SECTION 1. IDENTIFICATION

Product Identifier: (5N) 99.999% Lithium Nickel Dioxide

Product Code: LI-NIO-05-P

CAS Number: 12031-65-1

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351
Emergency telephone number: +1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin sensitisation(Category 1), H317
Carcinogenicity(Category 2), H351

GHS Label elements, including precautionary statements
Pictogram

Signal word
Warning
Hazard statement(s)
H317
May cause an allergic skin reaction.
H351
Suspected of causing cancer.
Precautionary statement(s)
P201
Obtain special instructions before use.
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
Synonyms: Lithium nickel oxide, Lithium nickelate, LNO
Formula: LiNiO2
Molecular weight: 97.63 g/mol
CAS-No.: 12031-65-1
Index-No.: 028-057-00-7

SECTION 4. FIRST AID MEASURES

Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.
Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Flush eyes with water as a precaution.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11
**SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special hazards arising from the substance or mixture
no data available
Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.
Further information
no data available

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing Vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.
Reference to other sections
For disposal see section 13.

**SECTION 7. HANDLING AND STORAGE**

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.
Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well ventilated place.
Keep in a dry place.
7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
SECTION 8. EXPOSURE CONTROLS/PERSOANL PROTECTION

Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment
Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin 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.
Body Protection
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 (EN 143) respirator 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).
Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: powder
Colour: black
Odor
odourless
Odor Threshold
No data available
pH
No data available
Melting point/freezing point
Melting point/range: > 1,000 °C (> 1,832 °F)
Initial boiling point and boiling range
No data available
Flash point
No data available
Evaporation rate
No data available
Flammability (solid, gas)
No data available
Upper/lower flammability or explosive limits
No data available
SECTION 10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
No data available

Conditions to avoid
No data available

Incompatible materials

Oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions.-Nickel/nickel oxides, Lithium oxides

Other decomposition products-No data available

In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available
Respiratory or skin sensitisation
Germ cell mutagenicity
No data available
Carcinogenicity
Human carcinogen.
IARC:
1-Group 1: Carcinogenic to humans (lithium nickel dioxide)
IARC:
1-Group 1: Carcinogenic to humans (lithium nickel dioxide)
NTP:
Known to be human carcinogen (lithium nickel dioxide)
NTP:
Known to be human carcinogen (lithium nickel dioxide)
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.
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.
Reproductive toxicity
No data available
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard
No data available
Additional Information
RTECS: Not available
Lithium and its compounds are possible teratogens by analogy to lithium carbonate which has equivocal human teratogenic data and positive animal teratogenic data. Large doses of lithium ion have caused dizziness and prostration, and can cause kidney damage if sodium intake is limited. Dehydration, weight loss, dermatological effects, and thyroid disturbances have been reported. Central nervous system effects that include slurred speech, blurred vision, sensory loss, ataxia, and convulsions may occur. Diarrhea, vomiting, and neuromuscular effects such as tremor, clonus, and hyperactive reflexes may occur as a result of repeated exposure to lithium ion. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Stomach-Irregularities-Based on Human Evidence
Stomach-Irregularities-Based on Human Evidence

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
No data available
Persistence and degradability
No data available
Bioaccumulative potential
No data available
Mobility in soil
No data available
Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
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.
Contaminated packaging
Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

SECTION 15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:
lithium nickel dioxide
CAS-No.
12031-65-1
Revision Date
2007-07-01
SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard
Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right To Know Components
lithium nickel dioxide
CAS-No.
12031-65-1
Revision Date
2007-07-01
New Jersey Right To Know Components
lithium nickel dioxide
CAS-No.
12031-65-1
Revision Date
2007-07-01
California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.
lithium nickel dioxide
CAS-No.
12031-65-1
Revision Date
2007-09-28
WARNING! This product contains a chemical known to the State of California to cause cancer.
lithium nickel dioxide
CAS-No.
12031-65-1
Revision Date
2007-09-28

16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is
believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The
information in this document is based on the present state of our knowledge and is applicable to the
product with regard to appropriate safety precautions. It does not represent any guarantee of the
properties of the product. American Elements shall not be held liable for any damage resulting from
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