SAFETY DATA SHEET

Date: October 2015

Section #1: PRODUCT AND COMPANY IDENTIFICATION

Lapmaster Wolters, LLC
501 W. Algonquin Road
Mt. Prospect, IL 60056

Telephone: (224) 659-7101 (Office Hours 8:00 a.m. to 5:30 p.m. CST)
24-Hour Emergency Number: Chemtrec – 1-800-424-9300

Product Identification: Cerium Oxide Polishing Powder
Product Use: Primarily Added with Water to Polish Glass & Plastics

SECTION 2: HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

HCS 2012 (29 CFR 1910, 1200): Not a hazardous product according to the OSHA Globally Harmonized System (GHS)

LABEL ELEMENTS:

HCS 2012 (29 CFR 1910, 1200): Not a hazardous product according to the OSHA Globally Harmonized System (GHS)

OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION:

Slightly irritating to eyes. NO particular fire or explosion hazard.

SECTION 3: COMPOSITION INFORMATION

SUBSTANCE: Not applicable, this product is a mixture.

HAZARDOUS INGREDIENTS AND IMPURITIES:

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>IDENTIFICATION NUMBER CAS-No</th>
<th>CONCENTRATION (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanthanum fluoride (LaF₃)</td>
<td>13709-38-1</td>
<td>5-10%</td>
</tr>
</tbody>
</table>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

NON HAZARDOUS INGREDIENTS AND IMPURITIES:

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>IDENTIFICATION NUMBER CAS-No</th>
<th>CONCENTRATION (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerium oxide (CeO₂)</td>
<td>1306-38-3</td>
<td>&gt;60%</td>
</tr>
<tr>
<td>Lanthanum oxide (La₂O₃)</td>
<td>1312-81-8</td>
<td>&lt;30%</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

DESCRIPTION OF FIRST AID MEASURES:

GENERAL ADVICE: Show this material safety data sheet to the doctor in attendance.

IN CASE OF INHALATION: If breathed in, move person into fresh air. If symptoms persist, call a physician.

IN CASE OF SKIN CONTACT: Wash off with soap and water. If skin irritation persists, call a physician.
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IN CASE OF EYE CONTACT: Rinse with running water while keeping the eyes wide open (at least 15 minutes). If eye irritation persists, consult a physician.

IN CASE OF INGESTION: If conscious, drink plenty of water. Never give anything by mouth to an unconscious person. Seek medical advice. Do not leave the victim unattended.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:

EFFECTS: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis.

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

NOTE TO PHYSICIAN: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically. There is no specific antidote available.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: Not applicable, mineral product

AUTOIGNITION TEMPERATURE: No data available

FLAMMABILITY/EXPLOSIVE LIMIT: Lower flammability/explosion limit: Not applicable, solid
Upper flammability/explosion limit: Not applicable, solid

EXTINGUISHING MEDIA:

SUITABLE EXTINGUISHING AGENTS: Water, Foam, Not combustible. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

UNSUITABLE EXTINGUISHING MEDIA: None known.

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE: Not combustible.

ADVICE FOR FIREFIGHTERS:

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND
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EMERGENCY PROCEDURES: Wear suitable protective equipment.

ENVIRONMENTAL PRECAUTIONS: No harmful effect to the environment is known or expected under normal conditions of use. Do not flush into surface water or sanitary sewer system.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:

METHODS FOR CONTAINMENT: Dam up.

RECOVERY: Use only non-sparking tools. Sweep up and shovel into suitable containers for disposal. Keep in properly labeled containers.

DECONTAMINATION/CLEANING: Wash off with plenty of water.

REFERENCE TO OTHER SECTIONS: No data available.

SECTION 7: HANDLING & STORAGE

PRECAUTIONS FOR SAFE HANDLING: Avoid contact with skin and eyes. Do not breathe vapors/dust. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

HYGIENE MEASURES: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling these materials:
1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
3) Wash exposed skin promptly to remove accidental splashes or contact with material.
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

TECHNICAL MEASURES/STORAGE CONDITIONS: Keep in properly labeled containers. Store in a closed container. Keep in a dry place. Keep away from: No special restrictions on storage with other products.

PACKING MATERIAL:

SUITABLE MATERIAL: Plastic materials (polyethylene).

UNSUITABLE MATERIAL: None known.

REMARKS: Store in original container.

REQUIREMENTS FOR STORAGE ROOMS
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AND VESSELS:
Stable under recommended storage conditions.

SPECIFIC END USE(S):
No data available.

