to the skin, eyes and respiratory tract. They may cause metal fume fever, hemolysis of the red blood cells and injury to the liver, lungs, kidneys and pancreas. Ingestion may also cause vomiting, gastric pain, dizziness, anemia, cramps, convulsions, shock, coma and death. |

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| Signs & Symptoms: | N/A |
| Aggravated Medical Conditions: | N/A |
| Median Lethal Dose: | 5000 mg/kg for rat by mouth as Copper oxide |
| Carcinogen: | IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.<br>ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.<br>NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.<br>OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.<br>EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available. |

## 12. Ecological Information

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| Aquatic Toxicity: | N/A |
| Persistent Bioaccumulation Toxicity: | No |
| Very Persistent, Very Bioaccumulative: | No |
| Notes: | Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. |

## 13. Disposal Considerations

Dispose of in accordance with local, state, national, and international regulations.

## 14. Transportation Data

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| Hazardous: | Hazardous for transportation. |


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| Hazard Class: | 6.1 Toxic substances |
| Packing Group: | III |
| UN Number: | UN1564 |
| Proper Shipping Name: | Barium compounds, n.o.s. (Gadolinium Barium Copper Oxide) |

## 15. Regulatory Information

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| Sec 302 Extremely Hazardous: | N/A |
| Sec 304 Reportable Quantities: | N/A |
| Sec 313 Toxic Chemicals: | Yes |

## 16. Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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