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SAFETY DATA SHEET

Section 1- IDENTIFICATION

COMPOSITION	PRODUCT NAME	
Li2O	**Lithium Oxide**	
SUPPLIER: **Plasmaterials, Inc.** **2268 Research Drive** **Livermore, CA 94550** **Ph: 925-447-4030**	RECOMMENDED USE: **Laboratory Chemicals** **Scientific Research**	EMERGENCY TELEPHONE NUMBERS **US: 001-800-424-9300** **Europe: 001-703-527-3887**

Section 2- HAZARD(S) IDENTIFICATION

Classification:
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Physical Hazards: Corrosive to metals (Category 1) H290	**Health Hazards:** Skin Corrosion/Irritation (Category 1B) H314
Health Hazards: Serious Eye Damage/Eye Irritation (Category 1) H318	**Environmental Hazards:** Not Classified

LABEL ELEMENTS:
Signal Word: Danger

HAZARD STATEMENTS

-H290: May be corrosive to metals.
-H314: Causes severe skin burns and eye damage
-H318: Causes serious eye damage

PRECAUTIONARY STATEMENTS

Prevention:
-P234: Keep only in original container
-P260: Do not breathe dust, fume, gas, mist, vapors or spray
-P264: Wash thoroughly after handling
-P280: Wear protective gloves/protective clothing/eye protection/face protection
-P301+P330+P331: IF SWALLOWED: Rinse mouth. Do Not Induce Vomiting.
-P303+P361+P353: IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing. Rinse skin with water/shower.
-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.
-P310: Immediately call a poison center/doctor
-P363: Wash contaminated clothing before reuse

-P390: Absorb spillage to prevent material damage.
-P405: Store locked up
-P406: Store in corrosive resistant container with a resistant inner liner.
-P501: Dispose of contents/container to an approved waste disposal plant. Dispose of contents/container in accordance with local/regional/national/international regulations

Hazards not otherwise classified (HNOC):

-None

Section 3- COMPOSITION/INFORMATION ON INGREDIANTS

COMPONENT	CAS-No	Molecular Weight
Lithium Oxide	**12057-24-8**	**29.88 g/mol**

Section 4- FIRST AID MEASURES

GENERAL ADVICE: Move out of dangerous area. Consult a physician. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

INHALATION: Remove victim from exposure to fresh air and keep at rest in a position comfortable for breathing. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Call a physician or poison control center immediately.

SKIN CONTACT: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician. Chemical burns must be treated by a physician. For minor skin contact, avoid spreading material on unaffected skin. Wash contaminated clothing before reuse.

EYE CONTACT: Immediately flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

INGESTION: DO NOT INDUCE VOMITING. Call a physician or poison control center immediately. Rinse mouth with water. If vomiting occurs, keep head low so that stomach content doesn't get into lungs. Never give anything by mouth to an unconscious person.

MOST IMPORTANT SYMPTOMS/EFFECTS: Corrosive effects. Burning pain and severe corrosive skin damage. May cause temporary blindness and severe eye damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling and blurred vision. Permanent eye damage including blindness could result. (See Section 2 and/or Section 11)

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED: Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media:	**Unsuitable Extinguishing Media:**
Use water spray/fog, alcohol-resistant foam, dry chemical or carbon dioxide	No Information Available

Specific Hazards Arising from the Chemical:

Gases hazardous to health may be formed

Protective Equipment & Precautions for Firefighters:

As in any fire, Firefighters must wear full face, self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing to prevent contact with skin and eyes.

General Fire Hazards:

No unusual fire or explosion hazards noted.

Specific Methods:

Use water spray to cool unopened containers. Use standard firefighting procedures and consider the hazards of other involved materials.

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep unnecessary personnel away. Avoid dust formation. Avoid breathing dust, vapors, mist or gas. Ensure adequate ventilation. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained. For personnel protection, see Section 8.

Environmental Precautions: Avoid discharge into drains, water courses or onto the ground.

Methods for Containment & Clean Up: Pick up and arrange for disposal without creating dust. Sweep up and shovel. Keep in suitable, closed container for disposal. Never return spills to original containers for re-use. For waste disposal see Section 13.

Section 7- HANDLING AND STORAGE

Handling: Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Do not get in eyes, on skin or on clothing. Avoid prolonged exposure. Wear appropriate personnel protective equipment. Wash hands thoroughly after handling.

Storage: Store locked up. Store in a cool, dry, well-ventilated place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Hygroscopic. Keep only in original container. Store away from incompatible materials.

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Components with Workplace Control Parameters:

Component	CAS-No.	Value	Control Parameters	Basis
Lithium Oxide	12057-24-8	CEIL	1.000000 mg/m3	USA. Workplace Environmental Exposure Limits (WEEL)

Biological Limit Values: No biological exposure limits noted for the ingredient(s)

Engineering Measures: Good general ventilation (typically 10 air charges per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Personal Protective Equipment:

Eye/Face Protection: Wear safety glasses with side shields and a face shield. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and Body Protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN143) respiratory cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday. When using, do not eat, drink or smoke.

