

# SAFETY DATA SHEET

Issuing Date 29-Jun-2021

Revision Date 28-Jun-2021

Revision Number 1

NGHS / English



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## 1. IDENTIFICATION

### Product identifier

**Product Name** Rechargeable Li-ion Battery L20M2PF0 by Simplo

### Other means of identification

**Product Code(s)** 1646666

### Recommended use of the chemical and restrictions on use

**Recommended Use** Lithium Ion Battery

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

**Supplier Identification** Lenovo LNB laptops

**Address** Songtao Road 696  
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CN

**Telephone** Phone:18116118603

**E-mail** yuanbb1@lenovo.com

### Emergency telephone number

**Company Emergency Phone Number** 18116118603

## 2. HAZARDS IDENTIFICATION

### Classification

|                                   |             |
|-----------------------------------|-------------|
| Acute toxicity - Dermal           | Category 3  |
| Skin corrosion/irritation         | Category 2  |
| Serious eye damage/eye irritation | Category 2A |
| Carcinogenicity                   | Category 2  |



|                                                    |            |
|----------------------------------------------------|------------|
| Specific target organ toxicity (repeated exposure) | Category 1 |
|----------------------------------------------------|------------|

This is a battery. In case of rupture: the above hazards exist.

**Appearance** Solid

**Physical state** Solid

**Odor** No information available

**GHS Label elements, including precautionary statements**

**Danger**

**Hazard statements**

Toxic in contact with skin

Causes skin irritation

Causes serious eye irritation

Suspected of causing cancer

Causes damage to organs through prolonged or repeated exposure



**Precautionary Statements - Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves/protective clothing/eye protection/face protection

Wash face, hands and any exposed skin thoroughly after handling

Do not breathe dust/fume/gas/mist/vapors/spray

Do not eat, drink or smoke when using this product

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention

Specific treatment (see supplemental first aid instructions on this label)

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

**Skin**

IF ON SKIN: Wash with plenty of water and soap

Call a POISON CENTER or doctor if you feel unwell

Take off immediately all contaminated clothing and wash it before reuse

If skin irritation occurs: Get medical advice/attention

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Other information**

May be harmful if swallowed. Very toxic to aquatic life with long lasting effects.

**Unknown acute toxicity**

82.97 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

97.69 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Substance

Not applicable.

#### Mixture

| Chemical name                                 | CAS No     | Weight-% | Hazardous Material<br>Information Review Act<br>registry number (HMIRA<br>registry #) | Date HMIRA filed and<br>date exemption granted<br>(if applicable) |
|-----------------------------------------------|------------|----------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Lithium Cobalt Oxide<br>(CoLiO <sub>2</sub> ) | 12190-79-3 | 27.16    | -                                                                                     | -                                                                 |
| Graphite                                      | 7782-42-5  | 17.54    | -                                                                                     | -                                                                 |
| Copper                                        | 7440-50-8  | 13.52    | -                                                                                     | -                                                                 |
| Aluminum                                      | 7429-90-5  | 10.29    | -                                                                                     | -                                                                 |
| Propylene carbonate                           | 108-32-7   | 5.15     | -                                                                                     | -                                                                 |
| Ethylene carbonate                            | 96-49-1    | 5.15     | -                                                                                     | -                                                                 |
| Bisphenol A - Phosgene<br>copolymer           | 25971-63-5 | 4.27     | -                                                                                     | -                                                                 |
| Phosphate(1-),<br>hexafluoro-, lithium        | 21324-40-3 | 2.31     | -                                                                                     | -                                                                 |
| Nylon-6                                       | 25038-54-4 | 1.24     | -                                                                                     | -                                                                 |

### 4. FIRST AID MEASURES

#### Description of first aid measures

|                                           |                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | First aid is upon rupture of sealed battery. Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. IF exposed or concerned: Get medical advice/attention.                                                                                                                            |
| <b>Inhalation</b>                         | Remove to fresh air. Get medical attention immediately if symptoms occur.                                                                                                                                                                                                                                                        |
| <b>Eye contact</b>                        | Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area.                                                                 |
| <b>Skin contact</b>                       | Get immediate medical advice/attention. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.                                                                                                                                                                                    |
| <b>Ingestion</b>                          | Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.                                                                                                                                              |
| <b>Self-protection of the first aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Avoid contact with skin, eyes or clothing. |

**Most important symptoms and effects, both acute and delayed**

**Symptoms** Burning sensation.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Large Fire** CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

**Specific hazards arising from the chemical** No information available.

**Hazardous Combustion Products** Carbon oxides.

**Explosion Data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions** In case of rupture: Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas.

**Other Information** Refer to protective measures listed in Sections 7 and 8.

**Methods and material for containment and cleaning up**

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on safe handling** In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Take off contaminated clothing and wash before reuse. Do not eat, drink or smoke when using this product.

**Conditions for safe storage, including any incompatibilities****Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control parameters****Exposure Limits**

The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

| Chemical name                                     | ACGIH TLV                                                                   | OSHA PEL                                                                                                                                                                                                                                                  | NIOSH IDLH                                                                               |                                |
|---------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3       | TWA: 0.02 mg/m³                                                             | -                                                                                                                                                                                                                                                         |                                                                                          |                                |
| Graphite<br>7782-42-5                             | TWA: 2 mg/m³ respirable particulate matter all forms except graphite fibers | TWA: 15 mg/m³ total dust synthetic<br>TWA: 5 mg/m³ respirable fraction synthetic (vacated) TWA: 2.5 mg/m³ respirable dust natural (vacated) TWA: 10 mg/m³ total dust synthetic (vacated) TWA: 5 mg/m³ respirable fraction synthetic TWA: 15 mppcf natural | IDLH: 1250 mg/m³<br>TWA: 2.5 mg/m³ respirable dust                                       |                                |
| Copper<br>7440-50-8                               | TWA: 0.2 mg/m³ fume                                                         | TWA: 0.1 mg/m³ fume<br>TWA: 1 mg/m³ dust and mist (vacated) TWA: 0.1 mg/m³ Cu dust, fume, mist                                                                                                                                                            | IDLH: 100 mg/m³ dust, fume and mist<br>TWA: 1 mg/m³ dust and mist<br>TWA: 0.1 mg/m³ fume |                                |
| Aluminum<br>7429-90-5                             | TWA: 1 mg/m³ respirable particulate matter                                  | TWA: 15 mg/m³ total dust<br>TWA: 5 mg/m³ respirable fraction (vacated) TWA: 15 mg/m³ total dust (vacated) TWA: 5 mg/m³ respirable fraction                                                                                                                | TWA: 10 mg/m³ total dust<br>TWA: 5 mg/m³ respirable dust                                 |                                |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | TWA: 2.5 mg/m³ F                                                            | TWA: 2.5 mg/m³ F (vacated) TWA: 2.5 mg/m³                                                                                                                                                                                                                 | IDLH: 250 mg/m³ F                                                                        |                                |
| Chemical name                                     | Alberta                                                                     | British Columbia                                                                                                                                                                                                                                          | Ontario TWA/EV                                                                           | Quebec                         |
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3       | TWA: 0.02 mg/m³                                                             | TWA: 0.02 mg/m³                                                                                                                                                                                                                                           | TWA: 0.02 mg/m³                                                                          | TWA: 0.02 mg/m³                |
| Graphite<br>7782-42-5                             | TWA: 2 mg/m³                                                                | TWA: 2 mg/m³                                                                                                                                                                                                                                              | TWA: 2 mg/m³                                                                             | TWA: 2 mg/m³                   |
| Copper<br>7440-50-8                               | TWA: 0.2 mg/m³<br>TWA: 1 mg/m³                                              | TWA: 1 mg/m³<br>TWA: 0.2 mg/m³                                                                                                                                                                                                                            | TWA: 0.2 mg/m³<br>TWA: 1 mg/m³                                                           | TWA: 0.2 mg/m³<br>TWA: 1 mg/m³ |
| Aluminum<br>7429-90-5                             | TWA: 10 mg/m³                                                               | TWA: 1.0 mg/m³                                                                                                                                                                                                                                            | TWA: 1 mg/m³                                                                             | TWA: 10 mg/m³                  |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | TWA: 2.5 mg/m³                                                              | TWA: 2.5 mg/m³                                                                                                                                                                                                                                            | TWA: 2.5 mg/m³                                                                           | TWA: 2.5 mg/m³                 |

**Other Exposure Guidelines** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters.

**Appropriate engineering controls**

**Engineering controls** Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Hand protection** Wear suitable gloves. Impervious gloves.

**Skin and body protection** Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

**Physical state** Solid

**Appearance** Solid

**Odor** No information available

**Color** No information available

**Odor Threshold** No information available

| <b><u>Property</u></b>                                    | <b><u>Values</u></b> | <b><u>Remarks Method</u></b> |
|-----------------------------------------------------------|----------------------|------------------------------|
| <b>pH</b>                                                 | No data available    | None known                   |
| <b>Melting / freezing point</b>                           | No data available    | None known                   |
| <b>Boiling point / boiling range</b>                      | No data available    | None known                   |
| <b>Flash Point</b>                                        | No data available    | None known                   |
| <b>Evaporation Rate</b>                                   | No data available    | None known                   |
| <b>Flammability (solid, gas)</b>                          | No data available    | None known                   |
| <b>Flammability Limit in Air</b>                          |                      | None known                   |
| <b>Upper flammability limit</b>                           | No data available    |                              |
| <b>Lower flammability limit</b>                           | No data available    |                              |
| <b>Vapor pressure</b>                                     | No data available    | None known                   |
| <b>Vapor density</b>                                      | No data available    | None known                   |
| <b>Relative density</b>                                   | No data available    | None known                   |
| <b>Water Solubility</b>                                   | Insoluble in water   |                              |
| <b>Solubility(ies)</b>                                    | No data available    | None known                   |
| <b>Partition coefficient: n-octanol/water<sup>1</sup></b> |                      |                              |
| <b>Autoignition temperature</b>                           | No data available    | None known                   |
| <b>Decomposition temperature</b>                          | No data available    | None known                   |
| <b>Kinematic viscosity</b>                                | No data available    | None known                   |
| <b>Dynamic viscosity</b>                                  | No data available    | None known                   |

Other Information

|                            |                          |
|----------------------------|--------------------------|
| Explosive properties       | No information available |
| Oxidizing properties       | No information available |
| Softening Point            | No information available |
| Molecular Weight           | No information available |
| VOC Content (%)            | No information available |
| Liquid Density             | No information available |
| Bulk Density               | No information available |
| Particle Size              | No information available |
| Particle Size Distribution | No information available |

## 10. STABILITY AND REACTIVITY

|                                    |                                                      |
|------------------------------------|------------------------------------------------------|
| Reactivity                         | No information available.                            |
| Chemical stability                 | Stable under normal conditions.                      |
| Possibility of Hazardous Reactions | None under normal processing.                        |
| Hazardous Polymerization           | Hazardous polymerization does not occur.             |
| Conditions to avoid                | None known based on information supplied.            |
| Incompatible materials             | Strong acids. Strong bases. Strong oxidizing agents. |
| Hazardous Decomposition Products   | Carbon oxides.                                       |

## 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

|                     |                                                                                                                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Information | In case of rupture: Product does not present an acute toxicity hazard based on known or supplied information.                                                                                         |
| Inhalation          | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. (based on components).                                                                   |
| Eye contact         | Specific test data for the substance or mixture is not available. Irritating to eyes. (based on components). Causes serious eye irritation.                                                           |
| Skin contact        | Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components). Toxic in contact with skin.                                                          |
| Ingestion           | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be harmful if swallowed. (based on components). |

Symptoms related to the physical, chemical and toxicological characteristics

|          |                                                     |
|----------|-----------------------------------------------------|
| Symptoms | Redness. May cause redness and tearing of the eyes. |
|----------|-----------------------------------------------------|

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 3,205.60 mg/kg  
ATEmix (dermal) 300.00 mg/kg

**Unknown acute toxicity**

82.97 % of the mixture consists of ingredient(s) of unknown acute oral toxicity  
97.69 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Component Information**

| Chemical name                              | Oral LD50             | Dermal LD50              | Inhalation LC50                      |
|--------------------------------------------|-----------------------|--------------------------|--------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | > 5000 mg/kg ( Rat )  | > 2000 mg/kg ( Rat )     | > 5.05 mg/L ( Rat ) 4 h              |
| Graphite                                   | -                     | -                        | > 2000 mg/m <sup>3</sup> ( Rat ) 4 h |
| Copper                                     | -                     | -                        | > 5.11 mg/L ( Rat ) 4 h              |
| Aluminum                                   | -                     | -                        | > 0.888 mg/L ( Rat ) 4 h             |
| Propylene carbonate                        | = 29000 mg/kg ( Rat ) | > 3000 mg/kg ( Rabbit )  | -                                    |
| Ethylene carbonate                         | = 10 g/kg ( Rat )     | > 26420 mg/kg ( Rabbit ) | > 730 mg/m <sup>3</sup> ( Rat ) 8 h  |

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Classification based on data available for ingredients. Irritating to skin.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** Contains a known or suspected carcinogen. Classification based on data available for ingredients. Suspected of causing cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name                                               | ACGIH | IARC     | NTP                    | OSHA |
|-------------------------------------------------------------|-------|----------|------------------------|------|
| Lithium Cobalt Oxide<br>(CoLiO <sub>2</sub> )<br>12190-79-3 | A3    | Group 2B | Reasonably Anticipated | X    |
| Nylon-6<br>25038-54-4                                       | -     | Group 3  | -                      | -    |

**Legend**

**ACGIH (American Conference of Governmental Industrial Hygienists)**

A3 - Animal Carcinogen

**IARC (International Agency for Research on Cancer)**

Group 2B - Possibly Carcinogenic to Humans

Group 3 - Not Classifiable as to Carcinogenicity in Humans

**NTP (National Toxicology Program)**

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

**OSHA (Occupational Safety and Health Administration of the US Department of Labor)**

X - Present

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard** No information available.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

| Chemical name       | Algae/aquatic plants                                                                                                            | Fish                                                                                                                                                                                                                                                                                                                                                           | Toxicity to microorganisms | Crustacea                             |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------|
| Graphite            | No data available                                                                                                               | 96h LC50: > 100 mg/L (Danio rerio)                                                                                                                                                                                                                                                                                                                             | No data available          | No data available                     |
| Copper              | 96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata) | 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) | No data available          | 48h EC50: = 0.03 mg/L (Daphnia magna) |
| Propylene carbonate | 72h EC50: > 500 mg/L (Desmodesmus subspicatus)                                                                                  | 96h LC50: > 1000 mg/L (Cyprinus carpio)                                                                                                                                                                                                                                                                                                                        | EC50 > 10000 mg/L 17 h     | 48h EC50: > 500 mg/L (Daphnia magna)  |
| Ethylene carbonate  | No data available                                                                                                               | 96h LC50: > 100 mg/L (Oncorhynchus mykiss)                                                                                                                                                                                                                                                                                                                     | No data available          | No data available                     |

**Persistence and Degradability** No information available.

**Bioaccumulation**

### Component Information

| Chemical name       | Partition coefficient |
|---------------------|-----------------------|
| Propylene carbonate | 0.48                  |

**Mobility** No information available.

**Other adverse effects** No information available.

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

**California Waste Codes** 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

| Chemical name                                            | California Hazardous Waste |
|----------------------------------------------------------|----------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | Toxic                      |
| Aluminum<br>7429-90-5                                    | Ignitable powder           |

**14. TRANSPORT INFORMATION****Note:**

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)

Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

**DOT**

Proper Shipping Name  
Hazard Class  
Emergency Response Guide  
Number

NOT REGULATED  
NON-REGULATED  
N/A  
147

**TDG**

Not applicable

**MEX**

Not applicable

**ICAO**

Not applicable

**IATA**

Proper Shipping Name  
Hazard Class

Not applicable  
NON REGULATED  
N/A

**IMDG/IMO**

Hazard Class  
EmS-No.

Not applicable  
N/A  
F-A, S-I

**RID**

Not applicable

**ADR**

Not applicable

**ADN**

Not applicable

**15. REGULATORY INFORMATION**

Safety, health and environmental regulations/legislation specific for the substance or mixture



### International Regulations

**The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** Not applicable

### International Inventories

|                      |                                                   |
|----------------------|---------------------------------------------------|
| <b>TSCA</b>          | Contact supplier for inventory compliance status. |
| <b>DSL/NDSL</b>      | Contact supplier for inventory compliance status. |
| <b>EINECS/ELINCS</b> | Contact supplier for inventory compliance status. |
| <b>ENCS</b>          | Contact supplier for inventory compliance status. |
| <b>KECL</b>          | Contact supplier for inventory compliance status. |
| <b>PICCS</b>         | Contact supplier for inventory compliance status. |
| <b>AICS</b>          | Contact supplier for inventory compliance status. |

### Legend

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances

### US Federal Regulations

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

| Chemical name                                           | CAS No     | Weight-% | SARA 313 - Threshold Values % |
|---------------------------------------------------------|------------|----------|-------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) - 12190-79-3 | 12190-79-3 | 27.16    | 0.1                           |
| Copper - 7440-50-8                                      | 7440-50-8  | 13.52    | 1.0                           |
| Aluminum - 7429-90-5                                    | 7429-90-5  | 10.29    | 1.0                           |

#### **SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

#### **CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Chemical name       | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Copper<br>7440-50-8 |                             | X                      | X                         |                            |

#### **CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Chemical name | Hazardous Substances RQs | Extremely Hazardous Substances RQs | RQ |
|---------------|--------------------------|------------------------------------|----|
|---------------|--------------------------|------------------------------------|----|



|                     |         |  |                                            |
|---------------------|---------|--|--------------------------------------------|
| Copper<br>7440-50-8 | 5000 lb |  | RQ 5000 lb final RQ<br>RQ 2270 kg final RQ |
|---------------------|---------|--|--------------------------------------------|

**US State Regulations****California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

This product may contain substances regulated by state right-to-know regulations.

| Chemical name                                        | New Jersey | Massachusetts | Pennsylvania | Rhode Island | Illinois |
|------------------------------------------------------|------------|---------------|--------------|--------------|----------|
| Lithium Cobalt Oxide<br>(CoLiO2)<br>12190-79-3       | X          |               | X            | X            | X        |
| Graphite<br>7782-42-5                                | X          | X             | X            |              |          |
| Copper<br>7440-50-8                                  | X          | X             | X            | X            | X        |
| Aluminum<br>7429-90-5                                | X          | X             | X            | X            |          |
| Ethylene carbonate<br>96-49-1                        |            | X             | X            |              |          |
| Phosphate(1-),<br>hexafluoro-, lithium<br>21324-40-3 | X          |               |              |              |          |

**16. OTHER INFORMATION**

|             |                  |                |                    |                                       |
|-------------|------------------|----------------|--------------------|---------------------------------------|
| <b>NFPA</b> | Health hazards 1 | Flammability 0 | Instability 0      | Physical and Chemical<br>Properties - |
| <b>HMIS</b> | Health hazards 0 | Flammability 0 | Physical hazards 0 | Personal Protection X                 |

**Prepared By** Product Stewardship  
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Latham, NY 12110  
1-800-572-6501

**Issuing Date** 29-Jun-2021

**Revision Date** 28-Jun-2021

**Revision Note** No information available

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**



# SAFETY DATA SHEET

Issuing Date 29-Jun-2021

Revision Date 28-Jun-2021

Revision Number 1

NGHS / English



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## 1. IDENTIFICATION

### Product identifier

**Product Name** Rechargeable Li-ion Battery L20L2PF0 by LG

### Other means of identification

**Product Code(s)** 1646665

### Recommended use of the chemical and restrictions on use

**Recommended Use** Lithium Ion Battery

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

**Supplier Identification** Lenovo LNB laptops

**Address** Songtao Road 696  
shanghai  
shanghai  
201203  
CN

**Telephone** Phone:18116118603

**E-mail** yuanbb1@lenovo.com

### Emergency telephone number

**Company Emergency Phone Number** 18116118603

## 2. HAZARDS IDENTIFICATION

### Classification

|                                                    |             |
|----------------------------------------------------|-------------|
| Skin sensitization                                 | Category 1  |
| Carcinogenicity                                    | Category 1B |
| Specific target organ toxicity (repeated exposure) | Category 1  |



This is a battery. In case of rupture: the above hazards exist.

**Appearance** Solid

**Physical state** Solid

**Odor** No information available

**GHS Label elements, including precautionary statements**

**Danger**

**Hazard statements**

May cause an allergic skin reaction

May cause cancer

Causes damage to organs through prolonged or repeated exposure



**Precautionary Statements - Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves/protective clothing/eye protection/face protection

Contaminated work clothing must not be allowed out of the workplace

Do not breathe dust/fume/gas/mist/vapors/spray

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention

Specific treatment (see supplemental first aid instructions on this label)

**Skin**

IF ON SKIN: Wash with plenty of water and soap

If skin irritation or rash occurs: Get medical advice/attention

Wash contaminated clothing before reuse

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Other information**

Causes mild skin irritation. Very toxic to aquatic life with long lasting effects.

**Unknown acute toxicity**

99 % of the mixture consists of ingredient(s) of unknown toxicity

70 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

99 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

99 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

99 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

99 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Substance**

Not applicable.

**Mixture**

| Chemical name                                 | CAS No     | Weight-% | Hazardous Material<br>Information Review Act<br>registry number (HMIRA<br>registry #) | Date HMIRA filed and<br>date exemption granted<br>(if applicable) |
|-----------------------------------------------|------------|----------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Nickel                                        | 7440-02-0  | 30       | -                                                                                     | -                                                                 |
| Lithium Cobalt Oxide<br>(CoLiO <sub>2</sub> ) | 12190-79-3 | 30       | -                                                                                     | -                                                                 |
| Copper                                        | 7440-50-8  | 7        | -                                                                                     | -                                                                 |
| Aluminum                                      | 7429-90-5  | 3        | -                                                                                     | -                                                                 |

**4. FIRST AID MEASURES****Description of first aid measures**

|                       |                                                                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b> | First aid is upon rupture of sealed battery. Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. |
| <b>Inhalation</b>     | Remove to fresh air.                                                                                                                                         |
| <b>Eye contact</b>    | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.                                         |
| <b>Skin contact</b>   | Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.                         |
| <b>Ingestion</b>      | Clean mouth with water and drink afterwards plenty of water.                                                                                                 |

**Most important symptoms and effects, both acute and delayed**

|                 |                         |
|-----------------|-------------------------|
| <b>Symptoms</b> | Itching. Rashes. Hives. |
|-----------------|-------------------------|

**Indication of any immediate medical attention and special treatment needed**

|                           |                                                                        |
|---------------------------|------------------------------------------------------------------------|
| <b>Note to physicians</b> | May cause sensitization in susceptible persons. Treat symptomatically. |
|---------------------------|------------------------------------------------------------------------|

**5. FIRE-FIGHTING MEASURES**

|                                                   |                                                                                                         |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Suitable Extinguishing Media</b>               | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| <b>Large Fire</b>                                 | CAUTION: Use of water spray when fighting fire may be inefficient.                                      |
| <b>Unsuitable extinguishing media</b>             | Do not scatter spilled material with high pressure water streams.                                       |
| <b>Specific hazards arising from the chemical</b> | Product is or contains a sensitizer. May cause sensitization by skin contact.                           |
| <b>Hazardous Combustion Products</b>              | Carbon oxides.                                                                                          |
| <b>Explosion Data</b>                             |                                                                                                         |

**Sensitivity to Mechanical Impact** None.  
**Sensitivity to Static Discharge** None.

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal precautions** In case of rupture: Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Other Information** Refer to protective measures listed in Sections 7 and 8.

### Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Advice on safe handling** In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Limits

| Chemical name                                            | ACGIH TLV                       | OSHA PEL                                                                                                                                 | NIOSH IDLH                                                                                                                      |
|----------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Nickel<br>7440-02-0                                      | TWA: 1.5 mg/m <sup>3</sup>      | TWA: 1 mg/m <sup>3</sup><br>(vacated) TWA: 1 mg/m <sup>3</sup>                                                                           | IDLH: 10 mg/m <sup>3</sup><br>TWA: 0.015 mg/m <sup>3</sup>                                                                      |
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup>     | -                                                                                                                                        |                                                                                                                                 |
| Copper<br>7440-50-8                                      | TWA: 0.2 mg/m <sup>3</sup> fume | TWA: 0.1 mg/m <sup>3</sup> fume<br>TWA: 1 mg/m <sup>3</sup> dust and mist<br>(vacated) TWA: 0.1 mg/m <sup>3</sup> Cu<br>dust, fume, mist | IDLH: 100 mg/m <sup>3</sup> dust, fume<br>and mist<br>TWA: 1 mg/m <sup>3</sup> dust and mist<br>TWA: 0.1 mg/m <sup>3</sup> fume |

|                                                |                                               |                                |                                                                                                                                                           |                                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Aluminum<br>7429-90-5                          | TWA: 1 mg/m³ respirable<br>particulate matter |                                | TWA: 15 mg/m³ total dust<br>TWA: 5 mg/m³ respirable<br>fraction<br>(vacated) TWA: 15 mg/m³ total<br>dust<br>(vacated) TWA: 5 mg/m³<br>respirable fraction | TWA: 10 mg/m³ total dust<br>TWA: 5 mg/m³ respirable dust |
| Chemical name                                  | Alberta                                       | British Columbia               | Ontario TWAEV                                                                                                                                             | Quebec                                                   |
| Nickel<br>7440-02-0                            | TWA: 1.5 mg/m³                                | TWA: 0.05 mg/m³                | TWA: 1 mg/m³                                                                                                                                              | TWA: 1.5 mg/m³                                           |
| Lithium Cobalt Oxide<br>(CoLiO2)<br>12190-79-3 | TWA: 0.02 mg/m³                               | TWA: 0.02 mg/m³                | TWA: 0.02 mg/m³                                                                                                                                           | TWA: 0.02 mg/m³                                          |
| Copper<br>7440-50-8                            | TWA: 0.2 mg/m³<br>TWA: 1 mg/m³                | TWA: 1 mg/m³<br>TWA: 0.2 mg/m³ | TWA: 0.2 mg/m³<br>TWA: 1 mg/m³                                                                                                                            | TWA: 0.2 mg/m³<br>TWA: 1 mg/m³                           |
| Aluminum<br>7429-90-5                          | TWA: 10 mg/m³                                 | TWA: 1.0 mg/m³                 | TWA: 1 mg/m³                                                                                                                                              | TWA: 10 mg/m³                                            |

**Other Exposure Guidelines**

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters.

**Appropriate engineering controls****Engineering controls**

Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

Wear safety glasses with side shields (or goggles).

**Hand protection**

Wear suitable gloves.

**Skin and body protection**

Wear suitable protective clothing.

**Respiratory protection**

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations**

Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

|                |                          |
|----------------|--------------------------|
| Physical state | Solid                    |
| Appearance     | Solid                    |
| Odor           | No information available |
| Color          | No information available |
| Odor Threshold | No information available |

| Property                      | Values            | Remarks Method |
|-------------------------------|-------------------|----------------|
| pH                            | No data available | None known     |
| Melting / freezing point      | No data available | None known     |
| Boiling point / boiling range | No data available | None known     |
| Flash Point                   | No data available | None known     |
| Evaporation Rate              | No data available | None known     |



|                                                     |                    |            |
|-----------------------------------------------------|--------------------|------------|
| Flammability (solid, gas)                           | No data available  | None known |
| Flammability Limit in Air                           |                    | None known |
| Upper flammability limit                            | No data available  |            |
| Lower flammability limit                            | No data available  |            |
| Vapor pressure                                      | No data available  | None known |
| Vapor density                                       | No data available  | None known |
| Relative density                                    | No data available  | None known |
| Water Solubility                                    | Insoluble in water |            |
| Solubility(ies)                                     | No data available  | None known |
| Partition coefficient: n-octanol/water <sup>1</sup> |                    |            |
| Autoignition temperature                            | No data available  | None known |
| Decomposition temperature                           | No data available  | None known |
| Kinematic viscosity                                 | No data available  | None known |
| Dynamic viscosity                                   | No data available  | None known |

**Other Information**

|                            |                          |
|----------------------------|--------------------------|
| Explosive properties       | No information available |
| Oxidizing properties       | No information available |
| Softening Point            | No information available |
| Molecular Weight           | No information available |
| VOC Content (%)            | No information available |
| Liquid Density             | No information available |
| Bulk Density               | No information available |
| Particle Size              | No information available |
| Particle Size Distribution | No information available |

## 10. STABILITY AND REACTIVITY

|                                    |                                           |
|------------------------------------|-------------------------------------------|
| Reactivity                         | No information available.                 |
| Chemical stability                 | Stable under normal conditions.           |
| Possibility of Hazardous Reactions | None under normal processing.             |
| Hazardous Polymerization           | Hazardous polymerization does not occur.  |
| Conditions to avoid                | None known based on information supplied. |
| Incompatible materials             | None known based on information supplied. |
| Hazardous Decomposition Products   | Carbon oxides.                            |

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

|                     |                                                                                                                                                                                 |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Information | In case of rupture: Product does not present an acute toxicity hazard based on known or supplied information.                                                                   |
| Inhalation          | Specific test data for the substance or mixture is not available.                                                                                                               |
| Eye contact         | Specific test data for the substance or mixture is not available. May cause irritation.                                                                                         |
| Skin contact        | Specific test data for the substance or mixture is not available. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with |

susceptible persons. (based on components).

**Ingestion**

Specific test data for the substance or mixture is not available.

**Symptoms related to the physical, chemical and toxicological characteristics****Symptoms**

Itching. Rashes. Hives.

**Numerical measures of toxicity****Acute toxicity**

The following values are calculated based on chapter 3.1 of the GHS document .

**ATEmix (oral)** 35,454.50 mg/kg

**Unknown acute toxicity** 99 % of the mixture consists of ingredient(s) of unknown toxicity

70 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

99 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

99 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

99 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

99 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Component Information**

| Chemical name                 | Oral LD50            | Dermal LD50          | Inhalation LC50          |
|-------------------------------|----------------------|----------------------|--------------------------|
| Nickel                        | > 9000 mg/kg ( Rat ) | -                    | > 10.2 mg/L ( Rat ) 1 h  |
| Lithium Cobalt Oxide (CoLiO2) | > 5000 mg/kg ( Rat ) | > 2000 mg/kg ( Rat ) | > 5.05 mg/L ( Rat ) 4 h  |
| Copper                        | -                    | -                    | > 5.11 mg/L ( Rat ) 4 h  |
| Aluminum                      | -                    | -                    | > 0.888 mg/L ( Rat ) 4 h |

**Delayed and immediate effects as well as chronic effects from short and long-term exposure****Skin corrosion/irritation**

No information available.

**Serious eye damage/eye irritation**

No information available.

**Respiratory or skin sensitization**

May cause sensitization by skin contact.

**Germ cell mutagenicity**

No information available.

**Carcinogenicity**

Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name                                  | ACGIH | IARC     | NTP                    | OSHA |
|------------------------------------------------|-------|----------|------------------------|------|
| Nickel<br>7440-02-0                            | -     | Group 2B | Reasonably Anticipated | X    |
| Lithium Cobalt Oxide<br>(CoLiO2)<br>12190-79-3 | A3    | Group 2B | Reasonably Anticipated | X    |

**Legend**

**ACGIH (American Conference of Governmental Industrial Hygienists)**

A3 - Animal Carcinogen

**IARC (International Agency for Research on Cancer)**

Group 2B - Possibly Carcinogenic to Humans

**NTP (National Toxicology Program)**

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

## OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

|                                 |                                                                 |
|---------------------------------|-----------------------------------------------------------------|
| <b>Reproductive toxicity</b>    | No information available.                                       |
| <b>STOT - single exposure</b>   | No information available.                                       |
| <b>STOT - repeated exposure</b> | Causes damage to organs through prolonged or repeated exposure. |
| <b>Aspiration hazard</b>        | No information available.                                       |

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

| Chemical name | Algae/aquatic plants                                                                                                                  | Fish                                                                                                                                                                                                                                                                                                                                                           | Toxicity to microorganisms | Crustacea                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------|
| Nickel        | 96h EC50: 0.174 - 0.311 mg/L<br>(Pseudokirchneriella subcapitata) 72h EC50: = 0.18 mg/L<br>(Pseudokirchneriella subcapitata)          | 96h LC50: = 1.3 mg/L (Cyprinus carpio) 96h LC50: = 10.4 mg/L (Cyprinus carpio) 96h LC50: > 100 mg/L (Brachydanio rerio)                                                                                                                                                                                                                                        | No data available          | 48h EC50: = 1 mg/L (Daphnia magna) 48h EC50: > 100 mg/L (Daphnia magna) |
| Copper        | 96h EC50: 0.031 - 0.054 mg/L<br>(Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L<br>(Pseudokirchneriella subcapitata) | 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) | No data available          | 48h EC50: = 0.03 mg/L (Daphnia magna)                                   |

|                                      |                           |
|--------------------------------------|---------------------------|
| <b>Persistence and Degradability</b> | No information available. |
| <b>Bioaccumulation</b>               | No information available. |
| <b>Mobility</b>                      | No information available. |
| <b>Other adverse effects</b>         | No information available. |

## 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

**Waste from residues/unused** Dispose of in accordance with local regulations. Dispose of waste in accordance with

products environmental legislation.

Contaminated packaging Do not reuse empty containers.

California Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

| Chemical name                                            | California Hazardous Waste       |
|----------------------------------------------------------|----------------------------------|
| Nickel<br>7440-02-0                                      | Toxic powder<br>Ignitable powder |
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | Toxic                            |
| Aluminum<br>7429-90-5                                    | Ignitable powder                 |

## 14. TRANSPORT INFORMATION

**Note:** The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

**DOT** NOT REGULATED  
**Proper Shipping Name** NON-REGULATED  
**Hazard Class** N/A  
**Emergency Response Guide Number** 147

**TDG** Not applicable

**MEX** Not applicable

**ICAO** Not applicable

**IATA** Not applicable  
**Proper Shipping Name** NON REGULATED  
**Hazard Class** N/A

**IMDG/IMO** Not applicable  
**Hazard Class** N/A  
**EmS-No.** F-A, S-I

**RID** Not applicable

**ADR** Not applicable



ADN

Not applicable

**15. REGULATORY INFORMATION**Safety, health and environmental regulations/legislation specific for the substance or mixtureInternational Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

|               |                                                   |
|---------------|---------------------------------------------------|
| TSCA          | Contact supplier for inventory compliance status. |
| DSL/NDL       | Contact supplier for inventory compliance status. |
| EINECS/ELINCS | Contact supplier for inventory compliance status. |
| ENCS          | Contact supplier for inventory compliance status. |
| KECL          | Contact supplier for inventory compliance status. |
| PICCS         | Contact supplier for inventory compliance status. |
| AICS          | Contact supplier for inventory compliance status. |

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List  
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
ENCS - Japan Existing and New Chemical Substances  
KECL - Korean Existing and Evaluated Chemical Substances  
PICCS - Philippines Inventory of Chemicals and Chemical Substances  
AICS - Australian Inventory of Chemical Substances

US Federal RegulationsSARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

| Chemical name                              | CAS No     | Weight-% | SARA 313 - Threshold Values % |
|--------------------------------------------|------------|----------|-------------------------------|
| Nickel - 7440-02-0                         | 7440-02-0  | 30       | 0.1                           |
| Lithium Cobalt Oxide (CoLiO2) - 12190-79-3 | 12190-79-3 | 30       | 0.1                           |
| Copper - 7440-50-8                         | 7440-50-8  | 7        | 1.0                           |
| Aluminum - 7429-90-5                       | 7429-90-5  | 3        | 1.0                           |

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Chemical name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Nickel        |                             | X                      | X                         |                            |



|                     |  |   |   |  |
|---------------------|--|---|---|--|
| 7440-02-0           |  |   |   |  |
| Copper<br>7440-50-8 |  | X | X |  |

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Chemical name       | Hazardous Substances RQs | Extremely Hazardous Substances RQs | RQ                                         |
|---------------------|--------------------------|------------------------------------|--------------------------------------------|
| Nickel<br>7440-02-0 | 100 lb                   |                                    | RQ 100 lb final RQ<br>RQ 45.4 kg final RQ  |
| Copper<br>7440-50-8 | 5000 lb                  |                                    | RQ 5000 lb final RQ<br>RQ 2270 kg final RQ |

**US State Regulations****California Proposition 65**

This product contains the following Proposition 65 chemicals.

| Chemical name      | California Proposition 65        |
|--------------------|----------------------------------|
| Nickel - 7440-02-0 | carcinogen, 10/1/1989 (metallic) |

**U.S. State Right-to-Know Regulations**

This product may contain substances regulated by state right-to-know regulations.

| Chemical name                                  | New Jersey | Massachusetts | Pennsylvania | Rhode Island | Illinois |
|------------------------------------------------|------------|---------------|--------------|--------------|----------|
| Nickel<br>7440-02-0                            | X          | X             | X            | X            | X        |
| Lithium Cobalt Oxide<br>(CoLiO2)<br>12190-79-3 | X          |               | X            | X            | X        |
| Copper<br>7440-50-8                            | X          | X             | X            | X            | X        |
| Aluminum<br>7429-90-5                          | X          | X             | X            | X            |          |

**16. OTHER INFORMATION**

|             |                  |                |                    |                                    |
|-------------|------------------|----------------|--------------------|------------------------------------|
| <b>NFPA</b> | Health hazards 1 | Flammability 0 | Instability 0      | Physical and Chemical Properties - |
| <b>HMIS</b> | Health hazards 0 | Flammability 0 | Physical hazards 0 | Personal Protection X              |

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Issuing Date 29-Jun-2021

Revision Date 28-Jun-2021

Revision Note No information available

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its



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publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
US OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canada WHMIS which includes the amended Hazardous  
Products Act (HPA) and the Hazardous Products Regulation (HPR)

Issuing Date 15-Aug-2025

Revision date 15-Aug-2025

Revision Number 1

## 1. Identification

### Product identifier

**Product Name** Rechargeable Li-ion Battery L20C2PF0 by Celxpert

### Other means of identification

**Product Code(s)** 1869331

**Synonyms** None

### Recommended use of the chemical and restrictions on use

**Recommended use** Lithium Ion Battery

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

**Supplier Name** Lenovo LNB laptops

### Supplier Address

Songtao Road 696  
shanghai  
shanghai  
201203  
CN

### Emergency telephone number

**Supplier Phone Number** Phone:18116118603

**24 Hour Emergency Phone Number** 18116118603

**Emergency Telephone** No information available

## 2. Hazard(s) identification

### Classification of the substance or mixture

|                                                    |             |
|----------------------------------------------------|-------------|
| Acute toxicity - Dermal                            | Category 4  |
| Skin corrosion/irritation                          | Category 2  |
| Serious eye damage/eye irritation                  | Category 1  |
| Skin sensitization                                 | Category 1  |
| Carcinogenicity                                    | Category 1B |
| Specific target organ toxicity (repeated exposure) | Category 1  |

### Label elements



**Danger**

**Hazard statements**

Harmful in contact with skin.  
Causes skin irritation.  
Causes serious eye damage.  
May cause an allergic skin reaction.  
May cause cancer.  
Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statements - Prevention**

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

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention.  
Specific treatment (see supplemental first aid instructions on this label).

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Immediately call a POISON CENTER or doctor.

**Skin**

IF ON SKIN: Wash with plenty of water and soap.  
Call a POISON CENTER or doctor if you feel unwell.  
Take off contaminated clothing and wash it before reuse.  
If skin irritation or rash occurs: Get medical advice and attention.

**Precautionary Statements - Storage**

Store locked up.

**Precautionary Statements - Disposal**

Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

**Unknown acute toxicity**

89.2 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200**

No information available.

**Other information**

Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. This is a battery. In case of rupture: the above hazards exist.

### 3. Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

| Chemical name                              | CAS No.    | Weight-% | Hazardous Material<br>Information Review<br>Act registry number<br>(HMIRA registry #) | Date HMIRA filed and<br>date exemption<br>granted (if applicable) |
|--------------------------------------------|------------|----------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | 12190-79-3 | 42.28    | -                                                                                     | -                                                                 |
| Aluminum foil                              | 7429-90-5  | 9.68     | -                                                                                     | -                                                                 |
| Copper                                     | 7440-50-8  | 8.6      | -                                                                                     | -                                                                 |
| Phosphate(1-), hexafluoro-, lithium        | 21324-40-3 | 3.13     | -                                                                                     | -                                                                 |
| Ethylene carbonate                         | 96-49-1    | 3.09     | -                                                                                     | -                                                                 |
| Nickel                                     | 7440-02-0  | 0.45     | -                                                                                     | -                                                                 |

## 4. First-aid measures

### Description of first aid measures

|                                           |                                                                                                                                                                                                                                                           |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. IF exposed or concerned: Get medical advice/attention. First aid is upon rupture of sealed battery. In case of rupture:                                 |
| <b>Inhalation</b>                         | Remove to fresh air. Get medical attention immediately if symptoms occur.                                                                                                                                                                                 |
| <b>Eye contact</b>                        | Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. |
| <b>Skin contact</b>                       | Wash off immediately with soap and plenty of water for at least 15 minutes. May cause an allergic skin reaction. If symptoms persist, call a physician.                                                                                                   |
| <b>Ingestion</b>                          | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician.                                                                                                                                             |
| <b>Self-protection of the first aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid contact with skin, eyes or clothing.            |

### Most important symptoms and effects, both acute and delayed

|                            |                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------|
| <b>Symptoms</b>            | Burning sensation. Itching. Rashes. Hives.                                        |
| <b>Effects of Exposure</b> | May cause cancer. Causes damage to organs through prolonged or repeated exposure. |

### Indication of any immediate medical attention and special treatment needed

|                           |                                                                        |
|---------------------------|------------------------------------------------------------------------|
| <b>Note to physicians</b> | May cause sensitization in susceptible persons. Treat symptomatically. |
|---------------------------|------------------------------------------------------------------------|

## 5. Fire-fighting measures

|                                                          |                                                                                                         |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b><u>Suitable Extinguishing Media</u></b>               | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| <b>Unsuitable extinguishing media</b>                    | Do not scatter spilled material with high pressure water streams.                                       |
| <b><u>Specific hazards arising from the chemical</u></b> | Product is or contains a sensitizer. May cause sensitization by skin contact.                           |

**Explosion data**

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

**Special protective equipment and precautions for fire-fighters**

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions**

Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Other information**

Refer to protective measures listed in Sections 7 and 8.

**Methods and material for containment and cleaning up**

**Methods for containment**

Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**

Pick up and transfer to properly labeled containers.

**Prevention of secondary hazards**

Clean contaminated objects and areas thoroughly observing environmental regulations.

## 7. Handling and storage

**Precautions for safe handling**

**Advice on safe handling**

In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash before reuse.

**General hygiene considerations**

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

## 8. Exposure controls/personal protection

**Control Parameters**

**Exposure Limits**

| Chemical name                                            | ACGIH TLV                                                 | OSHA PEL                                                                    | NIOSH                                                                           |
|----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup>                               | -                                                                           | -                                                                               |
| Aluminum foil<br>7429-90-5                               | TWA: 1 mg/m <sup>3</sup> respirable<br>particulate matter | TWA: 15 mg/m <sup>3</sup> total dust<br>TWA: 5 mg/m <sup>3</sup> respirable | TWA: 10 mg/m <sup>3</sup> ; total dust<br>TWA: 5 mg/m <sup>3</sup> ; respirable |

|                                                   |                                 |                                                                                                                                          |                                                                                                                                        |
|---------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|                                                   |                                 | fraction<br>(vacated) TWA: 15 mg/m <sup>3</sup><br>total dust<br>(vacated) TWA: 5 mg/m <sup>3</sup><br>respirable fraction               | dust                                                                                                                                   |
| Copper<br>7440-50-8                               | TWA: 0.2 mg/m <sup>3</sup> fume | TWA: 0.1 mg/m <sup>3</sup> fume<br>TWA: 1 mg/m <sup>3</sup> dust and mist<br>(vacated) TWA: 0.1 mg/m <sup>3</sup> Cu<br>dust, fume, mist | TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>TWA: 0.1 mg/m <sup>3</sup> ; fume<br>IDLH: 100 mg/m <sup>3</sup> dust, fume<br>and mist |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | TWA: 2.5 mg/m <sup>3</sup> F    | TWA: 2.5 mg/m <sup>3</sup> F<br>(vacated) TWA: 2.5 mg/m <sup>3</sup>                                                                     | IDLH: 250 mg/m <sup>3</sup> F                                                                                                          |
| Nickel<br>7440-02-0                               | TWA: 1.5 mg/m <sup>3</sup>      | TWA: 1 mg/m <sup>3</sup><br>(vacated) TWA: 1 mg/m <sup>3</sup>                                                                           | IDLH: 10 mg/m <sup>3</sup><br>TWA: 0.015 mg/m <sup>3</sup>                                                                             |

| Chemical name                                            | Alberta                                                                          | British Columbia                                                                 | Ontario                                                                          | Quebec                                                                                  |
|----------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup> ;                                                    | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable<br>DS<br>RS                           | TWA: 0.02 mg/m <sup>3</sup> ;                                                    | TWAEV: 0.02 mg/m <sup>3</sup> ;<br>inhalable aerosol<br>fraction                        |
| Aluminum foil<br>7429-90-5                               | TWA: 10 mg/m <sup>3</sup> ; dust                                                 | TWA: 1.0 mg/m <sup>3</sup> ;<br>respirable                                       | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter                   | TWAEV: 10 mg/m <sup>3</sup> ;                                                           |
| Copper<br>7440-50-8                                      | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist | TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>TWA: 0.2 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist | TWAEV: 0.2 mg/m <sup>3</sup> ;<br>fume<br>TWAEV: 1 mg/m <sup>3</sup> ; dust<br>and mist |
| Phosphate(1-), hexafluoro-,<br>lithium<br>21324-40-3     | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWAEV: 2.5 mg/m <sup>3</sup> ;                                                          |
| Nickel<br>7440-02-0                                      | TWA: 1.5 mg/m <sup>3</sup> ;                                                     | TWA: 0.05 mg/m <sup>3</sup> ;                                                    | TWA: 1 mg/m <sup>3</sup> ;<br>inhalable fraction                                 | TWAEV: 1.5 mg/m <sup>3</sup> ;<br>inhalable dust                                        |

| Chemical name                              | Manitoba                                                                     | New Brunswick                                      | Newfoundland and<br>Labrador                                                 | Nova Scotia                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;                      | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS |
| Aluminum foil                              | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 1 mg/m <sup>3</sup> ;<br>respirable fraction  | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               |
| Copper                                     | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            | TWA: 0.2 mg/m <sup>3</sup> ; fume                  | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            |
| Phosphate(1-), hexafluoro-,<br>lithium     | TWA: 2.5 mg/m <sup>3</sup> ;                                                 | TWA: 2.5 mg/m <sup>3</sup> ;                       | TWA: 2.5 mg/m <sup>3</sup> ;                                                 | TWA: 2.5 mg/m <sup>3</sup> ;                                                 |
| Nickel                                     | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              |

| Chemical name                              | Nunavut                                                                                 | Prince Edward Island                                             | Saskatchewan                                                                                        | Yukon |
|--------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated substance | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated Chemical<br>Substance | -     |

| Chemical name                          | Nunavut                                                                                                                                                                | Prince Edward Island                                            | Saskatchewan                                                                                                                                                           | Yukon                                                                                                                                                                  |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aluminum foil                          | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                                                  | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter  | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                                                  | -                                                                                                                                                                      |
| Copper                                 | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 3 mg/m <sup>3</sup> ; dust<br>and mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume                               | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume<br>STEL: 3 mg/m <sup>3</sup> ; dust<br>and mist | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 0.2 mg/m <sup>3</sup> ; fume<br>STEL: 2 mg/m <sup>3</sup> ; dust<br>and mist |
| Phosphate(1-), hexafluoro-,<br>lithium | -                                                                                                                                                                      | TWA: 2.5 mg/m <sup>3</sup> ;                                    | TWA: 2.5 mg/m <sup>3</sup> ;<br>STEL: 5 mg/m <sup>3</sup> ;                                                                                                            | TWA: 2.5 mg/m <sup>3</sup> ;<br>STEL: 2.5 mg/m <sup>3</sup> ;                                                                                                          |
| Nickel                                 | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated substance                                        | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated Chemical<br>Substance                            | TWA: 1 mg/m <sup>3</sup> ;<br>STEL: 3 mg/m <sup>3</sup> ;                                                                                                              |

**Note**

See section 16 for terms and abbreviations.