SECTION 8: PERSONAL PROTECTION AND EXPOSURE CONTROLS

INTRODUCTORY REMARKS:
These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

CONTROL PARAMETERS:

COMPONENTS WITH WORKPLACE OCCUPATIONAL EXPOSURE LIMITS:

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>VALUE TYPE</th>
<th>VALUE</th>
<th>BASIS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulates not otherwise regulated</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants</td>
<td>Form of exposure: Total dust</td>
</tr>
<tr>
<td>Particulates not otherwise regulated</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants</td>
<td>Form of exposure: Respirable fraction</td>
</tr>
<tr>
<td>Lanthanum fluoride (LaF₃)</td>
<td>TWA</td>
<td>2.5 mg/m³</td>
<td>Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants</td>
<td>CAS number varies with compound expressed as: Fluorine</td>
</tr>
<tr>
<td>Lanthanum fluoride (LaF₃)</td>
<td>TWA</td>
<td>2.5 mg/m³</td>
<td>American Conference of Governmental Industrial Hygienists</td>
<td>Expressed as: Fluorine</td>
</tr>
</tbody>
</table>

NIOSH IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATIONS):

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>CAS-No</th>
<th>CONCENTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanthanum fluoride (LaF₃)</td>
<td>13709-38-1</td>
<td>250 milligram per cubic meter</td>
</tr>
</tbody>
</table>

COMPONENTS WITH WORKPLACE OCCUPATIONAL EXPOSURE LIMITS:

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>VALUE TYPE</th>
<th>VALUE</th>
<th>BASIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanthanum fluoride (LaF₃)</td>
<td>BEI</td>
<td>2 mg/l Fluoride, Urine. Prior to shift (16 hours after exposure ceases)</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>Lanthanum fluoride (LaF₃)</td>
<td>BEI</td>
<td>3 mg/l Fluoride, Urine. End of shift (As soon as possible after exposure ceases)</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
</tbody>
</table>

EXPOSURE CONTROLS:

CONTROL MEASURES: Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures:
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- Apply technical measures to comply with the occupational exposure limits.
  - Local exhaust
  - Dust must be extracted directly at the point of origin.

INDIVIDUAL PROTECTION MEASURES:

RESPIRATORY PROTECTION: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations. Respirator with a dust filter.

HAND PROTECTION: For prolonged or repeated contact use protective gloves.

EYE PROTECTION: Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material. Eye contact should be prevented through the use of: Safety glasses with side-shields=

SKIN AND BODY PROTECTION: Long sleeved clothing.

HYGIENE MEASURES: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
3) Wash exposed skin promptly to remove accidental splashes or contact with material.
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

PROTECTIVE MEASURES: The protective equipment must be selected in accordance with current CEN standards and in co-operation with the supplier of the protective equipment. Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the potential hazards, and/or risks that may occur during use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid Light cream Powder

ODOR: None

ODOR THRESHOLD: No data available

pH: Not applicable, insoluble product
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MELTING POINT/MELTING RANGE: 4712 °F (2600 °C)

BOILING POINT/BOILING RANGE: No data available

FLASH POINT: Not applicable, mineral product

EVAPORATION RATE (BUTYLACETATE = 1): Not applicable

FLAMMABILITY (SOLID, GAS): No data available

FLAMMABILITY (LIQUIDS): No data available

FLAMMABILITY/EXPLOSIVE LIMIT:
  LOWER FLAMMABILITY/EXPLOSION LIMIT: Not applicable, solid
  UPPER FLAMMABILITY/EXPLOSION LIMIT: Not applicable, solid

AUTOIGNITION TEMPERATURE: No data available

VAPOR PRESSURE: Not applicable.

VAPOR DENSITY: Not applicable

DENSITY:
  RELATIVE DENSITY: 6.8 (77°F (25°C))

SOLUBILITY:
  WATER SOLUBILITY: Practically insoluble
  SOLUBILITY IN OTHER SOLVENTS: Common organic solvents: insoluble

PARTITION COEFFICIENT: N-OCTANOL/WATER: No data available

THermal DECOMPOSITION: No data available

VISCOsITY
  VISCOSITY, DYNAMIC: No data available, solid
  VISCOSITY, KINEMATIC: Not applicable, solid

EXPLOSIVE PROPERTIES: No data available

OXIDIZING PROPERTIES: No information available

OTHER INFORMATION: No data available
SECTION 10: STABILITY & REACTIVITY

REACTIVITY: Stable under recommended storage conditions.

CHEMICAL STABILITY: Stable under normal conditions.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization does not occur. Difficult to dissolve in acids. Carry out with caution (consult us).

CONDITIONS TO AVOID: No dangerous reaction known under conditions of normal use. Avoid dust formation.

INCOMPATIBLE MATERIALS: No dangerous reaction known with common products. Strong acids

HAZARDOUS DECOMPOSITION PRODUCTS: No hazardous decomposition products are known.

