



# TCI AMERICA

## SAFETY DATA SHEET

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Revision number: 1  
Revision date: 11/08/2022

### 1. IDENTIFICATION

**Product name:** Lithium Nickel Manganese Cobalt Oxide ( $\text{LiNi}_{0.4}\text{Mn}_{0.4}\text{Co}_{0.2}\text{O}_2$ )  
**Product code:** L0400

**Product use:** For laboratory research purposes.  
**Restrictions on use:** Not for drug or household use.

Company:  
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Portland, OR 97203 U.S.A.  
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**Emergency telephone number:**  
Chemical Emergencies:  
TCI America (8:00am - 5:00pm) PST  
+1-503-286-7624  
Transportation Emergencies:  
Chemtrec 24-Hour  
+1-800-424-9300 (U.S.A.)  
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**Responsible department:**  
TCI America  
Environmental Health Safety and Security  
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### 2. HAZARD(S) IDENTIFICATION

**OSHA Haz Com: CFR 1910.1200:** Sensitization - Respiratory [Category 1]  
**WHMIS 2015:** Sensitization - Skin [Category 1]  
Carcinogenicity [Category 1A]  
Specific Target Organ Toxicity (Repeated Exposure) [Category 1]

**Signal word:** Danger!

**Hazard Statement(s):** May cause allergy or asthma symptoms or breathing difficulties if inhaled  
May cause an allergic skin reaction  
May cause cancer  
Causes damage to organs through prolonged or repeated exposure: Respiratory System

**Pictogram(s) or Symbol(s):**



**Precautionary Statement(s):**  
[Prevention]

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust, fume, mist, vapors or spray. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Wash hands and face thoroughly after handling. Wear respiratory protection. Wear protective gloves, protective clothing, face protection.

[Response]

If on skin: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice or attention. Wash contaminated clothing before reuse. If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or doctor. If exposed or concerned: Get medical advice or attention.

[Storage]

Store locked up.

[Disposal]

Dispose of contents and container in accordance with local, regional, national regulations (e.g. US: 40 CFR Part 261, EU:91/156/EEC, JP: Waste Disposal and Cleaning Act, etc.).

**Hazards not otherwise classified:**  
[HNOC]

None.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<b>Substance/mixture:</b>	Substance
<b>Components:</b>	Lithium Nickel Manganese Cobalt Oxide (LiNi <sub>0.4</sub> Mn <sub>0.4</sub> Co <sub>0.2</sub> O <sub>2</sub> )
<b>Percent:</b>	>99.9%
<b>CAS RN:</b>	193215-96-2
<b>Chemical Formula:</b>	----
<b>Synonyms:</b>	NMC-442 , Cobalt Lithium Manganese Nickel Oxide (LiNi <sub>0.4</sub> Mn <sub>0.4</sub> Co <sub>0.2</sub> O <sub>2</sub> )

### 4. FIRST-AID MEASURES

#### Description of first aid measures

<b>Inhalation:</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.
<b>Skin contact:</b>	Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Get medical advice/attention.
<b>Eye contact:</b>	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical advice/attention.
<b>Ingestion:</b>	Get medical advice/attention. Rinse mouth.

#### Symptoms/effects:

<b>Acute:</b>	No data available
<b>Delayed:</b>	No data available

#### Indication of any immediate medical attention:

Not available.

#### Notes to physician:

No data available

### 5. FIRE-FIGHTING MEASURES

<b>Suitable extinguishing media:</b>	Dry chemical, foam, water spray, carbon dioxide.
<b>Hazardous combustion products:</b>	None
<b>Other specific hazards:</b>	Closed containers may explode from heat of a fire.
<b>Advice for firefighters:</b>	Wear self-contained breathing apparatus if possible.

### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions, protective equipment and emergency procedures:</b>	Use extra personal protective equipment (self-contained breathing apparatus). Keep people away from and upwind of spill/leak. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.
<b>Environmental precautions:</b>	Prevent product from entering drains.
<b>Methods and materials for containment and cleaning up:</b>	Sweep dust to collect it into an airtight container, taking care not to disperse it. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