**Other information on limit values**

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Biological occupational exposure  
limits**

| Chemical name                                            | ACGIH                                                                                  |
|----------------------------------------------------------|----------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | 15 µg/L - urine (Cobalt) - end of shift at end of workweek                             |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3        | 2 mg/L - urine (Fluoride) - prior to shift<br>3 mg/L - urine (Fluoride) - end of shift |
| Nickel<br>7440-02-0                                      | 5 µg/L - urine (Nickel) - post-shift at end of workweek                                |

**Appropriate engineering controls**

**Engineering controls**

Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Tight sealing safety goggles.

**Hand protection**

Wear suitable gloves. Impervious gloves.

**Skin and body protection**

Wear suitable protective clothing. Long sleeved clothing.

**Respiratory protection**

Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties**

|                                |                          |
|--------------------------------|--------------------------|
| Appearance                     | Black                    |
| Physical state                 | Solid                    |
| Color                          | No information available |
| Odor (includes odor threshold) | Odorless                 |
| Odor threshold                 | No information available |

| <u>Property</u>                                           | <u>Values</u>      | <u>Remarks • Method</u> |
|-----------------------------------------------------------|--------------------|-------------------------|
| Melting point / freezing point                            | No data available  | None known              |
| Boiling point (or initial boiling point or boiling range) | No data available  | None known              |
| Flammability                                              | No data available  | None known              |
| Flammability Limit in Air                                 |                    | None known              |
| Upper flammability or explosive limits                    | No data available  |                         |
| Lower flammability or explosive limits                    | No data available  |                         |
| Flash point                                               | No data available  | None known              |
| Autoignition temperature                                  | No data available  | None known              |
| Decomposition temperature                                 | No data available  | None known              |
| SADT (°C)                                                 | No data available  | None known              |
| pH                                                        | No data available  | None known              |
| pH (as aqueous solution)                                  | No data available  | None known              |
| Kinematic viscosity                                       | No data available  | None known              |
| Dynamic viscosity                                         | No data available  | None known              |
| Solubility                                                | No data available  | None known              |
| Water solubility                                          | Insoluble in water | None known              |
| Partition coefficient n-octanol/water (log value)         | 1                  | None known              |
| Vapor pressure (includes evaporation rate)                | No data available  | None known              |
| Evaporation rate                                          | No data available  | None known              |
| Density and/or relative density                           | No data available  | None known              |
| Bulk density                                              | No data available  |                         |
| Liquid Density                                            | No data available  |                         |
| Relative vapor density                                    | No data available  | None known              |
| Particle characteristics                                  |                    | None known              |
| Particle Size                                             | No data available  |                         |
| Particle Size Distribution                                | No data available  |                         |

**Other information**

|                    |         |
|--------------------|---------|
| Miscible           | No      |
| Heat of combustion | 88.6335 |

**10. Stability and reactivity**

|                                    |                                                      |
|------------------------------------|------------------------------------------------------|
| Reactivity                         | No information available.                            |
| Chemical stability                 | Stable under normal conditions.                      |
| Possibility of hazardous reactions | None under normal processing.                        |
| Conditions to avoid                | None known based on information supplied.            |
| Incompatible materials             | Strong acids. Strong bases. Strong oxidizing agents. |
| Hazardous decomposition products   | None known based on information supplied.            |

**11. Toxicological information**

### Information on likely routes of exposure

|                            |                                                                                                                                                                                                                                                     |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Information</b> | Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:                                                                                                                                       |
| <b>Inhalation</b>          | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.                                                                                                                                        |
| <b>Eye contact</b>         | Specific test data for the substance or mixture is not available. Causes serious eye damage. May cause irreversible damage to eyes.                                                                                                                 |
| <b>Skin contact</b>        | Specific test data for the substance or mixture is not available. May cause sensitization by skin contact. Causes skin irritation. (based on components). Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. |
| <b>Ingestion</b>           | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.                                                                                                   |

### Symptoms related to the physical, chemical and toxicological characteristics

|                       |                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Symptoms</b>       | Redness. Burning. May cause blindness. Itching. Rashes. Hives. May cause redness and tearing of the eyes. |
| <b>Acute toxicity</b> | Harmful by skin contact.                                                                                  |

#### **Numerical measures of toxicity**

The following ATE values have been calculated for the mixture

|                               |                 |
|-------------------------------|-----------------|
| ATEmix (oral)                 | 11,082.20 mg/kg |
| ATEmix (dermal)               | 1,035.10 mg/kg  |
| ATEmix (inhalation-gas)       | 99,999.00 ppm   |
| ATEmix (inhalation-vapor)     | 99,999.00 mg/l  |
| ATEmix (inhalation-dust/mist) | 99,999.00 mg/l  |

#### **Unknown acute toxicity**

89.2 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

#### **Component Information**

| Chemical name                               | Oral LD50            | Dermal LD50              | Inhalation LC50                     |
|---------------------------------------------|----------------------|--------------------------|-------------------------------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3 | > 5000 mg/kg ( Rat ) | > 2000 mg/kg ( Rat )     | > 5.05 mg/L ( Rat ) 4 h             |
| Aluminum foil<br>7429-90-5                  | -                    | -                        | > 0.888 mg/L ( Rat ) 4 h            |
| Copper<br>7440-50-8                         | -                    | -                        | > 5.11 mg/L ( Rat ) 4 h             |
| Ethylene carbonate<br>96-49-1               | = 10 g/kg ( Rat )    | > 26420 mg/kg ( Rabbit ) | > 730 mg/m <sup>3</sup> ( Rat ) 8 h |
| Nickel<br>7440-02-0                         | > 9000 mg/kg ( Rat ) | -                        | > 10.2 mg/L ( Rat ) 1 h             |

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                                          |                                                                                                  |
|------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Skin corrosion/irritation</b>         | Classification based on data available for ingredients. Causes skin irritation.                  |
| <b>Serious eye damage/eye irritation</b> | Classification based on data available for ingredients. Causes burns. Causes serious eye damage. |
| <b>Respiratory or skin sensitization</b> | May cause an allergic skin reaction.                                                             |
| <b>Germ cell mutagenicity</b>            | No information available.                                                                        |

**Carcinogenicity** Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name                                            | ACGIH                                                                   | IARC     | NTP                    | OSHA |
|----------------------------------------------------------|-------------------------------------------------------------------------|----------|------------------------|------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | A3<br>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans | Group 2B | Reasonably Anticipated | X    |
| Aluminum foil<br>7429-90-5                               | A4 - Not Classifiable as a Human Carcinogen                             | -        | -                      | -    |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3        | A4 - Not Classifiable as a Human Carcinogen                             | -        | -                      | -    |
| Nickel<br>7440-02-0                                      | A5 - Not Suspected as a Human Carcinogen                                | Group 2B | Reasonably Anticipated | X    |

#### Legend

**ACGIH (American Conference of Governmental Industrial Hygienists)**

A3 - Animal Carcinogen

A4 - Not classifiable as a human carcinogen

**IARC (International Agency for Research on Cancer)**

Group 2B - Possibly carcinogenic to humans

**NTP (National Toxicology Program)**

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

**Occupational Safety and Health Administration of the US Department of Labor**

X - Present

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard** No information available.

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

| Chemical name       | Algae/aquatic plants                                                                                                                     | Fish                                                                                                                                                                                                                                  | Toxicity to microorganisms | Crustacea                                |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------|
| Copper<br>7440-50-8 | 72h EC50: 0.0426 - 0.0535 mg/L<br>(Pseudokirchneriella subcapitata)<br>96h EC50: 0.031 - 0.054 mg/L<br>(Pseudokirchneriella subcapitata) | 96h LC50: 0.0068 - 0.0156 mg/L<br>(Pimephales promelas)<br>96h LC50: < 0.3 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.2 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.052 mg/L<br>(Oncorhynchus mykiss)<br>96h LC50: = 1.25 mg/L | -                          | 48h EC50: = 0.03 mg/L<br>(Daphnia magna) |

|                               |                                                                                                                                          |                                                                                                                                                                    |   |                                                                                  |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------|
|                               |                                                                                                                                          | (Lepomis macrochirus)<br>96h LC50: = 0.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.8 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.112 mg/L<br>(Poecilia reticulata) |   |                                                                                  |
| Ethylene carbonate<br>96-49-1 | -                                                                                                                                        | 96h LC50: > 100 mg/L<br>(Oncorhynchus mykiss)                                                                                                                      | - | -                                                                                |
| Nickel<br>7440-02-0           | 72h EC50: = 0.18 mg/L<br>(Pseudokirchneriella<br>subcapitata)<br>96h EC50: 0.174 -<br>0.311 mg/L<br>(Pseudokirchneriella<br>subcapitata) | 96h LC50: > 100 mg/L<br>(Brachydanio rerio)<br>96h LC50: = 1.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 10.4 mg/L<br>(Cyprinus carpio)                             | - | 48h EC50: > 100 mg/L<br>(Daphnia magna)<br>48h EC50: = 1 mg/L<br>(Daphnia magna) |

**Persistence and degradability** No information available.

#### Bioaccumulation

#### Component Information

| Chemical name                 | Partition coefficient |
|-------------------------------|-----------------------|
| Ethylene carbonate<br>96-49-1 | 0.11                  |

**Other adverse effects** No information available.

### 13. Disposal considerations

#### Disposal methods

|                                            |                                                                                                                 |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Waste from residues/unused products</b> | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. |
| <b>Contaminated packaging</b>              | Do not reuse empty containers.                                                                                  |
| <b>California waste information</b>        | This product contains one or more substances that are listed with the State of California as a hazardous waste. |

### 14. Transport information

**Note:** The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)  
Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods"

when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

**DOT**  
Hazard Class NOT REGULATED  
Reportable quantity (lbs) N/A  
Reportable quantity (lbs) (calculated) Nickel: RQ (lb)= 100.00  
Reportable Quantity (RQ) Nickel: RQ (lb)= 22222.00  
Reportable quantity (kg) (Nickel: RQ (kg)= 45.40)  
Reportable quantity (kg) (calculated) Nickel: RQ (kg)= 10088.89  
DOT Marine Pollutant PP  
Marine pollutant Copper  
Emergency Response Guide Number 147

**TDG** Not applicable

UN number or ID number UN3480  
UN proper shipping name LITHIUM ION BATTERIES  
Transport hazard class(es) 9  
Description UN3480, LITHIUM ION BATTERIES, 9  
Special Provisions A88, A99, A154, A183, A201, A213

**IATA**  
UN number or ID number UN3480  
UN proper shipping name LITHIUM ION BATTERIES  
Transport hazard class(es) 9  
Environmental hazards Yes  
ERG Code 12FZ  
Description UN3480, LITHIUM ION BATTERIES, 9  
  
Transport hazard class(es) N/A  
Marine pollutant indicator NP  
EmS-No. F-A, S-I

## 15. Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

#### International Inventories

TSCA Contact supplier for inventory compliance status.

DSL/NDSL Contact supplier for inventory compliance status.  
EINECS/ELINCS Contact supplier for inventory compliance status.  
ENCS Contact supplier for inventory compliance status.  
IECSC Contact supplier for inventory compliance status.  
KECI Contact supplier for inventory compliance status.

**PICCS** Contact supplier for inventory compliance status.  
**AIIC** Contact supplier for inventory compliance status.  
**NZIoC** Contact supplier for inventory compliance status.  
**TCSI** Contact supplier for inventory compliance status.

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing Chemicals Inventory  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AIIC** - Australian Inventory of Industrial Chemicals  
**NZIoC** - New Zealand Inventory of Chemicals  
**TCSI** - Taiwan Chemical Substance Inventory

**US Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Chemical name                              | SARA 313 - Threshold Values % |
|--------------------------------------------|-------------------------------|
| Lithium Cobalt Oxide (CoLiO2) - 12190-79-3 | 0.1                           |
| Aluminum foil - 7429-90-5                  | 1.0                           |
| Copper - 7440-50-8                         | 1.0                           |
| Nickel - 7440-02-0                         | 0.1                           |

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

| Chemical name       | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Copper<br>7440-50-8 | -                           | X                      | X                         | -                          |
| Nickel<br>7440-02-0 | -                           | X                      | X                         | -                          |

**CAA (Clean Air Act)**

This product contains the following substances which are regulated pollutants to the Clean Air Act (CAA).

| Chemical name                               | Hazardous air pollutants (HAPs) | Ozone-depleting substances (ODS) |
|---------------------------------------------|---------------------------------|----------------------------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3 | Present                         | -                                |
| Aluminum foil<br>7429-90-5                  | Hazardous air pollutants (HAPs) | -                                |

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

| Chemical name | Hazardous Substances RQs | Extremely Hazardous Substances RQs | Reportable Quantity (RQ) |
|---------------|--------------------------|------------------------------------|--------------------------|
| Copper        | 5000 lb                  | -                                  | RQ 5000 lb final RQ      |

|           |        |   |                     |
|-----------|--------|---|---------------------|
| 7440-50-8 |        |   | RQ 2270 kg final RQ |
| Nickel    | 100 lb | - | RQ 100 lb final RQ  |
| 7440-02-0 |        |   | RQ 45.4 kg final RQ |

#### US State Regulations

##### California Proposition 65

This product contains the following Proposition 65 chemicals:.

| Chemical name      | California Proposition 65 |
|--------------------|---------------------------|
| Nickel - 7440-02-0 | Carcinogen                |

#### U.S. State Right-to-Know Regulations

| Chemical name                                     | New Jersey | Massachusetts | Pennsylvania |
|---------------------------------------------------|------------|---------------|--------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3       | X          | -             | X            |
| Aluminum foil<br>7429-90-5                        | X          | X             | X            |
| Copper<br>7440-50-8                               | X          | X             | X            |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | X          | -             | -            |
| Ethylene carbonate<br>96-49-1                     | -          | X             | X            |
| Dimethyl carbonate<br>616-38-6                    | X          | X             | X            |
| Nickel<br>7440-02-0                               | X          | X             | X            |

#### U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

## 16. Other information

|             |                         |                       |                           |                              |
|-------------|-------------------------|-----------------------|---------------------------|------------------------------|
| <b>NFPA</b> | <b>Health hazards</b> 1 | <b>Flammability</b> 0 | <b>Instability</b> 0      | <b>Special hazards</b> -     |
| <b>HMIS</b> | <b>Health hazards</b> 0 | <b>Flammability</b> 0 | <b>Physical hazards</b> 0 | <b>Personal protection</b> X |

Key or legend to abbreviations and acronyms used in the safety data sheet

#### Legend

|         |                                                                                                 |
|---------|-------------------------------------------------------------------------------------------------|
| ACGIH   | American Conference of Governmental Industrial Hygienists                                       |
| ADN     | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR     | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)             |
| AIIC    | Australian Inventory of Industrial Chemicals                                                    |
| ATE     | Acute Toxicity Estimate                                                                         |
| ASTM    | American Society for the Testing of Materials                                                   |
| bar     | Biological Reference Values for Chemical Compounds in the Work Area                             |
| BAT     | Biological tolerance values for occupational exposure                                           |
| BEL     | Biological exposure limits                                                                      |
| bw      | Body weight                                                                                     |
| Ceiling | Maximum limit value                                                                             |
| CMR     | Carcinogen, Mutagen or Reproductive Toxicant                                                    |
| DOT     | Department of Transportation (United States)                                                    |
| DSL     | Domestic Substances List (Canada)                                                               |
| EmS     | Emergency Schedule                                                                              |

|         |                                                                                                     |
|---------|-----------------------------------------------------------------------------------------------------|
| ENCS    | Existing and New Chemical Substances (Japan)                                                        |
| EPA     | Environmental Protection Agency                                                                     |
| GHS     | Globally Harmonized System                                                                          |
| HMIS    | Hazardous Materials Identification System                                                           |
| IARC    | International Agency for Research on Cancer                                                         |
| IATA    | International Air Transport Association                                                             |
| IBC     | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO    | International Civil Aviation Organization                                                           |
| IECSC   | Inventory of Existing Chemical Substances in China                                                  |
| IMDG    | International Maritime Dangerous Goods                                                              |
| IMO     | International Maritime Organization                                                                 |
| ISO     | International Organization for Standardization                                                      |
| KECI    | Korean Existing Chemicals Inventory                                                                 |
| LC50    | Lethal Concentration to 50% of a test population                                                    |
| LD50    | Lethal Dose to 50% of a test population (Median Lethal Dose)                                        |
| MARPOL  | International Convention for the Prevention of Pollution from Ships                                 |
| NFPA    | National Fire Protection Association                                                                |
| NIOSH   | National Institute for Occupational Safety and Health                                               |
| n.o.s.  | Not Otherwise Specified                                                                             |
| NOAEC   | No Observed Adverse Effect Concentration                                                            |
| NOAEL   | No Observed Adverse Effect Level                                                                    |
| NOELR   | No Observable Effect Loading Rate                                                                   |
| NTP     | National Toxicology Program (United States)                                                         |
| NZIoC   | New Zealand Inventory of Chemicals                                                                  |
| OECD    | Organization for Economic Cooperation and Development                                               |
| OEL     | Occupational exposure limits                                                                        |
| OSHA    | Occupational Safety and Health Administration of the US Department of Labor                         |
| PBT     | Persistent, Bioaccumulative and Toxic substance                                                     |
| PICCS   | Philippines Inventory of Chemicals and Chemical Substances                                          |
| PMT     | Persistent, Mobile and Toxic                                                                        |
| PPE     | Personal protective equipment                                                                       |
| QSAR    | Quantitative Structure Activity Relationship                                                        |
| RID     | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)                 |
| SADT    | Self-Accelerating Decomposition Temperature                                                         |
| SAR     | Structure-activity relationship                                                                     |
| SARA    | Superfund Amendments and Reauthorization Act                                                        |
| SDS     | Safety Data Sheet                                                                                   |
| SL      | Surface Limit                                                                                       |
| STEL    | Short Term Exposure Limit                                                                           |
| STOT RE | Specific target organ toxicity - Repeated exposure                                                  |
| STOT SE | Specific target organ toxicity - Single exposure                                                    |
| TCSI    | Taiwan Chemical Substance Inventory                                                                 |
| TDG     | Transport of Dangerous Goods (Canada)                                                               |
| TSCA    | Toxic Substances Control Act (United States)                                                        |
| TWA     | Time-Weighted Average                                                                               |
| UN      | United Nations                                                                                      |
| VOC     | Volatile organic compounds                                                                          |
| vPvB    | Very Persistent and Very Bioaccumulative                                                            |
| vPvM    | Very Persistent and Very Mobile                                                                     |
| As      | Allergenic substance                                                                                |
| DS      | Dermal Sensitizer                                                                                   |
| Ot      | Ototoxicant                                                                                         |
| pOt     | Ototoxicant - potential to cause hearing disorders                                                  |
| PS      | Photosensitizer                                                                                     |
| RS      | Respiratory Sensitizer                                                                              |
| S       | Sensitizer                                                                                          |

|     |                                                       |
|-----|-------------------------------------------------------|
| poS | Sensitizer - capable of causing occupational asthma   |
| Sa  | Simple asphyxiant                                     |
| Sd  | Skin designation                                      |
| pSd | Skin designation - potential for cutaneous absorption |
| Sdv | Skin designation - vacated                            |
| Sk  | Skin notation                                         |
| dSk | Skin notation - danger of cutaneous absorption        |
| pSk | Skin notation - potential for cutaneous absorption    |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AEGL(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
National Institute of Technology and Evaluation (NITE)  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

**Prepared By** Product Stewardship  
23 British American Blvd.  
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1-800-572-6501.

**Issuing Date** 15-Aug-2025

**Revision date** 15-Aug-2025

**Revision Note** No information available.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
US OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canada WHMIS which includes the amended Hazardous  
Products Act (HPA) and the Hazardous Products Regulation (HPR)

Issuing Date 15-Aug-2025

Revision date 15-Aug-2025

Revision Number 1

## 1. Identification

### Product identifier

**Product Name** Rechargeable Li-ion Battery L20B2PF0 by Vendor - by BYD

### Other means of identification

**Product Code(s)** 1869328

**Synonyms** None

### Recommended use of the chemical and restrictions on use

**Recommended use** Lithium Ion Battery

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

**Supplier Name** Lenovo LNB laptops

### Supplier Address

Songtao Road 696  
shanghai  
shanghai  
201203  
CN

### Emergency telephone number

**Supplier Phone Number** Phone:18116118603

**24 Hour Emergency Phone Number** 18116118603

**Emergency Telephone** No information available

## 2. Hazard(s) identification

### Classification of the substance or mixture

|                                                    |                           |
|----------------------------------------------------|---------------------------|
| Skin corrosion/irritation                          | Category 1 Sub-category B |
| Serious eye damage/eye irritation                  | Category 1                |
| Skin sensitization                                 | Category 1                |
| Carcinogenicity                                    | Category 1B               |
| Specific target organ toxicity (repeated exposure) | Category 1                |

### Label elements



**Danger**

**Hazard statements**

Causes severe skin burns and eye damage.  
May cause an allergic skin reaction.  
May cause cancer.  
Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statements - Prevention**

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

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention.  
Immediately call a POISON CENTER or doctor.  
Specific treatment (see supplemental first aid instructions on this label).

**Eyes**

Immediately call a POISON CENTER or doctor.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Skin**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
Wash contaminated clothing before reuse.  
IF ON SKIN: Wash with plenty of water and soap.  
If skin irritation or rash occurs: Get medical advice and attention.  
Take off contaminated clothing and wash it before reuse.

**Inhalation**

IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Immediately call a POISON CENTER or doctor.

**Ingestion**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

**Precautionary Statements - Storage**

Store locked up.

**Precautionary Statements - Disposal**

Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200**

No information available.

**Other information**

May be harmful if swallowed. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. This is a battery. In case of rupture: the above hazards exist.

### 3. Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

| Chemical name                              | CAS No.    | Weight-% | Hazardous Material Information Review Act registry number (HMIRA registry #) | Date HMIRA filed and date exemption granted (if applicable) |
|--------------------------------------------|------------|----------|------------------------------------------------------------------------------|-------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | 12190-79-3 | 45       | -                                                                            | -                                                           |
| Graphite                                   | 7782-42-5  | 25       | -                                                                            | -                                                           |
| Propylene carbonate                        | 108-32-7   | 10       | -                                                                            | -                                                           |
| Propyl propionate                          | 106-36-5   | 10       | -                                                                            | -                                                           |
| Ethylene carbonate                         | 96-49-1    | 10       | -                                                                            | -                                                           |
| Copper                                     | 7440-50-8  | 10       | -                                                                            | -                                                           |
| Phosphate(1-), hexafluoro-, lithium        | 21324-40-3 | 5        | -                                                                            | -                                                           |
| Nickel                                     | 7440-02-0  | 5        | -                                                                            | -                                                           |
| Carbon black                               | 1333-86-4  | 2        | -                                                                            | -                                                           |
| Aluminum foil                              | 7429-90-5  | 2        | -                                                                            | -                                                           |

## 4. First-aid measures

### Description of first aid measures

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Immediate medical attention is required. Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. First aid is upon rupture of sealed battery. In case of rupture:                                                                                                                                                                                                              |
| <b>Inhalation</b>                         | Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. |
| <b>Eye contact</b>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.                                                                                                                                                                              |
| <b>Skin contact</b>                       | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention. May cause an allergic skin reaction.                                                                                                                                                                                                                                                            |
| <b>Ingestion</b>                          | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.                                                                                                                                                                                                                                                                                                           |
| <b>Self-protection of the first aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Wear personal protective clothing (see section 8).                                                                                                       |

### Most important symptoms and effects, both acute and delayed

|                            |                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------|
| <b>Symptoms</b>            | Burning sensation. Itching. Rashes. Hives.                                        |
| <b>Effects of Exposure</b> | May cause cancer. Causes damage to organs through prolonged or repeated exposure. |

### Indication of any immediate medical attention and special treatment needed

|                           |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>Note to physicians</b> | Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. |
|---------------------------|--------------------------------------------------------------------------------------|

Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitization in susceptible persons. Treat symptomatically.