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

ACUTE ORAL TOXICITY: Not classified as harmful if swallowed. According to the data on the components According to the classification criteria for mixtures. Bibliography. Unpublished internal reports

ACUTE INHALATION: LC50 - 4 h 5.05 mg/l – Rat. According to the data on the components

ACUTE DERMAL TOXICITY: LD50 > 2,000 mg/kg – Rabbit. According to the data on the components

ACUTE TOXICITY (OTHER ROUTS OF ADMINISTRATION): No data available

SKIN CORROSION/IRRITATION: No skin irritation. According to the data on the components. Bibliography. Unpublished internal reports

SERIOUS EYE DAMAGE/EYE IRRITATION: slight irritation. Not classified as irritating to eyes. According to the data on the components. According to the classification criteria for mixtures. Bibliography. Unpublished internal reports

RESPIRATORY OR SKIN SENSITIZATION: No data available.

MUTAGENICITY:

GENOTOXICITY IN VITRO: No data available

GENOTOXICITY IN VIVO: No data available

CARCINOGENICITY: No data available

THIS PRODUCT DOES NOT CONTAIN ANY INGREDIENT DESIGNATED AS PROBABLE OR
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Suspected Human Carcinogens by: NTP, IARC, OSHA, ACGIH

Toxicity for Reproduction and Development:

Toxicity to Reproduction/Fertility: No data available

Developmental Toxicity/Teratogenicity: No data available

STOT

STOT-Single Exposure: Routes of exposure: Ingestion
The substance or mixture is not classified as specific target organ toxicant, single exposure

STOT-Repeated Exposure: No data available

Aspiration Toxicity: No data available

SECTION 12: ECOLOGICAL INFORMATION

Toxicity: No data available

Persistence and Degradability:

Biodegradation:

Biodegradability: Not applicable, mineral product.

Bioaccumulative Potential: No data available

Mobility in Soil:

Known Distribution to Environmental Compartments: Ultimate destination of the product: Soil
Ultimate destination of the product: Sediment

Results of PBT and vPvB Assessment: No data available

Other Adverse Effects: No data available

Ecotoxicity Assessment:

Acute Aquatic Toxicity: According to the data on the components. The product does not have any known adverse effects on the aquatic organisms tested. Unpublished internal reports.

SECTION 13: DISPOSAL INFORMATION

Waste Treatment Methods:

Product Disposal: Dispose of in accordance with local regulations. Chemical additions, processing or otherwise altering this material may make the waste management information
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presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Waste Code:
Environmental Protection Agency. Hazardous Waste – NO

Advice on Cleaning and Disposal of Packaging:
Clean with cold water. Dispose of in accordance with local regulations.

SECTION 14: TRANSPORTATION INFORMATION

DOT: Not regulated
TDG: Not regulated
NOM: Not regulated
IMDG: Not regulated
IATA: Not regulated

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: REGULATORY INFORMATION

Inventory Information:

United States TSCA Inventory: Listed on Inventory
Canadian Domestic Substances List (DSL): Listed on Inventory
Australia Inventory of Chemical Substances (AICS): Listed on Inventory
Japan. CSCL – Inventory of Existing and New Chemical Substances: Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI): Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC): Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS): One or more components not listed on inventory
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FEDERAL REGULATIONS:

US. EPA EPCRA SARA Title III:

SARA HAZARD DESIGNATION

Sections 311/312
(40 CFR 370):

- Fire Hazard: no
- Reactivity Hazard: no
- Sudden Release of Pressure Hazard: no
- Acute Health Hazard: no
- Chronic Health Hazard: no

SECTION 313 TOXIC CHEMICALS
(40 CFR 372.65):

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SECTION 302 EMERGENCY PLANNING
EXTREMELY HAZARDOUS SUBSTANCE
THRESHOLD PLANNING QUANTITY
(40 CFR 355):

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SECTION 304 EMERGENCY RELEASE
NOTIFICATION REPORTABLE QUANTITY
(40 CFR 355):

This material does not contain any components with a section 304 EHS RQ.

US. EPA CERCLA HAZARDOUS
SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4):

This material does not contain any components with a CERCLA RQ.

STATE REGULATIONS:

US. CALIFORNIA SAFE DRINKING
WATER & TOXIC ENFORCEMENT
ACT (PROPOSITION 65):

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: OTHER INFORMATION

HMIS RATING:

Health 1, Flammability 0, Reactivity 0, Personal Protection E

NFPA RATING:

Health 1, Flammability 0, Reactivity 0
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DEFINITIONS:

DOT – Department of Transportation
GHS – The Globally Harmonized System of Classification and Labeling of Chemicals
HMIS – Hazardous Material Identification System
NIOSH – National Institute for Occupational Safety and Health
NORM – Natural Occurring Radioactive Materials
IATA – International Air Transportation Association
IMO – International Maritime Organization
OSHA – Occupational Safety & Health Administration
TSCA – Toxic Substance Control Act

DISCLAIMER

THIS PRODUCT IS CERTIFIED TO BE RoHS COMPLIANT

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