### 7. HANDLING AND STORAGE

<b>Precautions for safe handling:</b>	Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent dispersion of dust. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a local exhaust if dust or aerosol will be generated. Avoid all contact!
<b>Conditions for safe storage, including any incompatibilities</b>	
<b>Storage conditions:</b>	Keep container tightly closed. Store in a cool and dark place. Store under inert gas. Protect from moisture. Store locked up. Store away from incompatible materials such as oxidizing agents. Hygroscopic
<b>Packaging material:</b>	Comply with laws.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Appropriate engineering controls:</b>	Follow safe industrial engineering/laboratory practices when handling any chemical. Install a closed system or local exhaust. Also install safety shower and eye bath.
<b>Personal protective equipment</b>	
<b>Respiratory protection:</b>	Dust respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
<b>Hand protection:</b>	Impervious gloves.
<b>Eye protection:</b>	Safety goggles. A face-shield, if the situation requires.
<b>Skin and body protection:</b>	Impervious protective clothing. Protective boots, if the situation requires.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state (20°C):</b>	Solid		
<b>Form:</b>	Crystal - Powder		
<b>Colour:</b>	Black		
<b>Odour:</b>	No data available		
<b>Odor threshold:</b>	No data available		
<b>Odour threshold:</b>	No data available		
<b>Melting point/freezing point:</b>	No data available	<b>pH:</b>	No data available
<b>Boiling point/range:</b>	No data available	<b>Vapour pressure:</b>	No data available.
<b>Decomposition temperature:</b>	No data available	<b>Vapour density:</b>	No data available
<b>Relative density:</b>	No data available	<b>Dynamic Viscosity:</b>	No data available
<b>Kinemematic viscosity:</b>	No data available		
<b>Log Pow:</b>	No data available	<b>Evaporation rate(Butyl Acetate=1):</b>	No data available
<b>Flash point:</b>	No data available	<b>Autoignition temperature:</b>	No data available
<b>Flammability(solid, gas):</b>	No data available	<b>Flammability or explosive limits:</b>	
		<b>Lower:</b>	No data available
		<b>Upper:</b>	No data available
<b>Solubility(ies):</b>			
<b>[Water]</b>	No data available		
<b>[Other solvents]</b>	No data available		

## 10. STABILITY AND REACTIVITY

<b>Reactivity:</b>	No data available
<b>Chemical stability:</b>	Stable under proper conditions.
<b>Possibility of hazardous reactions:</b>	No special reactivity has been reported.
<b>Incompatible materials:</b>	Oxidizing agents
<b>Hazardous decomposition products:</b>	No information available

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity:

No data available

### Skin corrosion/irritation:

No data available

### Serious eye damage/irritation:

No data available

### Respiratory or skin sensitization:

No data available

### Germ cell mutagenicity:

No data available

### Carcinogenicity:

No data available

**IARC:** Group 1 (Carcinogenic to humans).

**NTP:** a (Known to be carcinogens).

**OSHA:** No data available

### Reproductive toxicity:

No data available

### Target organ(s):

Causes damage to organs through prolonged or repeated exposure: Respiratory System

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity:

**Fish:** No data available

**Crustacea:** No data available

**Algae:** No data available

**Persistence / degradability:** No data available

**Bioaccumulative potential(BCF):** No data available

### Mobility in soil

**Log Pow:** No data available

**Soil adsorption (Koc):** No data available

**Henry's Law (PaM<sup>3</sup>/mol):** No data available

## 13. DISPOSAL CONSIDERATIONS

### Disposal of product:

Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.

### Disposal of container:

Dispose of as unused product. Do not re-use empty containers.

### Other considerations:

Observe all federal, state and local regulations when disposing of the substance.

## 14. TRANSPORT INFORMATION

### DOT (US)

Non-hazardous for transportation.

### IATA

Non-hazardous for transportation.

### IMDG

Non-hazardous for transportation.

## 15. REGULATORY INFORMATION

### Toxic Substance Control Act (TSCA 8b.):

This product is NOT on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list:

- (i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et sec.
- (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on a SDS sheet.

### US Federal Regulations

#### CERCLA Hazardous substance and Reportable Quantity:

SARA 313: Not Listed  
SARA 302: Not Listed

### State Regulations

#### State Right-to-Know

Massachusetts Not Listed  
New Jersey Not Listed  
Pennsylvania Not Listed

California Proposition 65: Not Listed

### Other Information

#### NFPA Rating:

Health: 2  
Flammability: 0  
Instability: 0

#### HMIS Classification:

Health: 3  
Flammability: 0  
Physical: 0

### International Inventories

## 16. OTHER INFORMATION

Revision date: 11/08/2022

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TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.