## 5. Fire-fighting measures

### Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

### Unsuitable extinguishing media

Do not scatter spilled material with high pressure water streams.

### Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. Product is or contains a sensitizer. May cause sensitization by skin contact.

### Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

### Special protective equipment and precautions for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

#### Personal precautions

Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

#### Other information

Refer to protective measures listed in Sections 7 and 8.

### Methods and material for containment and cleaning up

#### Methods for containment

Prevent further leakage or spillage if safe to do so.

#### Methods for cleaning up

Pick up and transfer to properly labeled containers.

#### Prevention of secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations.

## 7. Handling and storage

### Precautions for safe handling

#### Advice on safe handling

In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

#### General hygiene considerations

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be

allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

## 8. Exposure controls/personal protection

**Control Parameters**

**Exposure Limits**

| Chemical name                                            | ACGIH TLV                                                                               | OSHA PEL                                                                                                                                                                                                                                                                                                                                                                   | NIOSH                                                                                                                                                      |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup>                                                             | -                                                                                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                          |
| Graphite<br>7782-42-5                                    | TWA: 2 mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers | TWA: 15 mg/m <sup>3</sup> total dust synthetic<br>TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic<br>TWA: 15 mppcf respirable dust natural<br>(vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural<br>(vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic<br>(vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic<br>TWA: 15 mppcf natural | IDLH: 1250 mg/m <sup>3</sup><br>TWA: 2.5 mg/m <sup>3</sup> respirable dust                                                                                 |
| Copper<br>7440-50-8                                      | TWA: 0.2 mg/m <sup>3</sup> fume                                                         | TWA: 0.1 mg/m <sup>3</sup> fume<br>TWA: 1 mg/m <sup>3</sup> dust and mist<br>(vacated) TWA: 0.1 mg/m <sup>3</sup> Cu dust, fume, mist                                                                                                                                                                                                                                      | TWA: 1 mg/m <sup>3</sup> ; dust and mist<br>TWA: 0.1 mg/m <sup>3</sup> ; fume<br>IDLH: 100 mg/m <sup>3</sup> dust, fume and mist                           |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3        | TWA: 2.5 mg/m <sup>3</sup> F                                                            | TWA: 2.5 mg/m <sup>3</sup> F<br>(vacated) TWA: 2.5 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                       | IDLH: 250 mg/m <sup>3</sup> F                                                                                                                              |
| Nickel<br>7440-02-0                                      | TWA: 1.5 mg/m <sup>3</sup>                                                              | TWA: 1 mg/m <sup>3</sup><br>(vacated) TWA: 1 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                             | IDLH: 10 mg/m <sup>3</sup><br>TWA: 0.015 mg/m <sup>3</sup>                                                                                                 |
| Carbon black<br>1333-86-4                                | TWA: 3 mg/m <sup>3</sup> inhalable particulate matter                                   | TWA: 3.5 mg/m <sup>3</sup><br>(vacated) TWA: 3.5 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                         | TWA: 3.5 mg/m <sup>3</sup> ; TWA: 0.1 mg/m <sup>3</sup> ; Carbon black in presence of Polycyclic aromatic hydrocarbons PAH<br>IDLH: 1750 mg/m <sup>3</sup> |
| Aluminum foil<br>7429-90-5                               | TWA: 1 mg/m <sup>3</sup> respirable particulate matter                                  | TWA: 15 mg/m <sup>3</sup> total dust<br>TWA: 5 mg/m <sup>3</sup> respirable fraction<br>(vacated) TWA: 15 mg/m <sup>3</sup> total dust<br>(vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction                                                                                                                                                                           | TWA: 10 mg/m <sup>3</sup> ; total dust<br>TWA: 5 mg/m <sup>3</sup> ; respirable dust                                                                       |

| Chemical name                                            | Alberta                       | British Columbia                                       | Ontario                       | Quebec                                                           |
|----------------------------------------------------------|-------------------------------|--------------------------------------------------------|-------------------------------|------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup> ; | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ; | TWAEV: 0.02 mg/m <sup>3</sup> ;<br>inhalable aerosol<br>fraction |

|                                                      |                                                                                  |                                                                                  |                                                                                  |                                                                                         |
|------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Graphite<br>7782-42-5                                | TWA: 2 mg/m <sup>3</sup> ;<br>respirable                                         | TWA: 2 mg/m <sup>3</sup> ;<br>respirable                                         | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter                   | TWAEV: 2 mg/m <sup>3</sup> ;<br>respirable dust                                         |
| Copper<br>7440-50-8                                  | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist | TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>TWA: 0.2 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist | TWAEV: 0.2 mg/m <sup>3</sup> ;<br>fume<br>TWAEV: 1 mg/m <sup>3</sup> ; dust<br>and mist |
| Phosphate(1-), hexafluoro-,<br>lithium<br>21324-40-3 | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWAEV: 2.5 mg/m <sup>3</sup> ;                                                          |
| Nickel<br>7440-02-0                                  | TWA: 1.5 mg/m <sup>3</sup> ;                                                     | TWA: 0.05 mg/m <sup>3</sup> ;                                                    | TWA: 1 mg/m <sup>3</sup> ;<br>inhalable fraction                                 | TWAEV: 1.5 mg/m <sup>3</sup> ;<br>inhalable dust                                        |
| Carbon black<br>1333-86-4                            | TWA: 3.5 mg/m <sup>3</sup> ;                                                     | TWA: 3 mg/m <sup>3</sup> ;<br>inhalable                                          | TWA: 3 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter                    | TWAEV: 3 mg/m <sup>3</sup> ;<br>inhalable dust                                          |
| Aluminum foil<br>7429-90-5                           | TWA: 10 mg/m <sup>3</sup> ; dust                                                 | TWA: 1.0 mg/m <sup>3</sup> ;<br>respirable                                       | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter                   | TWAEV: 10 mg/m <sup>3</sup> ;                                                           |

| Chemical name                              | Manitoba                                                                     | New Brunswick                                      | Newfoundland and<br>Labrador                                                 | Nova Scotia                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;                      | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS |
| Graphite                                   | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 2 mg/m <sup>3</sup> ;<br>respirable fraction  | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               |
| Copper                                     | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            | TWA: 0.2 mg/m <sup>3</sup> ; fume                  | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            |
| Phosphate(1-), hexafluoro-,<br>lithium     | TWA: 2.5 mg/m <sup>3</sup> ;                                                 | TWA: 2.5 mg/m <sup>3</sup> ;                       | TWA: 2.5 mg/m <sup>3</sup> ;                                                 | TWA: 2.5 mg/m <sup>3</sup> ;                                                 |
| Nickel                                     | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              |
| Carbon black                               | TWA: 3 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter                | TWA: 3 mg/m <sup>3</sup> ;<br>inhalable fraction   | TWA: 3 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter                | TWA: 3 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter                |
| Aluminum foil                              | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 1 mg/m <sup>3</sup> ;<br>respirable fraction  | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               |

| Chemical name                              | Nunavut                                                                                                              | Prince Edward Island                                             | Saskatchewan                                                                                                           | Yukon                                                                                                                  |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated substance                              | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated Chemical<br>Substance                    | -                                                                                                                      |
| Graphite                                   | TWA: 2 mg/m <sup>3</sup> ;<br>respirable fraction<br>STEL: 4 mg/m <sup>3</sup> ;<br>respirable fraction              | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter   | TWA: 2 mg/m <sup>3</sup> ;<br>respirable fraction<br>STEL: 4 mg/m <sup>3</sup> ;<br>respirable fraction                | TWA: 20 mppcf;<br>TWA: 30 mppcf;<br>TWA: 10 mg/m <sup>3</sup> ;                                                        |
| Copper                                     | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 3 mg/m <sup>3</sup> ; dust | TWA: 0.2 mg/m <sup>3</sup> ; fume                                | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 0.2 mg/m <sup>3</sup> ; fume |

| Chemical name                          | Nunavut                                                                                                                         | Prince Edward Island                                            | Saskatchewan                                                                                                                                | Yukon                                                         |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|                                        | and mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume                                                                                  |                                                                 | STEL: 3 mg/m <sup>3</sup> ; dust<br>and mist                                                                                                | STEL: 2 mg/m <sup>3</sup> ; dust<br>and mist                  |
| Phosphate(1-), hexafluoro-,<br>lithium | -                                                                                                                               | TWA: 2.5 mg/m <sup>3</sup> ;                                    | TWA: 2.5 mg/m <sup>3</sup> ;<br>STEL: 5 mg/m <sup>3</sup> ;                                                                                 | TWA: 2.5 mg/m <sup>3</sup> ;<br>STEL: 2.5 mg/m <sup>3</sup> ; |
| Nickel                                 | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated substance | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated Chemical<br>Substance | TWA: 1 mg/m <sup>3</sup> ;<br>STEL: 3 mg/m <sup>3</sup> ;     |
| Carbon black                           | TWA: 3.5 mg/m <sup>3</sup> ;<br>STEL: 7 mg/m <sup>3</sup> ;                                                                     | TWA: 3 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter   | TWA: 3.5 mg/m <sup>3</sup> ;<br>STEL: 7 mg/m <sup>3</sup> ;                                                                                 | TWA: 3.5 mg/m <sup>3</sup> ;<br>STEL: 7 mg/m <sup>3</sup> ;   |
| Aluminum foil                          | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                           | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter  | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                       | -                                                             |

**Note**

See section 16 for terms and abbreviations.

**Other information on limit values**

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Biological occupational exposure limits**

| Chemical name                                     | ACGIH                                                                                  |
|---------------------------------------------------|----------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3       | 15 µg/L - urine (Cobalt) - end of shift at end of workweek                             |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | 2 mg/L - urine (Fluoride) - prior to shift<br>3 mg/L - urine (Fluoride) - end of shift |
| Nickel<br>7440-02-0                               | 5 µg/L - urine (Nickel) - post-shift at end of workweek                                |

**Appropriate engineering controls**

**Engineering controls**

Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Tight sealing safety goggles. Face protection shield.

**Hand protection**

Wear suitable gloves. Impervious gloves.

**Skin and body protection**

Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**Respiratory protection**

Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties**

|                                |                          |
|--------------------------------|--------------------------|
| Appearance                     | Black                    |
| Physical state                 | Solid                    |
| Color                          | No information available |
| Odor (includes odor threshold) | Odorless                 |
| Odor threshold                 | No information available |

| Property                                                  | Values             | Remarks • Method |
|-----------------------------------------------------------|--------------------|------------------|
| Melting point / freezing point                            | No data available  | None known       |
| Boiling point (or initial boiling point or boiling range) | No data available  | None known       |
| Flammability                                              | No data available  | None known       |
| Flammability Limit in Air                                 |                    | None known       |
| Upper flammability or explosive limits                    | No data available  |                  |
| Lower flammability or explosive limits                    | No data available  |                  |
| Flash point                                               | No data available  | None known       |
| Autoignition temperature                                  | No data available  | None known       |
| Decomposition temperature                                 | No data available  | None known       |
| SADT (°C)                                                 | No data available  | None known       |
| pH                                                        | No data available  | None known       |
| pH (as aqueous solution)                                  | No data available  | None known       |
| Kinematic viscosity                                       | No data available  | None known       |
| Dynamic viscosity                                         | No data available  | None known       |
| Solubility                                                | No data available  | None known       |
| Water solubility                                          | Insoluble in water | None known       |
| Partition coefficient n-octanol/water (log value)         | 1                  | None known       |
| Vapor pressure (includes evaporation rate)                | No data available  | None known       |
| Evaporation rate                                          | No data available  | None known       |
| Density and/or relative density                           | No data available  | None known       |
| Bulk density                                              | No data available  |                  |
| Liquid Density                                            | No data available  |                  |
| Relative vapor density                                    | No data available  | None known       |
| Particle characteristics                                  |                    | None known       |
| Particle Size                                             | No data available  |                  |
| Particle Size Distribution                                | No data available  |                  |

#### Other information

|                    |       |
|--------------------|-------|
| Miscible           | No    |
| Heat of combustion | 19.71 |

## 10. Stability and reactivity

|                                    |                                                     |
|------------------------------------|-----------------------------------------------------|
| Reactivity                         | No information available.                           |
| Chemical stability                 | Stable under normal conditions.                     |
| Possibility of hazardous reactions | None under normal processing.                       |
| Conditions to avoid                | Exposure to air or moisture over prolonged periods. |
| Incompatible materials             | Acids. Bases. Oxidizing agent.                      |
| Hazardous decomposition products   | None known based on information supplied.           |

## 11. Toxicological information

### Information on likely routes of exposure

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Information</b> | Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Inhalation</b>          | Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.                                   |
| <b>Eye contact</b>         | Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.                                                                                                                                                                                                                                                                                         |
| <b>Skin contact</b>        | Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.                                                                                                                                                                                                                                                                      |
| <b>Ingestion</b>           | Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. |

**Symptoms related to the physical, chemical and toxicological characteristics**

|                       |                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------|
| <b>Symptoms</b>       | Redness. Burning. May cause blindness. Coughing and/ or wheezing. Itching. Rashes. Hives. |
| <b>Acute toxicity</b> | No information available.                                                                 |

**Numerical measures of toxicity**

The following ATE values have been calculated for the mixture

|                               |                |
|-------------------------------|----------------|
| ATEmix (oral)                 | 4,532.60 mg/kg |
| ATEmix (dermal)               | 5,782.50 mg/kg |
| ATEmix (inhalation-gas)       | 45,000.00 ppm  |
| ATEmix (inhalation-vapor)     | 110.00 mg/l    |
| ATEmix (inhalation-dust/mist) | 15.00 mg/l     |

**Component Information**

| Chemical name                                            | Oral LD50             | Dermal LD50              | Inhalation LC50                      |
|----------------------------------------------------------|-----------------------|--------------------------|--------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | > 5000 mg/kg ( Rat )  | > 2000 mg/kg ( Rat )     | > 5.05 mg/L ( Rat ) 4 h              |
| Graphite<br>7782-42-5                                    | -                     | -                        | > 2000 mg/m <sup>3</sup> ( Rat ) 4 h |
| Propylene carbonate<br>108-32-7                          | = 29000 mg/kg ( Rat ) | > 3000 mg/kg ( Rabbit )  | -                                    |
| Propyl propionate<br>106-36-5                            | = 10331 mg/kg ( Rat ) | = 16 mL/kg ( Rabbit )    | -                                    |
| Ethylene carbonate<br>96-49-1                            | = 10 g/kg ( Rat )     | > 26420 mg/kg ( Rabbit ) | > 730 mg/m <sup>3</sup> ( Rat ) 8 h  |
| Copper<br>7440-50-8                                      | -                     | -                        | > 5.11 mg/L ( Rat ) 4 h              |
| Nickel<br>7440-02-0                                      | > 9000 mg/kg ( Rat )  | -                        | > 10.2 mg/L ( Rat ) 1 h              |
| Carbon black<br>1333-86-4                                | > 10000 mg/kg ( Rat ) | > 2000 mg/kg ( Rabbit )  | > 4.6 mg/m <sup>3</sup> ( Rat ) 4 h  |
| Aluminum foil<br>7429-90-5                               | -                     | -                        | > 0.888 mg/L ( Rat ) 4 h             |

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

|                                          |                                                                                                                     |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Skin corrosion/irritation</b>         | Classification based on data available for ingredients. Causes severe skin burns and eye damage.                    |
| <b>Serious eye damage/eye irritation</b> | Classification based on data available for ingredients. Causes serious eye damage. Causes burns.                    |
| <b>Respiratory or skin sensitization</b> | May cause an allergic skin reaction.                                                                                |
| <b>Germ cell mutagenicity</b>            | No information available.                                                                                           |
| <b>Carcinogenicity</b>                   | Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer. |

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name                                     | ACGIH                                                                   | IARC     | NTP                    | OSHA |
|---------------------------------------------------|-------------------------------------------------------------------------|----------|------------------------|------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3       | A3<br>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans | Group 2B | Reasonably Anticipated | X    |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | A4 - Not Classifiable as a Human Carcinogen                             | -        | -                      | -    |
| Nickel<br>7440-02-0                               | A5 - Not Suspected as a Human Carcinogen                                | Group 2B | Reasonably Anticipated | X    |
| Carbon black<br>1333-86-4                         | A3<br>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans | Group 2B | -                      | X    |
| Aluminum foil<br>7429-90-5                        | A4 - Not Classifiable as a Human Carcinogen                             | -        | -                      | -    |

**Legend**

**ACGIH (American Conference of Governmental Industrial Hygienists)**

A3 - Animal Carcinogen

A4 - Not classifiable as a human carcinogen

**IARC (International Agency for Research on Cancer)**

Group 2B - Possibly carcinogenic to humans

**NTP (National Toxicology Program)**

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

**Occupational Safety and Health Administration of the US Department of Labor**

X - Present

|                                 |                                                                 |
|---------------------------------|-----------------------------------------------------------------|
| <b>Reproductive toxicity</b>    | No information available.                                       |
| <b>STOT - single exposure</b>   | No information available.                                       |
| <b>STOT - repeated exposure</b> | Causes damage to organs through prolonged or repeated exposure. |
| <b>Aspiration hazard</b>        | No information available.                                       |

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

| Chemical name                   | Algae/aquatic plants                                                                                                                                 | Fish                                                                                                                                                                                                                                                                                                                                                                                                           | Toxicity to microorganisms | Crustacea                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------|
| Graphite<br>7782-42-5           | -                                                                                                                                                    | 96h LC50: > 100 mg/L<br>(Danio rerio)                                                                                                                                                                                                                                                                                                                                                                          | -                          | -                                                                                |
| Propylene carbonate<br>108-32-7 | 72h EC50: > 500 mg/L<br>(Desmodesmus subspicatus)                                                                                                    | 96h LC50: > 1000 mg/L<br>(Cyprinus carpio)                                                                                                                                                                                                                                                                                                                                                                     | EC50 > 10000 mg/L 17<br>h  | 48h EC50: > 500 mg/L<br>(Daphnia magna)                                          |
| Ethylene carbonate<br>96-49-1   | -                                                                                                                                                    | 96h LC50: > 100 mg/L<br>(Oncorhynchus mykiss)                                                                                                                                                                                                                                                                                                                                                                  | -                          | -                                                                                |
| Copper<br>7440-50-8             | 72h EC50: 0.0426 -<br>0.0535 mg/L<br>(Pseudokirchneriella<br>subcapitata)<br>96h EC50: 0.031 -<br>0.054 mg/L<br>(Pseudokirchneriella<br>subcapitata) | 96h LC50: 0.0068 -<br>0.0156 mg/L<br>(Pimephales promelas)<br>96h LC50: < 0.3 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.2 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.052 mg/L<br>(Oncorhynchus mykiss)<br>96h LC50: = 1.25 mg/L<br>(Lepomis macrochirus)<br>96h LC50: = 0.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.8 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.112 mg/L<br>(Poecilia reticulata) | -                          | 48h EC50: = 0.03 mg/L<br>(Daphnia magna)                                         |
| Nickel<br>7440-02-0             | 72h EC50: = 0.18 mg/L<br>(Pseudokirchneriella<br>subcapitata)<br>96h EC50: 0.174 -<br>0.311 mg/L<br>(Pseudokirchneriella<br>subcapitata)             | 96h LC50: > 100 mg/L<br>(Brachydanio rerio)<br>96h LC50: = 1.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 10.4 mg/L<br>(Cyprinus carpio)                                                                                                                                                                                                                                                                         | -                          | 48h EC50: > 100 mg/L<br>(Daphnia magna)<br>48h EC50: = 1 mg/L<br>(Daphnia magna) |

**Persistence and degradability** No information available.

### Bioaccumulation

#### Component Information

| Chemical name                   | Partition coefficient |
|---------------------------------|-----------------------|
| Propylene carbonate<br>108-32-7 | 0.48                  |
| Ethylene carbonate<br>96-49-1   | 0.11                  |

**Other adverse effects** No information available.

## 13. Disposal considerations

#### Disposal methods

|                                            |                                                                                                                 |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Waste from residues/unused products</b> | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. |
| <b>Contaminated packaging</b>              | Do not reuse empty containers.                                                                                  |
| <b>California waste information</b>        | This product contains one or more substances that are listed with the State of California as a hazardous waste. |

### 14. Transport information

**Note:** The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

#### DOT

|                                               |                                                     |
|-----------------------------------------------|-----------------------------------------------------|
| <b>Hazard Class</b>                           | NOT REGULATED                                       |
| <b>Reportable quantity (lbs)</b>              | N/A                                                 |
| <b>Reportable quantity (lbs) (calculated)</b> | Copper: RQ (lb)= 5000.00, Nickel: RQ (lb)= 100.00   |
| <b>Reportable Quantity (RQ)</b>               | Copper: RQ (lb)= 50000.00, Nickel: RQ (lb)= 2000.00 |
| <b>Reportable quantity (kg) (calculated)</b>  | (Copper: RQ (kg)= 2270.00, Nickel: RQ (kg)= 45.40)  |
| <b>DOT Marine Pollutant</b>                   | Copper: RQ (kg)= 22700.00, Nickel: RQ (kg)= 908.00  |
| <b>Marine pollutant</b>                       | PP                                                  |
| <b>Emergency Response Guide Number</b>        | Copper                                              |
|                                               | 147                                                 |

#### TDG

Not applicable

|                                   |                                  |
|-----------------------------------|----------------------------------|
| <b>UN number or ID number</b>     | UN3480                           |
| <b>UN proper shipping name</b>    | LITHIUM ION BATTERIES            |
| <b>Transport hazard class(es)</b> | 9                                |
| <b>Description</b>                | UN3480, LITHIUM ION BATTERIES, 9 |
| <b>Special Provisions</b>         | A88, A99, A154, A183, A201, A213 |

#### IATA

|                                   |                                  |
|-----------------------------------|----------------------------------|
| <b>UN number or ID number</b>     | UN3480                           |
| <b>UN proper shipping name</b>    | LITHIUM ION BATTERIES            |
| <b>Transport hazard class(es)</b> | 9                                |
| <b>Environmental hazards</b>      | Yes                              |
| <b>ERG Code</b>                   | 12FZ                             |
| <b>Description</b>                | UN3480, LITHIUM ION BATTERIES, 9 |
| <b>Transport hazard class(es)</b> | N/A                              |
| <b>Marine pollutant indicator</b> | NP                               |

EmS-No.

F-A, S-I

## 15. Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

#### International Inventories

TSCA Contact supplier for inventory compliance status.

DSL/NDSL Contact supplier for inventory compliance status.  
EINECS/ELINCS Contact supplier for inventory compliance status.  
ENCS Contact supplier for inventory compliance status.  
IECSC Contact supplier for inventory compliance status.  
KECI Contact supplier for inventory compliance status.  
PICCS Contact supplier for inventory compliance status.  
AIIC Contact supplier for inventory compliance status.  
NZIoC Contact supplier for inventory compliance status.  
TCSI Contact supplier for inventory compliance status.