Environmental Exposure: Do not let product enter drains.

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid
Odor: No information available
Odor Threshold: No information available
pH: No information available
Melting Point/Range: No information available
Boiling Point/Range: No information available
Flash Point: No information available
Evaporation Rate: No information available
Flammability (solid,gas): No information available
Flammability or Exposure Limits:
Upper: No data available
Lower: No data available
Vapor Pressure: No information available
Vapor Density: No information available
Relative Density: 2.013 g/mL at 25°C / 77°F
Water Solubility: No information available
Partition coefficient; n-octanol/water: No data available
Auto Ignition Temperature: No information available
Decomposition Temperature: No information available
Viscosity: No information available
Explosive Properties: No information available
Oxidizing Properties: No information available

Section 10- STABILITY AND REACTIVITY

Reactive Hazard: May be corrosive to metals.

Stability: Stable under normal conditions

Conditions to Avoid: Avoid moisture. Incompatible materials

Incompatible Materials: Strong acids, strong oxidizing agents, metals, water, carbon dioxide (CO2)

Hazardous Decomposition Products:
-Formed Under Fire Conditions: Lithium oxides
-Other Decomposition Products: No information available

Hazardous Polymerization: No information available

Hazardous Reactions: No information available

Section 11- TOXICOLOGICAL INFORMATION

Information on likely Routes of Exposure:
Inhalation: May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin Contact: Causes severe skin burns
Eye Contact: Causes severe eye burns. Causes serious eye damage.
Ingestion: Causes digestive tract burns

Symptoms Related to the Physical, Chemical & Toxicological Characteristics: Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling and blurred vision. Permanent eye damage including blindness could result.

Information on Toxicological Effects:
Acute Toxicity: Causes severe skin burns and eye damage
Skin Corrosion/Irritation: Causes severe skin burns
Serious eye damage/irritation: Causes severe eye burns. Causes serious eye damage
Respiratory or Skin Sensitization: No information available
Carcinogenicity: This product is not considered to be a carcinogen by IARC (Not Listed), ACGIH,

NTP (Not Listed) or OSHA (Not Regulated).
Germ Cell Mutagenicity: No information available
Reproductive Effects: No information available
Development Effects: No information available
Specific Target Organ Toxicity – single exposure: No information available
Specific Target Organ Toxicity – repeated exposure: No information available
Aspiration Hazard: No information available
Chronic Effects: Prolonged inhalation may be harmful
Additional Information:
RTECS: OJ6360000
Cough, shortness of breath, headache, nausea, vomiting

Section 12- ECOLOGICAL INFORMATION

Ecotoxicity: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and Degradability: No information available
Bioaccumulation/Accumulation: No information available
Mobility: No information available
Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.
Other Adverse Effects: No information available

Section 13- DISPOSAL CONSIDERATIONS

Waste Disposal Methods: This material and its container must be disposed of as hazardous waste. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Dispose of contaminated packaging as unused product. Dispose of contents/container in accordance with all applicable regulations.

Section 14- TRANSPORT INFORMATION

DOT: **UN-No: 3262**
Proper Shipping Name: Corrosive solid, basic, inorganic, n.o.s.
Hazard Class: 8
Packing Group: II
Special Provisions: IB8, IP2, IP4, T3, TP33
Packaging Exceptions: 154
Packaging Non-Bulk: 212
Packaging Bulk: 240
Poison Inhalation Hazard: No

IATA: **UN-No: 3262**
Proper Shipping Name: Corrosive solid, basic, inorganic, n.o.s.
Hazard Class: 8
Packing Group: II
Environmental Hazards: No
ERG Code: 8L
Passenger and Cargo Aircraft: Allowed with restrictions
Cargo Aircraft Only: Allowed with restrictions

IMDG/IMO: **UN-No: 3262**
Proper Shipping Name: Corrosive solid, basic, inorganic, n.o.s.
Hazard Class: 8
Packing Group: II
EMS No.: F-A, S-B

Section 15- REGULATORY INFORMATION

US Federal Regulations: This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the US EPA TSCA Inventory List.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D): Not regulated
U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not regulated
CERCLA Hazardous Substance List (40 CFR 302.4): Not Listed
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA 304 Emergency Releases Notification: Not regulated
SARA 313: 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
SARA 311/312 Hazardous Categorization: Yes
SARA Hazard Categories:

- **Immediate Hazard:** Yes
- **Delayed Hazard:** No
- **Fire Hazard:** No
- **Pressure Hazard:** No
- **Reactive Hazard:** No

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Not regulated
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): Not regulated
Safe Drinking Water Act (SDWA): Not regulated
US Massachusetts Right-To-Know (RTK): Not regulated
US New Jersey Right-To-Know (RTK): Lithium Oxide (CAS-No: 12057-24-8)
US Pennsylvania Right-To-Know (RTK): Lithium Oxide (CAS-No: 12057-24-8)
US California Proposition 65: This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.

Section 16- OTHER INFORMATION

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulations are subject to change, the conditions of handling and use, or misuse are beyond our control, Plasmaterials, Inc. makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

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