

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	: Lithium nickel manganese cobalt oxide, powder, <0.5 mm particle size
Part No	: BTN-X-XXX
Brand	: Electrodesandmore
Supplier	: Battery Consulting 4020 Christopher way Plano TX 75024 USA
Telephone	: +1 877-394-3941
Fax	: +1 208-955-4890
Emergency Phone # (For both supplier and Manufacturer)	: +1 972-636-1722
Preparation Information: Battery Consulting Product Safety -	: +1 877-394-3941

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Skin sensitizer, Carcinogen

GHS Classification

Skin sensitization (Category 1)

Carcinogenicity (Category 2)

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)	
P280	Wear protective gloves.

HMIS Classification

Health hazard	: 2
Chronic Health Hazard	: *
Flammability	: 0
Physical hazards	: 0

NFPA Rating

Health hazard	: 2
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Fire : 0
Reactivity Hazard : 0

Potential Health Effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: Synonyms : NMC
: LiNi_{0.33}Mn_{0.33}Co_{0.33}O₂

Component	Classification	Concentration
Lithium nickel manganese cobalt oxide		
CAS-No :346417-97-8		

4. 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.

5. FIREFIGHTING MEASURES

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self contained breathing apparatus for firefighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. Nickel/nickel Oxides, Lithium Oxides, Cobalt/cobalt oxides, Manganese/manganese oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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.

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.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

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).

Hand 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.

Eye 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 and body protection

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

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES



Appearance

Form : Powder
Color : black

Safety data

pH No data available
Melting point/freezing point Melting point/range: > 290°C (>554° F) –lit.
Boiling point no data available
Flash point no data available
Ignition temperature no data available
Auto ignition Temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapor pressure no data available
Density no data available
Water solubility no data available
Partition coefficient: n-octanol/water no data available
Relative vapor Density no data available
Odor no data available
Odor Threshold no data available
Evaporation rates no data available

10. STABILITY AND REACTIVITY**Chemical stability**

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

No Data Available

Materials to avoid

Strong oxidizing agents.

Hazardous decomposition products**Other decomposition products – no data available**

Hazardous decomposition products formed under fire conditions. Nickel/nickel Oxides, Lithium oxides, Cobalt/cobalt oxides, Manganese/manganese oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50 No data available

Inhalation LC50 No data available

Dermal LD50 No data available

Other information on acute toxicity No data available

Skin corrosion/irritation No data available

Serious eye damage/eye irritation No data available

Respiratory or skin sensitization May cause sensitization by skin contact.

Germ cell mutagenicity No data available

Carcinogenicity **Limited evidence of a carcinogenic effect.**

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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as carcinogen or potential carcinogen by ACGIH.

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.

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

Teratogenicity no data available

Specific target organ toxicity - single exposure (Globally Harmonized System):
No data available.

Specific target organ toxicity - repeated exposure (Globally Harmonized System) no data available

Aspiration hazard no data available

Potential health effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

Signs and Symptoms of Exposure

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.

Synergistic effects no data available

Additional Information

RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity no data available

Persistence and degradability no data available

Bioaccumulative potential no data available

Mobility in soil no data available

PBT and vPvB assessment no data available

Other adverse effects no data available

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

DOT (US) Not dangerous goods.

IMDG Not dangerous goods.

IATA Not dangerous goods.

15. REGULATORY INFORMATION

OSHA Hazards

Skin sensitizer, Carcinogen

SARA 302 Components

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

SARA 313 Components

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 Hazards

Accute 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 manganese cobalt Oxide, CAS-No. 346417-97-8, Revision Date:

New Jersey Right To Know Components

Lithium nickel manganese cobalt Oxide, CAS-No. 346417-97-8, Revision Date:

California Prop. 65 Components

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

16. OTHER INFORMATION**Text of H-code(s) and R-phrase(s) mentioned in Section 3****Further information**

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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. Battery Consulting and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.electrodesandmore.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