#### **Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing Chemicals Inventory

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AIIC** - Australian Inventory of Industrial Chemicals

**NZIoC** - New Zealand Inventory of Chemicals

**TCSI** - Taiwan Chemical Substance Inventory

#### US Federal Regulations

##### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Chemical name                              | SARA 313 - Threshold Values % |
|--------------------------------------------|-------------------------------|
| Lithium Cobalt Oxide (CoLiO2) - 12190-79-3 | 0.1                           |
| Copper - 7440-50-8                         | 1.0                           |
| Nickel - 7440-02-0                         | 0.1                           |
| Aluminum foil - 7429-90-5                  | 1.0                           |

##### **SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

##### **CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

| Chemical name       | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Copper<br>7440-50-8 | -                           | X                      | X                         | -                          |
| Nickel<br>7440-02-0 | -                           | X                      | X                         | -                          |

#### CAA (Clean Air Act)

This product contains the following substances which are regulated pollutants to the Clean Air Act (CAA).

| Chemical name                               | Hazardous air pollutants (HAPs) | Ozone-depleting substances (ODS) |
|---------------------------------------------|---------------------------------|----------------------------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3 | Present                         | -                                |
| Aluminum foil<br>7429-90-5                  | Hazardous air pollutants (HAPs) | -                                |

#### CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

| Chemical name       | Hazardous Substances RQs | Extremely Hazardous Substances RQs | Reportable Quantity (RQ)                   |
|---------------------|--------------------------|------------------------------------|--------------------------------------------|
| Copper<br>7440-50-8 | 5000 lb                  | -                                  | RQ 5000 lb final RQ<br>RQ 2270 kg final RQ |
| Nickel<br>7440-02-0 | 100 lb                   | -                                  | RQ 100 lb final RQ<br>RQ 45.4 kg final RQ  |

#### US State Regulations

##### California Proposition 65

This product contains the following Proposition 65 chemicals:.

| Chemical name            | California Proposition 65 |
|--------------------------|---------------------------|
| Nickel - 7440-02-0       | Carcinogen                |
| Carbon black - 1333-86-4 | Carcinogen                |

#### U.S. State Right-to-Know Regulations

| Chemical name                                     | New Jersey | Massachusetts | Pennsylvania |
|---------------------------------------------------|------------|---------------|--------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3       | X          | -             | X            |
| Graphite<br>7782-42-5                             | X          | X             | X            |
| Ethylene carbonate<br>96-49-1                     | -          | X             | X            |
| Ethyl propionate<br>105-37-3                      | X          | X             | X            |
| Propyl propionate<br>106-36-5                     | -          | X             | X            |
| Copper<br>7440-50-8                               | X          | X             | X            |
| Nickel<br>7440-02-0                               | X          | X             | X            |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | X          | -             | -            |
| Aluminum foil<br>7429-90-5                        | X          | X             | X            |

|                           |   |   |   |
|---------------------------|---|---|---|
| Carbon black<br>1333-86-4 | X | X | X |
|---------------------------|---|---|---|

#### U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

### 16. Other information

|             |                         |                       |                           |                              |
|-------------|-------------------------|-----------------------|---------------------------|------------------------------|
| <b>NFPA</b> | <b>Health hazards</b> 1 | <b>Flammability</b> 0 | <b>Instability</b> 0      | <b>Special hazards</b> -     |
| <b>HMIS</b> | <b>Health hazards</b> 0 | <b>Flammability</b> 0 | <b>Physical hazards</b> 0 | <b>Personal protection</b> X |

Key or legend to abbreviations and acronyms used in the safety data sheet

#### Legend

|         |                                                                                                     |
|---------|-----------------------------------------------------------------------------------------------------|
| ACGIH   | American Conference of Governmental Industrial Hygienists                                           |
| ADN     | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe)     |
| ADR     | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)                 |
| AIIC    | Australian Inventory of Industrial Chemicals                                                        |
| ATE     | Acute Toxicity Estimate                                                                             |
| ASTM    | American Society for the Testing of Materials                                                       |
| bar     | Biological Reference Values for Chemical Compounds in the Work Area                                 |
| BAT     | Biological tolerance values for occupational exposure                                               |
| BEL     | Biological exposure limits                                                                          |
| bw      | Body weight                                                                                         |
| Ceiling | Maximum limit value                                                                                 |
| CMR     | Carcinogen, Mutagen or Reproductive Toxicant                                                        |
| DOT     | Department of Transportation (United States)                                                        |
| DSL     | Domestic Substances List (Canada)                                                                   |
| EmS     | Emergency Schedule                                                                                  |
| ENCS    | Existing and New Chemical Substances (Japan)                                                        |
| EPA     | Environmental Protection Agency                                                                     |
| GHS     | Globally Harmonized System                                                                          |
| HMIS    | Hazardous Materials Identification System                                                           |
| IARC    | International Agency for Research on Cancer                                                         |
| IATA    | International Air Transport Association                                                             |
| IBC     | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO    | International Civil Aviation Organization                                                           |
| IECSC   | Inventory of Existing Chemical Substances in China                                                  |
| IMDG    | International Maritime Dangerous Goods                                                              |
| IMO     | International Maritime Organization                                                                 |
| ISO     | International Organization for Standardization                                                      |
| KECI    | Korean Existing Chemicals Inventory                                                                 |
| LC50    | Lethal Concentration to 50% of a test population                                                    |
| LD50    | Lethal Dose to 50% of a test population (Median Lethal Dose)                                        |
| MARPOL  | International Convention for the Prevention of Pollution from Ships                                 |
| NFPA    | National Fire Protection Association                                                                |
| NIOSH   | National Institute for Occupational Safety and Health                                               |
| n.o.s.  | Not Otherwise Specified                                                                             |
| NOAEC   | No Observed Adverse Effect Concentration                                                            |
| NOAEL   | No Observed Adverse Effect Level                                                                    |
| NOELR   | No Observable Effect Loading Rate                                                                   |
| NTP     | National Toxicology Program (United States)                                                         |
| NZIoC   | New Zealand Inventory of Chemicals                                                                  |

|         |                                                                                     |
|---------|-------------------------------------------------------------------------------------|
| OECD    | Organization for Economic Cooperation and Development                               |
| OEL     | Occupational exposure limits                                                        |
| OSHA    | Occupational Safety and Health Administration of the US Department of Labor         |
| PBT     | Persistent, Bioaccumulative and Toxic substance                                     |
| PICCS   | Philippines Inventory of Chemicals and Chemical Substances                          |
| PMT     | Persistent, Mobile and Toxic                                                        |
| PPE     | Personal protective equipment                                                       |
| QSAR    | Quantitative Structure Activity Relationship                                        |
| RID     | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe) |
| SADT    | Self-Accelerating Decomposition Temperature                                         |
| SAR     | Structure-activity relationship                                                     |
| SARA    | Superfund Amendments and Reauthorization Act                                        |
| SDS     | Safety Data Sheet                                                                   |
| SL      | Surface Limit                                                                       |
| STEL    | Short Term Exposure Limit                                                           |
| STOT RE | Specific target organ toxicity - Repeated exposure                                  |
| STOT SE | Specific target organ toxicity - Single exposure                                    |
| TCSI    | Taiwan Chemical Substance Inventory                                                 |
| TDG     | Transport of Dangerous Goods (Canada)                                               |
| TSCA    | Toxic Substances Control Act (United States)                                        |
| TWA     | Time-Weighted Average                                                               |
| UN      | United Nations                                                                      |
| VOC     | Volatile organic compounds                                                          |
| vPvB    | Very Persistent and Very Bioaccumulative                                            |
| vPvM    | Very Persistent and Very Mobile                                                     |
| As      | Allergenic substance                                                                |
| DS      | Dermal Sensitizer                                                                   |
| Ot      | Ototoxicant                                                                         |
| pOt     | Ototoxicant - potential to cause hearing disorders                                  |
| PS      | Photosensitizer                                                                     |
| RS      | Respiratory Sensitizer                                                              |
| S       | Sensitizer                                                                          |
| poS     | Sensitizer - capable of causing occupational asthma                                 |
| Sa      | Simple asphyxiant                                                                   |
| Sd      | Skin designation                                                                    |
| pSd     | Skin designation - potential for cutaneous absorption                               |
| Sdv     | Skin designation - vacated                                                          |
| Sk      | Skin notation                                                                       |
| dSk     | Skin notation - danger of cutaneous absorption                                      |
| pSk     | Skin notation - potential for cutaneous absorption                                  |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AEGL(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
National Institute of Technology and Evaluation (NITE)  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

**Prepared By** Product Stewardship  
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1-800-572-6501.

**Issuing Date** 15-Aug-2025

**Revision date** 15-Aug-2025

**Revision Note** No information available.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
US OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canada WHMIS which includes the amended Hazardous  
Products Act (HPA) and the Hazardous Products Regulation (HPR)

Revision date 18-Aug-2025

Revision Number 1

## 1. Identification

### Product identifier

**Product Name** Rechargeable Li-ion Battery L20M3PF0 by Vendor - by Simple

### Other means of identification

**Product Code(s)** 1869359

**Synonyms** None

### Recommended use of the chemical and restrictions on use

**Recommended use** Lithium Ion Battery

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

**Supplier Name** Lenovo LNB laptops

### Supplier Address

Songtao Road 696  
shanghai  
shanghai  
201203  
CN

### Emergency telephone number

**Supplier Phone Number** Phone:18116118603

**24 Hour Emergency Phone Number** 18116118603

**Emergency Telephone** No information available

## 2. Hazard(s) identification

### Classification of the substance or mixture

|                                                    |             |
|----------------------------------------------------|-------------|
| Acute toxicity - Inhalation (Vapors)               | Category 2  |
| Acute toxicity - Inhalation (Dusts/Mists)          | Category 4  |
| Skin corrosion/irritation                          | Category 2  |
| Serious eye damage/eye irritation                  | Category 2A |
| Skin sensitization                                 | Category 1  |
| Carcinogenicity                                    | Category 1A |
| Specific target organ toxicity (repeated exposure) | Category 1  |

### Label elements



**Danger**

**Hazard statements**

Harmful if inhaled.  
Fatal if inhaled.  
Causes skin irritation.  
Causes serious eye irritation.  
May cause an allergic skin reaction.  
May cause cancer.  
Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statements - Prevention**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Do not breathe dust.  
Use only outdoors or in a well-ventilated area.  
Wear respiratory protection.  
Wash face, hands and any exposed skin thoroughly after handling.  
Contaminated work clothing should not be allowed out of the workplace.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves.

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention.  
Specific treatment (see supplemental first aid instructions on this label).  
Specific treatment is urgent (see supplemental first aid instructions on this label).

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice and attention.

**Skin**

IF ON SKIN: Wash with plenty of water and soap.  
Take off contaminated clothing and wash it before reuse.  
If skin irritation or rash occurs: Get medical advice and attention.

**Inhalation**

IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Immediately call a POISON CENTER or doctor.  
Call a POISON CENTER or doctor if you feel unwell.

**Precautionary Statements - Storage**

Store locked up.  
Store in a well-ventilated place. Keep container tightly closed.

**Precautionary Statements - Disposal**

Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

**Unknown acute toxicity**

72.86 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).  
95.19 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200**

No information available.

**Other information**

Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. This is a battery. In case of rupture: the above hazards exist.

### 3. Composition/information on ingredients

#### Substance

Not applicable.

#### Mixture

| Chemical name                              | CAS No.     | Weight-% | Hazardous Material<br>Information Review<br>Act registry number<br>(HMIRA registry #) | Date HMIRA filed and<br>date exemption<br>granted (if applicable) |
|--------------------------------------------|-------------|----------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Graphite                                   | 7782-42-5   | 24.57    | -                                                                                     | -                                                                 |
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | 12190-79-3  | 22.33    | -                                                                                     | -                                                                 |
| Cobalt lithium manganese nickel oxide      | 182442-95-1 | 22.33    | -                                                                                     | -                                                                 |
| Copper                                     | 7440-50-8   | 8.51     | -                                                                                     | -                                                                 |
| Aluminum                                   | 7429-90-5   | 4.96     | -                                                                                     | -                                                                 |
| Propylene carbonate                        | 108-32-7    | 1.72     | -                                                                                     | -                                                                 |
| Propyl propionate                          | 106-36-5    | 1.72     | -                                                                                     | -                                                                 |
| Ethylene carbonate                         | 96-49-1     | 1.72     | -                                                                                     | -                                                                 |
| Phosphate(1-), hexafluoro-, lithium        | 21324-40-3  | 0.8      | -                                                                                     | -                                                                 |
| Nickel                                     | 7440-02-0   | 0.5      | -                                                                                     | -                                                                 |
| 1,3-Propane sultone                        | 1120-71-4   | 0.34     | -                                                                                     | -                                                                 |

### 4. First-aid measures

#### Description of first aid measures

|                                           |                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. First aid is upon rupture of sealed battery. In case of rupture:                                                                                                    |
| <b>Inhalation</b>                         | Remove to fresh air. Get medical attention immediately if symptoms occur.                                                                                                                                                                                                           |
| <b>Eye contact</b>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists. |
| <b>Skin contact</b>                       | May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician. Wash off immediately with soap and plenty of water for at least 15 minutes.                                                                                              |
| <b>Ingestion</b>                          | Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.                                                                                                                                                                       |
| <b>Self-protection of the first aider</b> | Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).                                                                                                                                                                                       |

#### Most important symptoms and effects, both acute and delayed

|                            |                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------|
| <b>Symptoms</b>            | Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation. |
| <b>Effects of Exposure</b> | May cause cancer. Causes damage to organs through prolonged or repeated exposure.     |

#### Indication of any immediate medical attention and special treatment needed

|                           |                                                                        |
|---------------------------|------------------------------------------------------------------------|
| <b>Note to physicians</b> | May cause sensitization in susceptible persons. Treat symptomatically. |
|---------------------------|------------------------------------------------------------------------|

## 5. Fire-fighting measures

|                                                                              |                                                                                                                                    |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b><u>Suitable Extinguishing Media</u></b>                                   | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.                            |
| <b>Unsuitable extinguishing media</b>                                        | Do not scatter spilled material with high pressure water streams.                                                                  |
| <b><u>Specific hazards arising from the chemical</u></b>                     | Product is or contains a sensitizer. May cause sensitization by skin contact.                                                      |
| <b><u>Explosion data</u></b>                                                 |                                                                                                                                    |
| Sensitivity to mechanical impact                                             | None.                                                                                                                              |
| Sensitivity to static discharge                                              | None.                                                                                                                              |
| <b><u>Special protective equipment and precautions for fire-fighters</u></b> | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

## 6. Accidental release measures

### **Personal precautions, protective equipment and emergency procedures**

|                             |                                                                                                                                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b> | Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| <b>Other information</b>    | Refer to protective measures listed in Sections 7 and 8.                                                                                                                                                 |

### **Methods and material for containment and cleaning up**

|                                        |                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------|
| <b>Methods for containment</b>         | Prevent further leakage or spillage if safe to do so.                                |
| <b>Methods for cleaning up</b>         | Pick up and transfer to properly labeled containers.                                 |
| <b>Prevention of secondary hazards</b> | Clean contaminated objects and areas thoroughly observing environmental regulations. |

## 7. Handling and storage

### **Precautions for safe handling**

|                                       |                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Advice on safe handling</b>        | In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. |
| <b>General hygiene considerations</b> | Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing. Handle in accordance with good industrial hygiene and safety practice.                                                               |

### **Conditions for safe storage, including any incompatibilities**

|                           |                                                                          |
|---------------------------|--------------------------------------------------------------------------|
| <b>Storage Conditions</b> | Keep containers tightly closed in a dry, cool and well-ventilated place. |
|---------------------------|--------------------------------------------------------------------------|

## 8. Exposure controls/personal protection

### Control Parameters

#### Exposure Limits

| Chemical name                                            | ACGIH TLV                                                                                                                                                                                             | OSHA PEL                                                                                                                                                                                                                                                                                                                                                                   | NIOSH                                                                                                                                                                                        |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Graphite<br>7782-42-5                                    | TWA: 2 mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers                                                                                                               | TWA: 15 mg/m <sup>3</sup> total dust synthetic<br>TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic<br>TWA: 15 mppcf respirable dust natural<br>(vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural<br>(vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic<br>(vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic<br>TWA: 15 mppcf natural | IDLH: 1250 mg/m <sup>3</sup><br>TWA: 2.5 mg/m <sup>3</sup> respirable dust                                                                                                                   |
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup>                                                                                                                                                                           | -                                                                                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                            |
| Cobalt lithium manganese nickel oxide<br>182442-95-1     | TWA: 0.02 mg/m <sup>3</sup> Co inhalable particulate matter<br>TWA: 0.02 mg/m <sup>3</sup> Mn respirable particulate matter<br>TWA: 0.1 mg/m <sup>3</sup> Mn inhalable particulate matter<br>DS<br>RS | (vacated) Ceiling: 5 mg/m <sup>3</sup><br>Ceiling: 5 mg/m <sup>3</sup> Mn                                                                                                                                                                                                                                                                                                  | TWA: 1 mg/m <sup>3</sup> ; Mn<br>TWA: 0.015 mg/m <sup>3</sup> ; except Nickel carbonyl Ni<br>STEL: 3 mg/m <sup>3</sup> Mn<br>IDLH: 500 mg/m <sup>3</sup> Mn<br>IDLH: 10 mg/m <sup>3</sup> Ni |
| Copper<br>7440-50-8                                      | TWA: 0.2 mg/m <sup>3</sup> fume                                                                                                                                                                       | TWA: 0.1 mg/m <sup>3</sup> fume<br>TWA: 1 mg/m <sup>3</sup> dust and mist<br>(vacated) TWA: 0.1 mg/m <sup>3</sup> Cu dust, fume, mist                                                                                                                                                                                                                                      | TWA: 1 mg/m <sup>3</sup> ; dust and mist<br>TWA: 0.1 mg/m <sup>3</sup> ; fume<br>IDLH: 100 mg/m <sup>3</sup> dust, fume and mist                                                             |
| Aluminum<br>7429-90-5                                    | TWA: 1 mg/m <sup>3</sup> respirable particulate matter                                                                                                                                                | TWA: 15 mg/m <sup>3</sup> total dust<br>TWA: 5 mg/m <sup>3</sup> respirable fraction<br>(vacated) TWA: 15 mg/m <sup>3</sup> total dust<br>(vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction                                                                                                                                                                           | TWA: 10 mg/m <sup>3</sup> ; total dust<br>TWA: 5 mg/m <sup>3</sup> ; respirable dust                                                                                                         |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3        | TWA: 2.5 mg/m <sup>3</sup> F                                                                                                                                                                          | TWA: 2.5 mg/m <sup>3</sup> F<br>(vacated) TWA: 2.5 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                       | IDLH: 250 mg/m <sup>3</sup> F                                                                                                                                                                |
| Nickel<br>7440-02-0                                      | TWA: 1.5 mg/m <sup>3</sup>                                                                                                                                                                            | TWA: 1 mg/m <sup>3</sup><br>(vacated) TWA: 1 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                             | IDLH: 10 mg/m <sup>3</sup><br>TWA: 0.015 mg/m <sup>3</sup>                                                                                                                                   |
| 1,3-Propane sultone<br>1120-71-4                         | Exposure by all routes should be carefully controlled to levels as low as possible                                                                                                                    | -                                                                                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                            |

| Chemical name                                            | Alberta                                                       | British Columbia                                    | Ontario                                                        | Quebec                                                     |
|----------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|
| Graphite<br>7782-42-5                                    | TWA: 2 mg/m <sup>3</sup> ; respirable                         | TWA: 2 mg/m <sup>3</sup> ; respirable               | TWA: 2 mg/m <sup>3</sup> ; respirable particulate matter       | TWAEV: 2 mg/m <sup>3</sup> ; respirable dust               |
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup> ;                                 | TWA: 0.02 mg/m <sup>3</sup> ; inhalable<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;                                  | TWAEV: 0.02 mg/m <sup>3</sup> ; inhalable aerosol fraction |
| Cobalt lithium manganese nickel oxide                    | TWA: 0.02 mg/m <sup>3</sup> ;<br>TWA: 0.2 mg/m <sup>3</sup> ; | TWA: 0.02 mg/m <sup>3</sup> ; inhalable             | TWA: 0.02 mg/m <sup>3</sup> ;<br>TWA: 0.02 mg/m <sup>3</sup> ; | TWAEV: 0.2 mg/m <sup>3</sup> ; inhalable aerosol           |

|                                                   |                                                                               |                                                                                                                               |                                                                                            |                                                                                                                                   |
|---------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 182442-95-1                                       |                                                                               | TWA: 0.02 mg/m <sup>3</sup> ; respirable<br>TWA: 0.1 mg/m <sup>3</sup> ; inhalable<br>Adverse reproductive effect<br>DS<br>RS | respirable particulate matter<br>TWA: 0.1 mg/m <sup>3</sup> ; inhalable particulate matter | fraction<br>TWA: 0.05 mg/m <sup>3</sup> ; respirable aerosol fraction<br>TWA: 0.02 mg/m <sup>3</sup> ; inhalable aerosol fraction |
| Copper<br>7440-50-8                               | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and mist | TWA: 1 mg/m <sup>3</sup> ; dust and mist<br>TWA: 0.2 mg/m <sup>3</sup> ; fume                                                 | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and mist              | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and mist                                                     |
| Aluminum<br>7429-90-5                             | TWA: 10 mg/m <sup>3</sup> ; dust                                              | TWA: 1.0 mg/m <sup>3</sup> ; respirable                                                                                       | TWA: 1 mg/m <sup>3</sup> ; respirable particulate matter                                   | TWA: 10 mg/m <sup>3</sup>                                                                                                         |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | TWA: 2.5 mg/m <sup>3</sup>                                                    | TWA: 2.5 mg/m <sup>3</sup>                                                                                                    | TWA: 2.5 mg/m <sup>3</sup>                                                                 | TWA: 2.5 mg/m <sup>3</sup>                                                                                                        |
| Nickel<br>7440-02-0                               | TWA: 1.5 mg/m <sup>3</sup>                                                    | TWA: 0.05 mg/m <sup>3</sup>                                                                                                   | TWA: 1 mg/m <sup>3</sup> ; inhalable fraction                                              | TWA: 1.5 mg/m <sup>3</sup> ; inhalable dust                                                                                       |
| 1,3-Propane sultone<br>1120-71-4                  | -                                                                             | :                                                                                                                             | :                                                                                          | :                                                                                                                                 |

| Chemical name                              | Manitoba                                                                                                                                                                                           | New Brunswick                                                                                                                      | Newfoundland and Labrador                                                                                                                                                                          | Nova Scotia                                                                                                                                                                                        |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Graphite                                   | TWA: 2 mg/m <sup>3</sup> ; respirable particulate matter                                                                                                                                           | TWA: 2 mg/m <sup>3</sup> ; respirable fraction                                                                                     | TWA: 2 mg/m <sup>3</sup> ; respirable particulate matter                                                                                                                                           | TWA: 2 mg/m <sup>3</sup> ; respirable particulate matter                                                                                                                                           |
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ; inhalable particulate matter<br>DS<br>RS                                                                                                                             | TWA: 0.02 mg/m <sup>3</sup>                                                                                                        | TWA: 0.02 mg/m <sup>3</sup> ; inhalable particulate matter<br>DS<br>RS                                                                                                                             | TWA: 0.02 mg/m <sup>3</sup> ; inhalable particulate matter<br>DS<br>RS                                                                                                                             |
| Cobalt lithium manganese nickel oxide      | TWA: 0.02 mg/m <sup>3</sup> ; inhalable particulate matter<br>TWA: 0.02 mg/m <sup>3</sup> ; respirable particulate matter<br>TWA: 0.1 mg/m <sup>3</sup> ; inhalable particulate matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ; TWA: 0.02 mg/m <sup>3</sup> ; respirable fraction<br>TWA: 0.1 mg/m <sup>3</sup> ; inhalable fraction | TWA: 0.02 mg/m <sup>3</sup> ; inhalable particulate matter<br>TWA: 0.02 mg/m <sup>3</sup> ; respirable particulate matter<br>TWA: 0.1 mg/m <sup>3</sup> ; inhalable particulate matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ; inhalable particulate matter<br>TWA: 0.02 mg/m <sup>3</sup> ; respirable particulate matter<br>TWA: 0.1 mg/m <sup>3</sup> ; inhalable particulate matter<br>DS<br>RS |
| Copper                                     | TWA: 0.2 mg/m <sup>3</sup> ; fume                                                                                                                                                                  | TWA: 0.2 mg/m <sup>3</sup> ; fume                                                                                                  | TWA: 0.2 mg/m <sup>3</sup> ; fume                                                                                                                                                                  | TWA: 0.2 mg/m <sup>3</sup> ; fume                                                                                                                                                                  |
| Aluminum                                   | TWA: 1 mg/m <sup>3</sup> ; respirable particulate matter                                                                                                                                           | TWA: 1 mg/m <sup>3</sup> ; respirable fraction                                                                                     | TWA: 1 mg/m <sup>3</sup> ; respirable particulate matter                                                                                                                                           | TWA: 1 mg/m <sup>3</sup> ; respirable particulate matter                                                                                                                                           |
| Phosphate(1-), hexafluoro-, lithium        | TWA: 2.5 mg/m <sup>3</sup>                                                                                                                                                                         | TWA: 2.5 mg/m <sup>3</sup>                                                                                                         | TWA: 2.5 mg/m <sup>3</sup>                                                                                                                                                                         | TWA: 2.5 mg/m <sup>3</sup>                                                                                                                                                                         |
| Nickel                                     | TWA: 1.5 mg/m <sup>3</sup> ; inhalable particulate matter                                                                                                                                          | TWA: 1.5 mg/m <sup>3</sup> ; inhalable fraction                                                                                    | TWA: 1.5 mg/m <sup>3</sup> ; inhalable particulate matter                                                                                                                                          | TWA: 1.5 mg/m <sup>3</sup> ; inhalable particulate matter                                                                                                                                          |

| Chemical name | Nunavut                  | Prince Edward Island     | Saskatchewan             | Yukon         |
|---------------|--------------------------|--------------------------|--------------------------|---------------|
| Graphite      | TWA: 2 mg/m <sup>3</sup> | TWA: 2 mg/m <sup>3</sup> | TWA: 2 mg/m <sup>3</sup> | TWA: 20 mppcf |

| Chemical name                              | Nunavut                                                                                                                                                                | Prince Edward Island                                                                                                                                                                                     | Saskatchewan                                                                                                                                                           | Yukon                                                                                                                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            | respirable fraction<br>STEL: 4 mg/m <sup>3</sup> ;<br>respirable fraction                                                                                              | respirable particulate<br>matter                                                                                                                                                                         | respirable fraction<br>STEL: 4 mg/m <sup>3</sup> ;<br>respirable fraction                                                                                              | TWA: 30 mppcf;<br>TWA: 10 mg/m <sup>3</sup> ;                                                                                                                          |
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated substance                                                                                | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter                                                                                                                                         | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated Chemical<br>Substance                                                                    | -                                                                                                                                                                      |
| Cobalt lithium manganese nickel<br>oxide   | TWA: 0.02 mg/m <sup>3</sup> ;<br>TWA: 0.2 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>STEL: 0.6 mg/m <sup>3</sup> ;<br>Designated substance               | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>TWA: 0.02 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter<br>TWA: 0.1 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter | TWA: 0.02 mg/m <sup>3</sup> ;<br>TWA: 0.2 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>STEL: 0.6 mg/m <sup>3</sup> ;<br>Designated Chemical<br>Substance   | Ceiling: 5 mg/m <sup>3</sup> ;                                                                                                                                         |
| Copper                                     | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 3 mg/m <sup>3</sup> ; dust<br>and mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume                                                                                                                                                                        | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume<br>STEL: 3 mg/m <sup>3</sup> ; dust<br>and mist | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 0.2 mg/m <sup>3</sup> ; fume<br>STEL: 2 mg/m <sup>3</sup> ; dust<br>and mist |
| Aluminum                                   | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                                                  | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter                                                                                                                                           | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                                                  | -                                                                                                                                                                      |
| Phosphate(1-), hexafluoro-,<br>lithium     | -                                                                                                                                                                      | TWA: 2.5 mg/m <sup>3</sup> ;                                                                                                                                                                             | TWA: 2.5 mg/m <sup>3</sup> ;<br>STEL: 5 mg/m <sup>3</sup> ;                                                                                                            | TWA: 2.5 mg/m <sup>3</sup> ;<br>STEL: 2.5 mg/m <sup>3</sup> ;                                                                                                          |
| Nickel                                     | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated substance                                        | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter                                                                                                                                          | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated Chemical<br>Substance                            | TWA: 1 mg/m <sup>3</sup> ;<br>STEL: 3 mg/m <sup>3</sup> ;                                                                                                              |
| 1,3-Propane sultone                        | Designated substance                                                                                                                                                   | -                                                                                                                                                                                                        | Designated Chemical<br>Substance                                                                                                                                       | -                                                                                                                                                                      |

**Note**

See section 16 for terms and abbreviations.

**Other information on limit values**

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Biological occupational exposure  
limits**

| Chemical name                                            | ACGIH                                                                                  |
|----------------------------------------------------------|----------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | 15 µg/L - urine (Cobalt) - end of shift at end of workweek                             |
| Cobalt lithium manganese nickel oxide<br>182442-95-1     | 15 µg/L - urine (Cobalt) - end of shift at end of workweek                             |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3        | 2 mg/L - urine (Fluoride) - prior to shift<br>3 mg/L - urine (Fluoride) - end of shift |
| Nickel<br>7440-02-0                                      | 5 µg/L - urine (Nickel) - post-shift at end of workweek                                |

**Appropriate engineering controls**

**Engineering controls**

Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

|                          |                                                                                                                                                                                                                                                                                               |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye/face protection      | Wear safety glasses with side shields (or goggles).                                                                                                                                                                                                                                           |
| Hand protection          | Wear suitable gloves. Impervious gloves.                                                                                                                                                                                                                                                      |
| Skin and body protection | Wear suitable protective clothing. Long sleeved clothing.                                                                                                                                                                                                                                     |
| Respiratory protection   | Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |

**9. Physical and chemical properties**

**Information on basic physical and chemical properties**

|                                |                          |
|--------------------------------|--------------------------|
| Appearance                     | Black                    |
| Physical state                 | Solid                    |
| Color                          | No information available |
| Odor (includes odor threshold) | Odorless                 |
| Odor threshold                 | No information available |

| <u>Property</u>                                           | <u>Values</u>      | <u>Remarks • Method</u> |
|-----------------------------------------------------------|--------------------|-------------------------|
| Melting point / freezing point                            | No data available  | None known              |
| Boiling point (or initial boiling point or boiling range) | No data available  | None known              |
| Flammability                                              | No data available  | None known              |
| Flammability Limit in Air                                 |                    | None known              |
| Upper flammability or explosive limits                    | No data available  |                         |
| Lower flammability or explosive limits                    | No data available  |                         |
| Flash point                                               | No data available  | None known              |
| Autoignition temperature                                  | No data available  | None known              |
| Decomposition temperature                                 | No data available  | None known              |
| SADT (°C)                                                 | No data available  | None known              |
| pH                                                        | No data available  | None known              |
| pH (as aqueous solution)                                  | No data available  | None known              |
| Kinematic viscosity                                       | No data available  | None known              |
| Dynamic viscosity                                         | No data available  | None known              |
| Solubility                                                | No data available  | None known              |
| Water solubility                                          | Insoluble in water | None known              |
| Partition coefficient n-octanol/water (log value)         | 1                  | None known              |
| Vapor pressure (includes evaporation rate)                | No data available  | None known              |
| Evaporation rate                                          | No data available  | None known              |
| Density and/or relative density                           | No data available  | None known              |
| Bulk density                                              | No data available  |                         |
| Liquid Density                                            | No data available  |                         |
| Relative vapor density                                    | No data available  | None known              |
| Particle characteristics                                  |                    | None known              |
| Particle Size                                             | No data available  |                         |
| Particle Size Distribution                                | No data available  |                         |

**Other information**

|                    |        |
|--------------------|--------|
| Miscible           | No     |
| Heat of combustion | 4.2372 |

## 10. Stability and reactivity

|                                           |                                                      |
|-------------------------------------------|------------------------------------------------------|
| <b>Reactivity</b>                         | No information available.                            |
| <b>Chemical stability</b>                 | Stable under normal conditions.                      |
| <b>Possibility of hazardous reactions</b> | None under normal processing.                        |
| <b>Conditions to avoid</b>                | None known based on information supplied.            |
| <b>Incompatible materials</b>             | Strong acids. Strong bases. Strong oxidizing agents. |
| <b>Hazardous decomposition products</b>   | None known based on information supplied.            |

## 11. Toxicological information

### Information on likely routes of exposure

|                            |                                                                                                                                                                                                                                                     |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Information</b> | Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:                                                                                                                                       |
| <b>Inhalation</b>          | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.                                                                                                                                        |
| <b>Eye contact</b>         | Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.                                                                                       |
| <b>Skin contact</b>        | Specific test data for the substance or mixture is not available. May cause sensitization by skin contact. (based on components). Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. Causes skin irritation. |
| <b>Ingestion</b>           | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.                                                                                                   |

### Symptoms related to the physical, chemical and toxicological characteristics

|                       |                                                                             |
|-----------------------|-----------------------------------------------------------------------------|
| <b>Symptoms</b>       | Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes. |
| <b>Acute toxicity</b> | Fatal if inhaled. Harmful by inhalation.                                    |

### **Numerical measures of toxicity**

The following ATE values have been calculated for the mixture

|                               |                 |
|-------------------------------|-----------------|
| ATEmix (oral)                 | 68,269.20 mg/kg |
| ATEmix (dermal)               | 76,514.00 mg/kg |
| ATEmix (inhalation-vapor)     | 0.607 mg/l      |
| ATEmix (inhalation-dust/mist) | 4.19 mg/l       |

### **Unknown acute toxicity**

72.86 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

95.19 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

### **Component Information**

| Chemical name                               | Oral LD50            | Dermal LD50          | Inhalation LC50                      |
|---------------------------------------------|----------------------|----------------------|--------------------------------------|
| Graphite<br>7782-42-5                       | -                    | -                    | > 2000 mg/m <sup>3</sup> ( Rat ) 4 h |
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3 | > 5000 mg/kg ( Rat ) | > 2000 mg/kg ( Rat ) | > 5.05 mg/L ( Rat ) 4 h              |
| Copper                                      | -                    | -                    | > 5.11 mg/L ( Rat ) 4 h              |

|                                  |                       |                          |                                     |
|----------------------------------|-----------------------|--------------------------|-------------------------------------|
| 7440-50-8                        |                       |                          |                                     |
| Aluminum<br>7429-90-5            | -                     | -                        | > 0.888 mg/L ( Rat ) 4 h            |
| Propylene carbonate<br>108-32-7  | = 29000 mg/kg ( Rat ) | > 3000 mg/kg ( Rabbit )  | -                                   |
| Propyl propionate<br>106-36-5    | = 10331 mg/kg ( Rat ) | = 16 mL/kg ( Rabbit )    | -                                   |
| Ethylene carbonate<br>96-49-1    | = 10 g/kg ( Rat )     | > 26420 mg/kg ( Rabbit ) | > 730 mg/m <sup>3</sup> ( Rat ) 8 h |
| Nickel<br>7440-02-0              | > 9000 mg/kg ( Rat )  | -                        | > 10.2 mg/L ( Rat ) 1 h             |
| 1,3-Propane sultone<br>1120-71-4 | = 157 mg/kg ( Rat )   | -                        | -                                   |

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes skin irritation.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

**Respiratory or skin sensitization** May cause an allergic skin reaction.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name                                           | ACGIH                                                                                                                              | IARC                | NTP                             | OSHA |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------|------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3             | A3<br>A3 - Confirmed Animal<br>Carcinogen with<br>Unknown Relevance to<br>Humans                                                   | Group 2B            | Reasonably Anticipated          | X    |
| Cobalt lithium manganese nickel<br>oxide<br>182442-95-1 | A3<br>A3 - Confirmed Animal<br>Carcinogen with<br>Unknown Relevance to<br>Humans<br>A4 - Not Classifiable as<br>a Human Carcinogen | Group 1<br>Group 2B | Known<br>Reasonably Anticipated | X    |
| Aluminum<br>7429-90-5                                   | A4 - Not Classifiable as<br>a Human Carcinogen                                                                                     | -                   | -                               | -    |
| Phosphate(1-), hexafluoro-,<br>lithium<br>21324-40-3    | A4 - Not Classifiable as<br>a Human Carcinogen                                                                                     | -                   | -                               | -    |
| Nickel<br>7440-02-0                                     | A5 - Not Suspected as a<br>Human Carcinogen                                                                                        | Group 2B            | Reasonably Anticipated          | X    |
| 1,3-Propane sultone<br>1120-71-4                        | A3<br>A3 - Confirmed Animal<br>Carcinogen with<br>Unknown Relevance to<br>Humans                                                   | Group 2A            | Reasonably Anticipated          | X    |

**Legend**

**ACGIH (American Conference of Governmental Industrial Hygienists)**

A3 - Animal Carcinogen

A4 - Not classifiable as a human carcinogen

**IARC (International Agency for Research on Cancer)**

Group 1 - Carcinogenic to humans

Group 2A - Probably carcinogenic to humans

Group 2B - Possibly carcinogenic to humans

**NTP (National Toxicology Program)**

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

**Occupational Safety and Health Administration of the US Department of Labor**

X - Present

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard** No information available.

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

| Chemical name                   | Algae/aquatic plants                                                                                                                                 | Fish                                                                                                                                                                                                                                                                                                                                                                                                           | Toxicity to microorganisms | Crustacea                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------|
| Graphite<br>7782-42-5           | -                                                                                                                                                    | 96h LC50: > 100 mg/L<br>(Danio rerio)                                                                                                                                                                                                                                                                                                                                                                          | -                          | -                                                                                |
| Copper<br>7440-50-8             | 72h EC50: 0.0426 -<br>0.0535 mg/L<br>(Pseudokirchneriella<br>subcapitata)<br>96h EC50: 0.031 -<br>0.054 mg/L<br>(Pseudokirchneriella<br>subcapitata) | 96h LC50: 0.0068 -<br>0.0156 mg/L<br>(Pimephales promelas)<br>96h LC50: < 0.3 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.2 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.052 mg/L<br>(Oncorhynchus mykiss)<br>96h LC50: = 1.25 mg/L<br>(Lepomis macrochirus)<br>96h LC50: = 0.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.8 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.112 mg/L<br>(Poecilia reticulata) | -                          | 48h EC50: = 0.03 mg/L<br>(Daphnia magna)                                         |
| Propylene carbonate<br>108-32-7 | 72h EC50: > 500 mg/L<br>(Desmodesmus<br>subspicatus)                                                                                                 | 96h LC50: > 1000 mg/L<br>(Cyprinus carpio)                                                                                                                                                                                                                                                                                                                                                                     | EC50 > 10000 mg/L 17<br>h  | 48h EC50: > 500 mg/L<br>(Daphnia magna)                                          |
| Ethylene carbonate<br>96-49-1   | -                                                                                                                                                    | 96h LC50: > 100 mg/L<br>(Oncorhynchus mykiss)                                                                                                                                                                                                                                                                                                                                                                  | -                          | -                                                                                |
| Nickel<br>7440-02-0             | 72h EC50: = 0.18 mg/L<br>(Pseudokirchneriella<br>subcapitata)<br>96h EC50: 0.174 -<br>0.311 mg/L                                                     | 96h LC50: > 100 mg/L<br>(Brachydanio rerio)<br>96h LC50: = 1.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 10.4 mg/L                                                                                                                                                                                                                                                                                              | -                          | 48h EC50: > 100 mg/L<br>(Daphnia magna)<br>48h EC50: = 1 mg/L<br>(Daphnia magna) |

|  |                                   |                   |  |  |
|--|-----------------------------------|-------------------|--|--|
|  | (Pseudokirchneriella subcapitata) | (Cyprinus carpio) |  |  |
|--|-----------------------------------|-------------------|--|--|

**Persistence and degradability** No information available.

#### Bioaccumulation

#### Component Information

| Chemical name                   | Partition coefficient |
|---------------------------------|-----------------------|
| Propylene carbonate<br>108-32-7 | 0.48                  |
| Ethylene carbonate<br>96-49-1   | 0.11                  |

**Other adverse effects** No information available.

### 13. Disposal considerations

#### Disposal methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

**California waste information** This product contains one or more substances that are listed with the State of California as a hazardous waste.

### 14. Transport information

**Note:** The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)  
Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

#### DOT

##### Hazard Class

##### Reportable quantity (lbs)

##### Reportable quantity (lbs) (calculated)

##### Reportable Quantity (RQ)

##### Reportable quantity (kg) (calculated)

##### DOT Marine Pollutant

NOT REGULATED

N/A

Nickel: RQ (lb)= 100.00, 1,3-Propane sultone: RQ (lb)= 10.00

Nickel: RQ (lb)= 20000.00, 1,3-Propane sultone: RQ (lb)= 2941.00

(Nickel: RQ (kg)= 45.40, 1,3-Propane sultone: RQ (kg)= 4.54)

Nickel: RQ (kg)= 9080.00, 1,3-Propane sultone: RQ (kg)= 1335.29

PP

Marine pollutant  
Emergency Response Guide  
Number

Copper  
147

**TDG**

Not applicable

UN number or ID number  
UN proper shipping name  
Transport hazard class(es)  
Description  
Special Provisions

UN3480  
LITHIUM ION BATTERIES  
9  
UN3480, LITHIUM ION BATTERIES, 9  
A88, A99, A154, A183, A201, A213

**IATA**

UN number or ID number  
UN proper shipping name  
Transport hazard class(es)  
Environmental hazards  
ERG Code  
Description

UN3480  
LITHIUM ION BATTERIES  
9  
Yes  
12FZ  
UN3480, LITHIUM ION BATTERIES, 9

Transport hazard class(es)  
Marine pollutant indicator  
EmS-No.

N/A  
NP  
F-A, S-I

## 15. Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

#### International Inventories

TSCA Contact supplier for inventory compliance status.

DSL/NDSL Contact supplier for inventory compliance status.  
EINECS/ELINCS Contact supplier for inventory compliance status.  
ENCS Contact supplier for inventory compliance status.  
IECSC Contact supplier for inventory compliance status.  
KECI Contact supplier for inventory compliance status.  
PICCS Contact supplier for inventory compliance status.  
AIIC Contact supplier for inventory compliance status.  
NZIoC Contact supplier for inventory compliance status.  
TCSI Contact supplier for inventory compliance status.

#### **Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing Chemicals Inventory

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AIIC** - Australian Inventory of Industrial Chemicals  
**NZIoC** - New Zealand Inventory of Chemicals  
**TCSI** - Taiwan Chemical Substance Inventory

### **US Federal Regulations**

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Chemical name                              | SARA 313 - Threshold Values % |
|--------------------------------------------|-------------------------------|
| Lithium Cobalt Oxide (CoLiO2) - 12190-79-3 | 0.1                           |
| Copper - 7440-50-8                         | 1.0                           |
| Aluminum - 7429-90-5                       | 1.0                           |
| Nickel - 7440-02-0                         | 0.1                           |
| 1,3-Propane sultone - 1120-71-4            | 0.1                           |

#### **SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

#### **CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

| Chemical name                                        | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|------------------------------------------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Cobalt lithium manganese nickel oxide<br>182442-95-1 | -                           | X                      | -                         | -                          |
| Copper<br>7440-50-8                                  | -                           | X                      | X                         | -                          |
| Nickel<br>7440-02-0                                  | -                           | X                      | X                         | -                          |

#### **CAA (Clean Air Act)**

This product contains the following substances which are regulated pollutants to the Clean Air Act (CAA).

| Chemical name                                        | Hazardous air pollutants (HAPs) | Ozone-depleting substances (ODS) |
|------------------------------------------------------|---------------------------------|----------------------------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3          | Present                         | -                                |
| Cobalt lithium manganese nickel oxide<br>182442-95-1 | Present                         | -                                |
| 1,3-Propane sultone<br>1120-71-4                     | Present                         | -                                |

#### **CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

| Chemical name                    | Hazardous Substances RQs | Extremely Hazardous Substances RQs | Reportable Quantity (RQ)                   |
|----------------------------------|--------------------------|------------------------------------|--------------------------------------------|
| Copper<br>7440-50-8              | 5000 lb                  | -                                  | RQ 5000 lb final RQ<br>RQ 2270 kg final RQ |
| Nickel<br>7440-02-0              | 100 lb                   | -                                  | RQ 100 lb final RQ<br>RQ 45.4 kg final RQ  |
| 1,3-Propane sultone<br>1120-71-4 | 10 lb                    | -                                  | RQ 10 lb final RQ<br>RQ 4.54 kg final RQ   |

## US State Regulations

### California Proposition 65

This product contains the following Proposition 65 chemicals:.

| Chemical name                                       | California Proposition 65 |
|-----------------------------------------------------|---------------------------|
| Cobalt lithium manganese nickel oxide - 182442-95-1 | Carcinogen                |
| Nickel - 7440-02-0                                  | Carcinogen                |
| 1,3-Propane sultone - 1120-71-4                     | Carcinogen                |

## U.S. State Right-to-Know Regulations

| Chemical name                                        | New Jersey | Massachusetts | Pennsylvania |
|------------------------------------------------------|------------|---------------|--------------|
| Graphite<br>7782-42-5                                | X          | X             | X            |
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3          | X          | -             | X            |
| Cobalt lithium manganese nickel oxide<br>182442-95-1 | X          | -             | X            |
| Copper<br>7440-50-8                                  | X          | X             | X            |
| Aluminum<br>7429-90-5                                | X          | X             | X            |
| Dimethyl carbonate<br>616-38-6                       | X          | X             | X            |
| Diethyl carbonate<br>105-58-8                        | X          | X             | X            |
| Propyl propionate<br>106-36-5                        | -          | X             | X            |
| Ethylene carbonate<br>96-49-1                        | -          | X             | X            |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3    | X          | -             | -            |
| Nickel<br>7440-02-0                                  | X          | X             | X            |
| 1,3-Propane sultone<br>1120-71-4                     | X          | X             | X            |

## U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

## 16. Other information

|             |                         |                       |                           |                              |
|-------------|-------------------------|-----------------------|---------------------------|------------------------------|
| <b>NFPA</b> | <b>Health hazards</b> 1 | <b>Flammability</b> 0 | <b>Instability</b> 0      | <b>Special hazards</b> -     |
| <b>HMIS</b> | <b>Health hazards</b> 0 | <b>Flammability</b> 0 | <b>Physical hazards</b> 0 | <b>Personal protection</b> X |

Key or legend to abbreviations and acronyms used in the safety data sheet

### Legend

|       |                                                                                                 |
|-------|-------------------------------------------------------------------------------------------------|
| ACGIH | American Conference of Governmental Industrial Hygienists                                       |
| ADN   | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR   | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)             |
| AIIC  | Australian Inventory of Industrial Chemicals                                                    |
| ATE   | Acute Toxicity Estimate                                                                         |
| ASTM  | American Society for the Testing of Materials                                                   |
| bar   | Biological Reference Values for Chemical Compounds in the Work Area                             |

|         |                                                                                                     |
|---------|-----------------------------------------------------------------------------------------------------|
| BAT     | Biological tolerance values for occupational exposure                                               |
| BEL     | Biological exposure limits                                                                          |
| bw      | Body weight                                                                                         |
| Ceiling | Maximum limit value                                                                                 |
| CMR     | Carcinogen, Mutagen or Reproductive Toxicant                                                        |
| DOT     | Department of Transportation (United States)                                                        |
| DSL     | Domestic Substances List (Canada)                                                                   |
| EmS     | Emergency Schedule                                                                                  |
| ENCS    | Existing and New Chemical Substances (Japan)                                                        |
| EPA     | Environmental Protection Agency                                                                     |
| GHS     | Globally Harmonized System                                                                          |
| HMIS    | Hazardous Materials Identification System                                                           |
| IARC    | International Agency for Research on Cancer                                                         |
| IATA    | International Air Transport Association                                                             |
| IBC     | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO    | International Civil Aviation Organization                                                           |
| IECSC   | Inventory of Existing Chemical Substances in China                                                  |
| IMDG    | International Maritime Dangerous Goods                                                              |
| IMO     | International Maritime Organization                                                                 |
| ISO     | International Organization for Standardization                                                      |
| KECI    | Korean Existing Chemicals Inventory                                                                 |
| LC50    | Lethal Concentration to 50% of a test population                                                    |
| LD50    | Lethal Dose to 50% of a test population (Median Lethal Dose)                                        |
| MARPOL  | International Convention for the Prevention of Pollution from Ships                                 |
| NFPA    | National Fire Protection Association                                                                |
| NIOSH   | National Institute for Occupational Safety and Health                                               |
| n.o.s.  | Not Otherwise Specified                                                                             |
| NOAEC   | No Observed Adverse Effect Concentration                                                            |
| NOAEL   | No Observed Adverse Effect Level                                                                    |
| NOELR   | No Observable Effect Loading Rate                                                                   |
| NTP     | National Toxicology Program (United States)                                                         |
| NZIoC   | New Zealand Inventory of Chemicals                                                                  |
| OECD    | Organization for Economic Cooperation and Development                                               |
| OEL     | Occupational exposure limits                                                                        |
| OSHA    | Occupational Safety and Health Administration of the US Department of Labor                         |
| PBT     | Persistent, Bioaccumulative and Toxic substance                                                     |
| PICCS   | Philippines Inventory of Chemicals and Chemical Substances                                          |
| PMT     | Persistent, Mobile and Toxic                                                                        |
| PPE     | Personal protective equipment                                                                       |
| QSAR    | Quantitative Structure Activity Relationship                                                        |
| RID     | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)                 |
| SADT    | Self-Accelerating Decomposition Temperature                                                         |
| SAR     | Structure-activity relationship                                                                     |
| SARA    | Superfund Amendments and Reauthorization Act                                                        |
| SDS     | Safety Data Sheet                                                                                   |
| SL      | Surface Limit                                                                                       |
| STEL    | Short Term Exposure Limit                                                                           |
| STOT RE | Specific target organ toxicity - Repeated exposure                                                  |
| STOT SE | Specific target organ toxicity - Single exposure                                                    |
| TCSI    | Taiwan Chemical Substance Inventory                                                                 |
| TDG     | Transport of Dangerous Goods (Canada)                                                               |
| TSCA    | Toxic Substances Control Act (United States)                                                        |
| TWA     | Time-Weighted Average                                                                               |
| UN      | United Nations                                                                                      |
| VOC     | Volatile organic compounds                                                                          |
| vPvB    | Very Persistent and Very Bioaccumulative                                                            |

|      |                                                       |
|------|-------------------------------------------------------|
| vPvM | Very Persistent and Very Mobile                       |
| As   | Allergenic substance                                  |
| DS   | Dermal Sensitizer                                     |
| Ot   | Ototoxicant                                           |
| pOt  | Ototoxicant - potential to cause hearing disorders    |
| PS   | Photosensitizer                                       |
| RS   | Respiratory Sensitizer                                |
| S    | Sensitizer                                            |
| poS  | Sensitizer - capable of causing occupational asthma   |
| Sa   | Simple asphyxiant                                     |
| Sd   | Skin designation                                      |
| pSd  | Skin designation - potential for cutaneous absorption |
| Sdv  | Skin designation - vacated                            |
| Sk   | Skin notation                                         |
| dSk  | Skin notation - danger of cutaneous absorption        |
| pSk  | Skin notation - potential for cutaneous absorption    |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AEGl(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
National Institute of Technology and Evaluation (NITE)  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

**Prepared By** Product Stewardship  
23 British American Blvd.  
Latham, NY 12110  
1-800-572-6501.

**Revision date** 18-Aug-2025

**Revision Note** No information available.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
US OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canada WHMIS which includes the amended Hazardous  
Products Act (HPA) and the Hazardous Products Regulation (HPR)

Issuing Date 15-Aug-2025

Revision date 15-Aug-2025

Revision Number 1

## 1. Identification

### Product identifier

**Product Name** Rechargeable Li-ion Battery L20L3PF0 by LG

### Other means of identification

**Product Code(s)** 1869349

**Synonyms** None

### Recommended use of the chemical and restrictions on use

**Recommended use** Lithium Ion Battery

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

**Supplier Name** Lenovo LNB laptops

### Supplier Address

Songtao Road 696  
shanghai  
shanghai  
201203  
CN

### Emergency telephone number

**Supplier Phone Number** Phone:18116118603

**24 Hour Emergency Phone Number** 18116118603

**Emergency Telephone** No information available

## 2. Hazard(s) identification

### Classification of the substance or mixture

|                                   |             |
|-----------------------------------|-------------|
| Skin corrosion/irritation         | Category 2  |
| Serious eye damage/eye irritation | Category 2A |
| Skin sensitization                | Category 1  |
| Carcinogenicity                   | Category 1B |

### Label elements



**Danger**

**Hazard statements**

Causes skin irritation.  
Causes serious eye irritation.  
May cause an allergic skin reaction.  
May cause cancer.

**Precautionary Statements - Prevention**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Wash face, hands and any exposed skin thoroughly after handling.  
Avoid breathing dust, fume, gas, mist, vapors and spray.  
Contaminated work clothing should not be allowed out of the workplace.  
Wear protective gloves.

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention.  
Specific treatment (see supplemental first aid instructions on this label).

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice and attention.

**Skin**

IF ON SKIN: Wash with plenty of water and soap.  
Take off contaminated clothing and wash it before reuse.  
If skin irritation or rash occurs: Get medical advice and attention.

**Precautionary Statements - Storage**

Store locked up.

**Precautionary Statements - Disposal**

Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200**

No information available.

**Other information**

Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. This is a battery. In case of rupture: the above hazards exist.

### 3. Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

| Chemical name                 | CAS No.    | Weight-% | Hazardous Material<br>Information Review<br>Act registry number<br>(HMIRA registry #) | Date HMIRA filed and<br>date exemption<br>granted (if applicable) |
|-------------------------------|------------|----------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO2) | 12190-79-3 | 43       | -                                                                                     | -                                                                 |

|                     |           |     |   |   |
|---------------------|-----------|-----|---|---|
| Graphite            | 7782-42-5 | 24  | - | - |
| Copper              | 7440-50-8 | 13  | - | - |
| Aluminum            | 7429-90-5 | 8   | - | - |
| Nickel              | 7440-02-0 | 0.5 | - | - |
| 1,3-Propane sultone | 1120-71-4 | 0.5 | - | - |

## 4. First-aid measures

### Description of first aid measures

|                                           |                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. First aid is upon rupture of sealed battery. In case of rupture:                                                                                                    |
| <b>Inhalation</b>                         | Remove to fresh air. Get medical attention immediately if symptoms occur.                                                                                                                                                                                                           |
| <b>Eye contact</b>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists. |
| <b>Skin contact</b>                       | May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician. Wash off immediately with soap and plenty of water for at least 15 minutes.                                                                                              |
| <b>Ingestion</b>                          | Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.                                                                                                                                                                       |
| <b>Self-protection of the first aider</b> | Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).                                                                                                                                                                                       |

### Most important symptoms and effects, both acute and delayed

|                            |                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------|
| <b>Symptoms</b>            | Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation. |
| <b>Effects of Exposure</b> | May cause cancer.                                                                     |

### Indication of any immediate medical attention and special treatment needed

|                           |                                                                        |
|---------------------------|------------------------------------------------------------------------|
| <b>Note to physicians</b> | May cause sensitization in susceptible persons. Treat symptomatically. |
|---------------------------|------------------------------------------------------------------------|

## 5. Fire-fighting measures

|                                                                              |                                                                                                                                    |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b><u>Suitable Extinguishing Media</u></b>                                   | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.                            |
| <b><u>Unsuitable extinguishing media</u></b>                                 | Do not scatter spilled material with high pressure water streams.                                                                  |
| <b><u>Specific hazards arising from the chemical</u></b>                     | Product is or contains a sensitizer. May cause sensitization by skin contact.                                                      |
| <b><u>Explosion data</u></b>                                                 |                                                                                                                                    |
| Sensitivity to mechanical impact                                             | None.                                                                                                                              |
| Sensitivity to static discharge                                              | None.                                                                                                                              |
| <b><u>Special protective equipment and precautions for fire-fighters</u></b> | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

|                             |                                                                                                                                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b> | Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| <b>Other information</b>    | Refer to protective measures listed in Sections 7 and 8.                                                                                                                                                 |

### Methods and material for containment and cleaning up

|                                        |                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------|
| <b>Methods for containment</b>         | Prevent further leakage or spillage if safe to do so.                                |
| <b>Methods for cleaning up</b>         | Pick up and transfer to properly labeled containers.                                 |
| <b>Prevention of secondary hazards</b> | Clean contaminated objects and areas thoroughly observing environmental regulations. |

## 7. Handling and storage

### Precautions for safe handling

|                                       |                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Advice on safe handling</b>        | In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. |
| <b>General hygiene considerations</b> | Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing. Handle in accordance with good industrial hygiene and safety practice.                                                               |

### Conditions for safe storage, including any incompatibilities

|                           |                                                                          |
|---------------------------|--------------------------------------------------------------------------|
| <b>Storage Conditions</b> | Keep containers tightly closed in a dry, cool and well-ventilated place. |
|---------------------------|--------------------------------------------------------------------------|

## 8. Exposure controls/personal protection

### Control Parameters

#### Exposure Limits

| Chemical name                                            | ACGIH TLV                                                                               | OSHA PEL                                                                                                                                                                                                                                                                                                            | NIOSH                                                                      |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup>                                                             | -                                                                                                                                                                                                                                                                                                                   | -                                                                          |
| Graphite<br>7782-42-5                                    | TWA: 2 mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers | TWA: 15 mg/m <sup>3</sup> total dust synthetic<br>TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic<br>TWA: 15 mppcf respirable dust natural<br>(vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural<br>(vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic<br>(vacated) TWA: 5 mg/m <sup>3</sup> | IDLH: 1250 mg/m <sup>3</sup><br>TWA: 2.5 mg/m <sup>3</sup> respirable dust |

|                                  |                                                                                          |                                                                                                                                                                                                           |                                                                                                                                        |
|----------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|                                  |                                                                                          | respirable fraction synthetic<br>TWA: 15 mppcf natural                                                                                                                                                    |                                                                                                                                        |
| Copper<br>7440-50-8              | TWA: 0.2 mg/m <sup>3</sup> fume                                                          | TWA: 0.1 mg/m <sup>3</sup> fume<br>TWA: 1 mg/m <sup>3</sup> dust and mist<br>(vacated) TWA: 0.1 mg/m <sup>3</sup> Cu<br>dust, fume, mist                                                                  | TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>TWA: 0.1 mg/m <sup>3</sup> ; fume<br>IDLH: 100 mg/m <sup>3</sup> dust, fume<br>and mist |
| Aluminum<br>7429-90-5            | TWA: 1 mg/m <sup>3</sup> respirable<br>particulate matter                                | TWA: 15 mg/m <sup>3</sup> total dust<br>TWA: 5 mg/m <sup>3</sup> respirable<br>fraction<br>(vacated) TWA: 15 mg/m <sup>3</sup><br>total dust<br>(vacated) TWA: 5 mg/m <sup>3</sup><br>respirable fraction | TWA: 10 mg/m <sup>3</sup> ; total dust<br>TWA: 5 mg/m <sup>3</sup> ; respirable<br>dust                                                |
| Nickel<br>7440-02-0              | TWA: 1.5 mg/m <sup>3</sup>                                                               | TWA: 1 mg/m <sup>3</sup><br>(vacated) TWA: 1 mg/m <sup>3</sup>                                                                                                                                            | IDLH: 10 mg/m <sup>3</sup><br>TWA: 0.015 mg/m <sup>3</sup>                                                                             |
| 1,3-Propane sultone<br>1120-71-4 | Exposure by all routes should<br>be carefully controlled to<br>levels as low as possible | -                                                                                                                                                                                                         | -                                                                                                                                      |

| Chemical name                                            | Alberta                                                                          | British Columbia                                                                 | Ontario                                                                          | Quebec                                                                                  |
|----------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup> ;                                                    | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable<br>DS<br>RS                           | TWA: 0.02 mg/m <sup>3</sup> ;                                                    | TWAEV: 0.02 mg/m <sup>3</sup> ;<br>inhalable aerosol<br>fraction                        |
| Graphite<br>7782-42-5                                    | TWA: 2 mg/m <sup>3</sup> ;<br>respirable                                         | TWA: 2 mg/m <sup>3</sup> ;<br>respirable                                         | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter                   | TWAEV: 2 mg/m <sup>3</sup> ;<br>respirable dust                                         |
| Copper<br>7440-50-8                                      | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist | TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>TWA: 0.2 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist | TWAEV: 0.2 mg/m <sup>3</sup> ;<br>fume<br>TWAEV: 1 mg/m <sup>3</sup> ; dust<br>and mist |
| Aluminum<br>7429-90-5                                    | TWA: 10 mg/m <sup>3</sup> ; dust                                                 | TWA: 1.0 mg/m <sup>3</sup> ;<br>respirable                                       | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter                   | TWAEV: 10 mg/m <sup>3</sup> ;                                                           |
| Nickel<br>7440-02-0                                      | TWA: 1.5 mg/m <sup>3</sup> ;                                                     | TWA: 0.05 mg/m <sup>3</sup> ;                                                    | TWA: 1 mg/m <sup>3</sup> ;<br>inhalable fraction                                 | TWAEV: 1.5 mg/m <sup>3</sup> ;<br>inhalable dust                                        |
| 1,3-Propane sultone<br>1120-71-4                         | -                                                                                | : ;                                                                              | : ;                                                                              | : ;                                                                                     |

| Chemical name                              | Manitoba                                                                     | New Brunswick                                      | Newfoundland and<br>Labrador                                                 | Nova Scotia                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;                      | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS |
| Graphite                                   | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 2 mg/m <sup>3</sup> ;<br>respirable fraction  | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               |
| Copper                                     | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            | TWA: 0.2 mg/m <sup>3</sup> ; fume                  | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            |
| Aluminum                                   | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 1 mg/m <sup>3</sup> ;<br>respirable fraction  | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               |
| Nickel                                     | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              |

| Chemical name                              | Nunavut                                                                                                                                                          | Prince Edward Island                                          | Saskatchewan                                                                                                                                                     | Yukon                                                                                                                                                            |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated substance                                                                          | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate matter | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated Chemical Substance                                                                 | -                                                                                                                                                                |
| Graphite                                   | TWA: 2 mg/m <sup>3</sup> ;<br>respirable fraction<br>STEL: 4 mg/m <sup>3</sup> ;<br>respirable fraction                                                          | TWA: 2 mg/m <sup>3</sup> ;<br>respirable particulate matter   | TWA: 2 mg/m <sup>3</sup> ;<br>respirable fraction<br>STEL: 4 mg/m <sup>3</sup> ;<br>respirable fraction                                                          | TWA: 20 mppcf;<br>TWA: 30 mppcf;<br>TWA: 10 mg/m <sup>3</sup> ;                                                                                                  |
| Copper                                     | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and mist<br>STEL: 3 mg/m <sup>3</sup> ; dust and mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume                             | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume<br>STEL: 3 mg/m <sup>3</sup> ; dust and mist | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and mist<br>STEL: 0.2 mg/m <sup>3</sup> ; fume<br>STEL: 2 mg/m <sup>3</sup> ; dust and mist |
| Aluminum                                   | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                                            | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate matter   | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                                            | -                                                                                                                                                                |
| Nickel                                     | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated substance                                  | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate matter  | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated Chemical Substance                         | TWA: 1 mg/m <sup>3</sup> ;<br>STEL: 3 mg/m <sup>3</sup> ;                                                                                                        |
| 1,3-Propane sultone                        | Designated substance                                                                                                                                             | -                                                             | Designated Chemical Substance                                                                                                                                    | -                                                                                                                                                                |

**Note**

See section 16 for terms and abbreviations.

**Other information on limit values**

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Biological occupational exposure limits**

| Chemical name                                            | ACGIH                                                      |
|----------------------------------------------------------|------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | 15 µg/L - urine (Cobalt) - end of shift at end of workweek |
| Nickel<br>7440-02-0                                      | 5 µg/L - urine (Nickel) - post-shift at end of workweek    |

**Appropriate engineering controls****Engineering controls**Showers  
Eyewash stations  
Ventilation systems.**Individual protection measures, such as personal protective equipment****Eye/face protection**

Wear safety glasses with side shields (or goggles).

**Hand protection**

Wear suitable gloves. Impervious gloves.

**Skin and body protection**

Wear suitable protective clothing. Long sleeved clothing.

**Respiratory protection**

Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be

required.

**9. Physical and chemical properties****Information on basic physical and chemical properties**

|                                |                          |
|--------------------------------|--------------------------|
| Appearance                     | Black                    |
| Physical state                 | Solid                    |
| Color                          | No information available |
| Odor (includes odor threshold) | Odorless                 |
| Odor threshold                 | No information available |

| Property                                                  | Values             | Remarks • Method |
|-----------------------------------------------------------|--------------------|------------------|
| Melting point / freezing point                            | No data available  | None known       |
| Boiling point (or initial boiling point or boiling range) | No data available  | None known       |
| Flammability                                              | No data available  | None known       |
| Flammability Limit in Air                                 |                    | None known       |
| Upper flammability or explosive limits                    | No data available  |                  |
| Lower flammability or explosive limits                    | No data available  |                  |
| Flash point                                               | No data available  | None known       |
| Autoignition temperature                                  | No data available  | None known       |
| Decomposition temperature                                 | No data available  | None known       |
| SADT (°C)                                                 | No data available  | None known       |
| pH                                                        | No data available  | None known       |
| pH (as aqueous solution)                                  | No data available  | None known       |
| Kinematic viscosity                                       | No data available  | None known       |
| Dynamic viscosity                                         | No data available  | None known       |
| Solubility                                                | No data available  | None known       |
| Water solubility                                          | Insoluble in water | None known       |
| Partition coefficient n-octanol/water (log value)         | 1                  | None known       |
| Vapor pressure (includes evaporation rate)                | No data available  | None known       |
| Evaporation rate                                          | No data available  | None known       |
| Density and/or relative density                           | No data available  | None known       |
| Bulk density                                              | No data available  |                  |
| Liquid Density                                            | No data available  |                  |
| Relative vapor density                                    | No data available  | None known       |
| Particle characteristics                                  |                    | None known       |
| Particle Size                                             | No data available  |                  |
| Particle Size Distribution                                | No data available  |                  |

**Other information**

|                    |       |
|--------------------|-------|
| Miscible           | No    |
| Heat of combustion | 3.122 |

**10. Stability and reactivity**

|                                    |                                           |
|------------------------------------|-------------------------------------------|
| Reactivity                         | No information available.                 |
| Chemical stability                 | Stable under normal conditions.           |
| Possibility of hazardous reactions | None under normal processing.             |
| Conditions to avoid                | None known based on information supplied. |

**Incompatible materials** Strong acids. Strong bases. Strong oxidizing agents.

**Hazardous decomposition products** None known based on information supplied.

## 11. Toxicological information

### Information on likely routes of exposure

|                            |                                                                                                                                                                                                                                                     |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Information</b> | Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:                                                                                                                                       |
| <b>Inhalation</b>          | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.                                                                                                                                        |
| <b>Eye contact</b>         | Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.                                                                                       |
| <b>Skin contact</b>        | Specific test data for the substance or mixture is not available. May cause sensitization by skin contact. Causes skin irritation. (based on components). Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. |
| <b>Ingestion</b>           | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.                                                                                                   |

### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes.

**Acute toxicity** No information available.

### Numerical measures of toxicity

The following ATE values have been calculated for the mixture

|                               |                 |
|-------------------------------|-----------------|
| ATEmix (oral)                 | 99,999.00 mg/kg |
| ATEmix (dermal)               | 99,999.00 mg/kg |
| ATEmix (inhalation-gas)       | 99,999.00 ppm   |
| ATEmix (inhalation-vapor)     | 99,999.00 mg/l  |
| ATEmix (inhalation-dust/mist) | 99,999.00 mg/l  |

### Component Information

| Chemical name                               | Oral LD50            | Dermal LD50          | Inhalation LC50                      |
|---------------------------------------------|----------------------|----------------------|--------------------------------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3 | > 5000 mg/kg ( Rat ) | > 2000 mg/kg ( Rat ) | > 5.05 mg/L ( Rat ) 4 h              |
| Graphite<br>7782-42-5                       | -                    | -                    | > 2000 mg/m <sup>3</sup> ( Rat ) 4 h |
| Copper<br>7440-50-8                         | -                    | -                    | > 5.11 mg/L ( Rat ) 4 h              |
| Aluminum<br>7429-90-5                       | -                    | -                    | > 0.888 mg/L ( Rat ) 4 h             |
| Nickel<br>7440-02-0                         | > 9000 mg/kg ( Rat ) | -                    | > 10.2 mg/L ( Rat ) 1 h              |
| 1,3-Propane sultone<br>1120-71-4            | = 157 mg/kg ( Rat )  | -                    | -                                    |

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes skin irritation.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

**Respiratory or skin sensitization** May cause an allergic skin reaction.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name                                            | ACGIH                                                                   | IARC     | NTP                    | OSHA |
|----------------------------------------------------------|-------------------------------------------------------------------------|----------|------------------------|------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | A3<br>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans | Group 2B | Reasonably Anticipated | X    |
| Aluminum<br>7429-90-5                                    | A4 - Not Classifiable as a Human Carcinogen                             | -        | -                      | -    |
| Nickel<br>7440-02-0                                      | A5 - Not Suspected as a Human Carcinogen                                | Group 2B | Reasonably Anticipated | X    |
| 1,3-Propane sultone<br>1120-71-4                         | A3<br>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans | Group 2A | Reasonably Anticipated | X    |

#### Legend

##### ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

A4 - Not classifiable as a human carcinogen

##### IARC (International Agency for Research on Cancer)

Group 2A - Probably carcinogenic to humans

Group 2B - Possibly carcinogenic to humans

##### NTP (National Toxicology Program)

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

##### Occupational Safety and Health Administration of the US Department of Labor

X - Present

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Aspiration hazard** No information available.

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|---------------|----------------------|------|----------------------------|-----------|
|---------------|----------------------|------|----------------------------|-----------|

|                       |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                                                  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------|
| Graphite<br>7782-42-5 | -                                                                                                                                                    | 96h LC50: > 100 mg/L<br>(Danio rerio)                                                                                                                                                                                                                                                                                                                                                                          | - | -                                                                                |
| Copper<br>7440-50-8   | 72h EC50: 0.0426 -<br>0.0535 mg/L<br>(Pseudokirchneriella<br>subcapitata)<br>96h EC50: 0.031 -<br>0.054 mg/L<br>(Pseudokirchneriella<br>subcapitata) | 96h LC50: 0.0068 -<br>0.0156 mg/L<br>(Pimephales promelas)<br>96h LC50: < 0.3 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.2 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.052 mg/L<br>(Oncorhynchus mykiss)<br>96h LC50: = 1.25 mg/L<br>(Lepomis macrochirus)<br>96h LC50: = 0.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.8 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.112 mg/L<br>(Poecilia reticulata) | - | 48h EC50: = 0.03 mg/L<br>(Daphnia magna)                                         |
| Nickel<br>7440-02-0   | 72h EC50: = 0.18 mg/L<br>(Pseudokirchneriella<br>subcapitata)<br>96h EC50: 0.174 -<br>0.311 mg/L<br>(Pseudokirchneriella<br>subcapitata)             | 96h LC50: > 100 mg/L<br>(Brachydanio rerio)<br>96h LC50: = 1.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 10.4 mg/L<br>(Cyprinus carpio)                                                                                                                                                                                                                                                                         | - | 48h EC50: > 100 mg/L<br>(Daphnia magna)<br>48h EC50: = 1 mg/L<br>(Daphnia magna) |

**Persistence and degradability** No information available.

**Bioaccumulation** There is no data for this product.

**Other adverse effects** No information available.

### 13. Disposal considerations

#### Disposal methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

**California waste information** This product contains one or more substances that are listed with the State of California as a hazardous waste.

### 14. Transport information

**Note:** The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation

listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)  
Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

|                                        |                                                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------|
| <b>DOT</b>                             | NOT REGULATED                                                                               |
| Hazard Class                           | N/A                                                                                         |
| Reportable quantity (lbs)              | Copper: RQ (lb)= 5000.00, 1,3-Propane sultone: RQ (lb)= 10.00, Nickel: RQ (lb)= 100.00      |
| Reportable quantity (lbs) (calculated) | Copper: RQ (lb)= 38462.00, 1,3-Propane sultone: RQ (lb)= 2000.00, Nickel: RQ (lb)= 20000.00 |
| Reportable Quantity (RQ)               | (Copper: RQ (kg)= 2270.00, 1,3-Propane sultone: RQ (kg)= 4.54, Nickel: RQ (kg)= 45.40)      |
| Reportable quantity (kg) (calculated)  | Copper: RQ (kg)= 17461.54, 1,3-Propane sultone: RQ (kg)= 908.00, Nickel: RQ (kg)= 9080.00   |
| DOT Marine Pollutant                   | PP                                                                                          |
| Marine pollutant                       | Copper                                                                                      |
| Emergency Response Guide Number        | 147                                                                                         |
| <b>TDG</b>                             | Not applicable                                                                              |
| <b>MEX</b>                             | Not applicable                                                                              |
| <b>ICAO (air)</b>                      |                                                                                             |
| UN number or ID number                 | UN3480                                                                                      |
| UN proper shipping name                | LITHIUM ION BATTERIES                                                                       |
| Transport hazard class(es)             | 9                                                                                           |
| Description                            | UN3480, LITHIUM ION BATTERIES, 9                                                            |
| Special Provisions                     | A88, A99, A154, A183, A201, A213                                                            |
| <b>IATA</b>                            |                                                                                             |
| UN number or ID number                 | UN3480                                                                                      |
| UN proper shipping name                | LITHIUM ION BATTERIES                                                                       |
| Transport hazard class(es)             | 9                                                                                           |
| Environmental hazards                  | Yes                                                                                         |
| ERG Code                               | 12FZ                                                                                        |
| Description                            | UN3480, LITHIUM ION BATTERIES, 9                                                            |
| <b>IMDG</b>                            | Not applicable                                                                              |
| Transport hazard class(es)             | N/A                                                                                         |
| Marine pollutant indicator             | NP                                                                                          |
| EmS-No.                                | F-A, S-I                                                                                    |

## 15. Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

#### International Inventories

**TSCA** Contact supplier for inventory compliance status.

**DSL/NDL** Contact supplier for inventory compliance status.  
**EINECS/ELINCS** Contact supplier for inventory compliance status.  
**ENCS** Contact supplier for inventory compliance status.  
**IECSC** Contact supplier for inventory compliance status.  
**KECI** Contact supplier for inventory compliance status.  
**PICCS** Contact supplier for inventory compliance status.  
**AIIC** Contact supplier for inventory compliance status.  
**NZIoC** Contact supplier for inventory compliance status.  
**TCSI** Contact supplier for inventory compliance status.

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing Chemicals Inventory  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AIIC** - Australian Inventory of Industrial Chemicals  
**NZIoC** - New Zealand Inventory of Chemicals  
**TCSI** - Taiwan Chemical Substance Inventory

**US Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Chemical name                                           | SARA 313 - Threshold Values % |
|---------------------------------------------------------|-------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) - 12190-79-3 | 0.1                           |
| Copper - 7440-50-8                                      | 1.0                           |
| Aluminum - 7429-90-5                                    | 1.0                           |
| Nickel - 7440-02-0                                      | 0.1                           |
| 1,3-Propane sultone - 1120-71-4                         | 0.1                           |

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

| Chemical name       | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Copper<br>7440-50-8 | -                           | X                      | X                         | -                          |
| Nickel<br>7440-02-0 | -                           | X                      | X                         | -                          |

**CAA (Clean Air Act)**

This product contains the following substances which are regulated pollutants to the Clean Air Act (CAA).

| Chemical name                                            | Hazardous air pollutants (HAPs) | Ozone-depleting substances (ODS) |
|----------------------------------------------------------|---------------------------------|----------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | Present                         | -                                |

| Chemical name                    | Hazardous air pollutants (HAPs) | Ozone-depleting substances (ODS) |
|----------------------------------|---------------------------------|----------------------------------|
| 1,3-Propane sultone<br>1120-71-4 | Present                         | -                                |

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

| Chemical name                    | Hazardous Substances RQs | Extremely Hazardous Substances RQs | Reportable Quantity (RQ)                   |
|----------------------------------|--------------------------|------------------------------------|--------------------------------------------|
| Copper<br>7440-50-8              | 5000 lb                  | -                                  | RQ 5000 lb final RQ<br>RQ 2270 kg final RQ |
| Nickel<br>7440-02-0              | 100 lb                   | -                                  | RQ 100 lb final RQ<br>RQ 45.4 kg final RQ  |
| 1,3-Propane sultone<br>1120-71-4 | 10 lb                    | -                                  | RQ 10 lb final RQ<br>RQ 4.54 kg final RQ   |

**US State Regulations****California Proposition 65**

This product contains the following Proposition 65 chemicals:.

| Chemical name                   | California Proposition 65 |
|---------------------------------|---------------------------|
| 1,3-Propane sultone - 1120-71-4 | Carcinogen                |
| Nickel - 7440-02-0              | Carcinogen                |

**U.S. State Right-to-Know Regulations**

| Chemical name                               | New Jersey | Massachusetts | Pennsylvania |
|---------------------------------------------|------------|---------------|--------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3 | X          | -             | X            |
| Graphite<br>7782-42-5                       | X          | X             | X            |
| Copper<br>7440-50-8                         | X          | X             | X            |
| Aluminum<br>7429-90-5                       | X          | X             | X            |
| Nickel<br>7440-02-0                         | X          | X             | X            |
| 1,3-Propane sultone<br>1120-71-4            | X          | X             | X            |

**U.S. EPA Label Information**

EPA Pesticide Registration Number Not applicable

**16. Other information**

|             |                         |                       |                           |                              |
|-------------|-------------------------|-----------------------|---------------------------|------------------------------|
| <b>NFPA</b> | <b>Health hazards</b> 1 | <b>Flammability</b> 0 | <b>Instability</b> 0      | <b>Special hazards</b> -     |
| <b>HMIS</b> | <b>Health hazards</b> 0 | <b>Flammability</b> 0 | <b>Physical hazards</b> 0 | <b>Personal protection</b> X |

Key or legend to abbreviations and acronyms used in the safety data sheet

**Legend**

|       |                                                                                                 |
|-------|-------------------------------------------------------------------------------------------------|
| ACGIH | American Conference of Governmental Industrial Hygienists                                       |
| ADN   | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR   | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)             |

|         |                                                                                                     |
|---------|-----------------------------------------------------------------------------------------------------|
| AIIC    | Australian Inventory of Industrial Chemicals                                                        |
| ATE     | Acute Toxicity Estimate                                                                             |
| ASTM    | American Society for the Testing of Materials                                                       |
| bar     | Biological Reference Values for Chemical Compounds in the Work Area                                 |
| BAT     | Biological tolerance values for occupational exposure                                               |
| BEL     | Biological exposure limits                                                                          |
| bw      | Body weight                                                                                         |
| Ceiling | Maximum limit value                                                                                 |
| CMR     | Carcinogen, Mutagen or Reproductive Toxicant                                                        |
| DOT     | Department of Transportation (United States)                                                        |
| DSL     | Domestic Substances List (Canada)                                                                   |
| EmS     | Emergency Schedule                                                                                  |
| ENCS    | Existing and New Chemical Substances (Japan)                                                        |
| EPA     | Environmental Protection Agency                                                                     |
| GHS     | Globally Harmonized System                                                                          |
| HMIS    | Hazardous Materials Identification System                                                           |
| IARC    | International Agency for Research on Cancer                                                         |
| IATA    | International Air Transport Association                                                             |
| IBC     | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO    | International Civil Aviation Organization                                                           |
| IECSC   | Inventory of Existing Chemical Substances in China                                                  |
| IMDG    | International Maritime Dangerous Goods                                                              |
| IMO     | International Maritime Organization                                                                 |
| ISO     | International Organization for Standardization                                                      |
| KECI    | Korean Existing Chemicals Inventory                                                                 |
| LC50    | Lethal Concentration to 50% of a test population                                                    |
| LD50    | Lethal Dose to 50% of a test population (Median Lethal Dose)                                        |
| MARPOL  | International Convention for the Prevention of Pollution from Ships                                 |
| NFPA    | National Fire Protection Association                                                                |
| NIOSH   | National Institute for Occupational Safety and Health                                               |
| n.o.s.  | Not Otherwise Specified                                                                             |
| NOAEC   | No Observed Adverse Effect Concentration                                                            |
| NOAEL   | No Observed Adverse Effect Level                                                                    |
| NOELR   | No Observable Effect Loading Rate                                                                   |
| NTP     | National Toxicology Program (United States)                                                         |
| NZIoC   | New Zealand Inventory of Chemicals                                                                  |
| OECD    | Organization for Economic Cooperation and Development                                               |
| OEL     | Occupational exposure limits                                                                        |
| OSHA    | Occupational Safety and Health Administration of the US Department of Labor                         |
| PBT     | Persistent, Bioaccumulative and Toxic substance                                                     |
| PICCS   | Philippines Inventory of Chemicals and Chemical Substances                                          |
| PMT     | Persistent, Mobile and Toxic                                                                        |
| PPE     | Personal protective equipment                                                                       |
| QSAR    | Quantitative Structure Activity Relationship                                                        |
| RID     | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)                 |
| SADT    | Self-Accelerating Decomposition Temperature                                                         |
| SAR     | Structure-activity relationship                                                                     |
| SARA    | Superfund Amendments and Reauthorization Act                                                        |
| SDS     | Safety Data Sheet                                                                                   |
| SL      | Surface Limit                                                                                       |
| STEL    | Short Term Exposure Limit                                                                           |
| STOT RE | Specific target organ toxicity - Repeated exposure                                                  |
| STOT SE | Specific target organ toxicity - Single exposure                                                    |
| TCSI    | Taiwan Chemical Substance Inventory                                                                 |
| TDG     | Transport of Dangerous Goods (Canada)                                                               |
| TSCA    | Toxic Substances Control Act (United States)                                                        |

|      |                                                       |
|------|-------------------------------------------------------|
| TWA  | Time-Weighted Average                                 |
| UN   | United Nations                                        |
| VOC  | Volatile organic compounds                            |
| vPvB | Very Persistent and Very Bioaccumulative              |
| vPvM | Very Persistent and Very Mobile                       |
| As   | Allergenic substance                                  |
| DS   | Dermal Sensitizer                                     |
| Ot   | Ototoxicant                                           |
| pOt  | Ototoxicant - potential to cause hearing disorders    |
| PS   | Photosensitizer                                       |
| RS   | Respiratory Sensitizer                                |
| S    | Sensitizer                                            |
| poS  | Sensitizer - capable of causing occupational asthma   |
| Sa   | Simple asphyxiant                                     |
| Sd   | Skin designation                                      |
| pSd  | Skin designation - potential for cutaneous absorption |
| Sdv  | Skin designation - vacated                            |
| Sk   | Skin notation                                         |
| dSk  | Skin notation - danger of cutaneous absorption        |
| pSk  | Skin notation - potential for cutaneous absorption    |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AEGL(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
National Institute of Technology and Evaluation (NITE)  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

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**Issuing Date** 15-Aug-2025

**Revision date** 15-Aug-2025

**Revision Note** No information available.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
US OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canada WHMIS which includes the amended Hazardous  
Products Act (HPA) and the Hazardous Products Regulation (HPR)

Issuing Date 15-Aug-2025

Revision date 15-Aug-2025

Revision Number 1

## 1. Identification

### Product identifier

**Product Name** Rechargeable Li-ion Battery L20C3PF0 by Celxpert

### Other means of identification

**Product Code(s)** 1869343

**Synonyms** None

### Recommended use of the chemical and restrictions on use

**Recommended use** Lithium Ion Battery

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

**Supplier Name** Lenovo LNB laptops

### Supplier Address

Songtao Road 696  
shanghai  
shanghai  
201203  
CN

### Emergency telephone number

**Supplier Phone Number** Phone:18116118603

**24 Hour Emergency Phone Number** 18116118603

**Emergency Telephone** No information available

## 2. Hazard(s) identification

### Classification of the substance or mixture

|                                                    |             |
|----------------------------------------------------|-------------|
| Acute toxicity - Dermal                            | Category 4  |
| Skin corrosion/irritation                          | Category 2  |
| Serious eye damage/eye irritation                  | Category 1  |
| Skin sensitization                                 | Category 1  |
| Carcinogenicity                                    | Category 1B |
| Specific target organ toxicity (repeated exposure) | Category 1  |

### Label elements



**Danger**

**Hazard statements**

Harmful in contact with skin.  
Causes skin irritation.  
Causes serious eye damage.  
May cause an allergic skin reaction.  
May cause cancer.  
Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statements - Prevention**

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

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention.  
Specific treatment (see supplemental first aid instructions on this label).

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Immediately call a POISON CENTER or doctor.

**Skin**

IF ON SKIN: Wash with plenty of water and soap.  
Call a POISON CENTER or doctor if you feel unwell.  
Take off contaminated clothing and wash it before reuse.  
If skin irritation or rash occurs: Get medical advice and attention.

**Precautionary Statements - Storage**

Store locked up.

**Precautionary Statements - Disposal**

Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

**Unknown acute toxicity**

89.2 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200**

No information available.

**Other information**

Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. This is a battery. In case of rupture: the above hazards exist.

### 3. Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

| Chemical name                              | CAS No.    | Weight-% | Hazardous Material<br>Information Review<br>Act registry number<br>(HMIRA registry #) | Date HMIRA filed and<br>date exemption<br>granted (if applicable) |
|--------------------------------------------|------------|----------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | 12190-79-3 | 42.28    | -                                                                                     | -                                                                 |
| Aluminum foil                              | 7429-90-5  | 9.68     | -                                                                                     | -                                                                 |
| Copper                                     | 7440-50-8  | 8.6      | -                                                                                     | -                                                                 |
| Phosphate(1-), hexafluoro-, lithium        | 21324-40-3 | 3.13     | -                                                                                     | -                                                                 |
| Ethylene carbonate                         | 96-49-1    | 3.09     | -                                                                                     | -                                                                 |
| Nickel                                     | 7440-02-0  | 0.45     | -                                                                                     | -                                                                 |

## 4. First-aid measures

### Description of first aid measures

|                                           |                                                                                                                                                                                                                                                           |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. IF exposed or concerned: Get medical advice/attention. First aid is upon rupture of sealed battery. In case of rupture:                                 |
| <b>Inhalation</b>                         | Remove to fresh air. Get medical attention immediately if symptoms occur.                                                                                                                                                                                 |
| <b>Eye contact</b>                        | Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. |
| <b>Skin contact</b>                       | Wash off immediately with soap and plenty of water for at least 15 minutes. May cause an allergic skin reaction. If symptoms persist, call a physician.                                                                                                   |
| <b>Ingestion</b>                          | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician.                                                                                                                                             |
| <b>Self-protection of the first aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid contact with skin, eyes or clothing.            |

### Most important symptoms and effects, both acute and delayed

|                            |                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------|
| <b>Symptoms</b>            | Burning sensation. Itching. Rashes. Hives.                                        |
| <b>Effects of Exposure</b> | May cause cancer. Causes damage to organs through prolonged or repeated exposure. |

### Indication of any immediate medical attention and special treatment needed

|                           |                                                                        |
|---------------------------|------------------------------------------------------------------------|
| <b>Note to physicians</b> | May cause sensitization in susceptible persons. Treat symptomatically. |
|---------------------------|------------------------------------------------------------------------|

## 5. Fire-fighting measures

|                                                          |                                                                                                         |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b><u>Suitable Extinguishing Media</u></b>               | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| <b>Unsuitable extinguishing media</b>                    | Do not scatter spilled material with high pressure water streams.                                       |
| <b><u>Specific hazards arising from the chemical</u></b> | Product is or contains a sensitizer. May cause sensitization by skin contact.                           |

**Explosion data**

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

**Special protective equipment and precautions for fire-fighters**

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions**

Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Other information**

Refer to protective measures listed in Sections 7 and 8.

**Methods and material for containment and cleaning up**

**Methods for containment**

Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**

Pick up and transfer to properly labeled containers.

**Prevention of secondary hazards**

Clean contaminated objects and areas thoroughly observing environmental regulations.

## 7. Handling and storage

**Precautions for safe handling**

**Advice on safe handling**

In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash before reuse.

**General hygiene considerations**

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

## 8. Exposure controls/personal protection

**Control Parameters**

**Exposure Limits**

| Chemical name                                            | ACGIH TLV                                                 | OSHA PEL                                                                    | NIOSH                                                                           |
|----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup>                               | -                                                                           | -                                                                               |
| Aluminum foil<br>7429-90-5                               | TWA: 1 mg/m <sup>3</sup> respirable<br>particulate matter | TWA: 15 mg/m <sup>3</sup> total dust<br>TWA: 5 mg/m <sup>3</sup> respirable | TWA: 10 mg/m <sup>3</sup> ; total dust<br>TWA: 5 mg/m <sup>3</sup> ; respirable |

|                                                   |                                 |                                                                                                                                          |                                                                                                                                        |
|---------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|                                                   |                                 | fraction<br>(vacated) TWA: 15 mg/m <sup>3</sup><br>total dust<br>(vacated) TWA: 5 mg/m <sup>3</sup><br>respirable fraction               | dust                                                                                                                                   |
| Copper<br>7440-50-8                               | TWA: 0.2 mg/m <sup>3</sup> fume | TWA: 0.1 mg/m <sup>3</sup> fume<br>TWA: 1 mg/m <sup>3</sup> dust and mist<br>(vacated) TWA: 0.1 mg/m <sup>3</sup> Cu<br>dust, fume, mist | TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>TWA: 0.1 mg/m <sup>3</sup> ; fume<br>IDLH: 100 mg/m <sup>3</sup> dust, fume<br>and mist |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | TWA: 2.5 mg/m <sup>3</sup> F    | TWA: 2.5 mg/m <sup>3</sup> F<br>(vacated) TWA: 2.5 mg/m <sup>3</sup>                                                                     | IDLH: 250 mg/m <sup>3</sup> F                                                                                                          |
| Nickel<br>7440-02-0                               | TWA: 1.5 mg/m <sup>3</sup>      | TWA: 1 mg/m <sup>3</sup><br>(vacated) TWA: 1 mg/m <sup>3</sup>                                                                           | IDLH: 10 mg/m <sup>3</sup><br>TWA: 0.015 mg/m <sup>3</sup>                                                                             |

| Chemical name                                            | Alberta                                                                          | British Columbia                                                                 | Ontario                                                                          | Quebec                                                                                  |
|----------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | TWA: 0.02 mg/m <sup>3</sup> ;                                                    | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable<br>DS<br>RS                           | TWA: 0.02 mg/m <sup>3</sup> ;                                                    | TWAEV: 0.02 mg/m <sup>3</sup> ;<br>inhalable aerosol<br>fraction                        |
| Aluminum foil<br>7429-90-5                               | TWA: 10 mg/m <sup>3</sup> ; dust                                                 | TWA: 1.0 mg/m <sup>3</sup> ;<br>respirable                                       | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter                   | TWAEV: 10 mg/m <sup>3</sup> ;                                                           |
| Copper<br>7440-50-8                                      | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist | TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>TWA: 0.2 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist | TWAEV: 0.2 mg/m <sup>3</sup> ;<br>fume<br>TWAEV: 1 mg/m <sup>3</sup> ; dust<br>and mist |
| Phosphate(1-), hexafluoro-,<br>lithium<br>21324-40-3     | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWA: 2.5 mg/m <sup>3</sup> ;                                                     | TWAEV: 2.5 mg/m <sup>3</sup> ;                                                          |
| Nickel<br>7440-02-0                                      | TWA: 1.5 mg/m <sup>3</sup> ;                                                     | TWA: 0.05 mg/m <sup>3</sup> ;                                                    | TWA: 1 mg/m <sup>3</sup> ;<br>inhalable fraction                                 | TWAEV: 1.5 mg/m <sup>3</sup> ;<br>inhalable dust                                        |

| Chemical name                              | Manitoba                                                                     | New Brunswick                                      | Newfoundland and<br>Labrador                                                 | Nova Scotia                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;                      | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter<br>DS<br>RS |
| Aluminum foil                              | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 1 mg/m <sup>3</sup> ;<br>respirable fraction  | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter               |
| Copper                                     | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            | TWA: 0.2 mg/m <sup>3</sup> ; fume                  | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            | TWA: 0.2 mg/m <sup>3</sup> ; fume                                            |
| Phosphate(1-), hexafluoro-,<br>lithium     | TWA: 2.5 mg/m <sup>3</sup> ;                                                 | TWA: 2.5 mg/m <sup>3</sup> ;                       | TWA: 2.5 mg/m <sup>3</sup> ;                                                 | TWA: 2.5 mg/m <sup>3</sup> ;                                                 |
| Nickel                                     | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter              |

| Chemical name                              | Nunavut                                                                                 | Prince Edward Island                                             | Saskatchewan                                                                                        | Yukon |
|--------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated substance | TWA: 0.02 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter | TWA: 0.02 mg/m <sup>3</sup> ;<br>STEL: 0.06 mg/m <sup>3</sup> ;<br>Designated Chemical<br>Substance | -     |

| Chemical name                          | Nunavut                                                                                                                                                                | Prince Edward Island                                            | Saskatchewan                                                                                                                                                           | Yukon                                                                                                                                                                  |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aluminum foil                          | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                                                  | TWA: 1 mg/m <sup>3</sup> ;<br>respirable particulate<br>matter  | TWA: 10 mg/m <sup>3</sup> ; dust<br>STEL: 20 mg/m <sup>3</sup> ; dust                                                                                                  | -                                                                                                                                                                      |
| Copper                                 | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 3 mg/m <sup>3</sup> ; dust<br>and mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume | TWA: 0.2 mg/m <sup>3</sup> ; fume                               | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 0.6 mg/m <sup>3</sup> ; fume<br>STEL: 3 mg/m <sup>3</sup> ; dust<br>and mist | TWA: 0.2 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust and<br>mist<br>STEL: 0.2 mg/m <sup>3</sup> ; fume<br>STEL: 2 mg/m <sup>3</sup> ; dust<br>and mist |
| Phosphate(1-), hexafluoro-,<br>lithium | -                                                                                                                                                                      | TWA: 2.5 mg/m <sup>3</sup> ;                                    | TWA: 2.5 mg/m <sup>3</sup> ;<br>STEL: 5 mg/m <sup>3</sup> ;                                                                                                            | TWA: 2.5 mg/m <sup>3</sup> ;<br>STEL: 2.5 mg/m <sup>3</sup> ;                                                                                                          |
| Nickel                                 | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated substance                                        | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable particulate<br>matter | TWA: 1.5 mg/m <sup>3</sup> ;<br>inhalable fraction<br>STEL: 3 mg/m <sup>3</sup> ;<br>inhalable fraction<br>Designated Chemical<br>Substance                            | TWA: 1 mg/m <sup>3</sup> ;<br>STEL: 3 mg/m <sup>3</sup> ;                                                                                                              |

**Note**

See section 16 for terms and abbreviations.

**Other information on limit values**

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Biological occupational exposure  
limits**

| Chemical name                                            | ACGIH                                                                                  |
|----------------------------------------------------------|----------------------------------------------------------------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | 15 µg/L - urine (Cobalt) - end of shift at end of workweek                             |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3        | 2 mg/L - urine (Fluoride) - prior to shift<br>3 mg/L - urine (Fluoride) - end of shift |
| Nickel<br>7440-02-0                                      | 5 µg/L - urine (Nickel) - post-shift at end of workweek                                |

**Appropriate engineering controls**

**Engineering controls**

Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Tight sealing safety goggles.

**Hand protection**

Wear suitable gloves. Impervious gloves.

**Skin and body protection**

Wear suitable protective clothing. Long sleeved clothing.

**Respiratory protection**

Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties**

|                                |                          |
|--------------------------------|--------------------------|
| Appearance                     | Black                    |
| Physical state                 | Solid                    |
| Color                          | No information available |
| Odor (includes odor threshold) | Odorless                 |
| Odor threshold                 | No information available |

| <u>Property</u>                                           | <u>Values</u>      | <u>Remarks • Method</u> |
|-----------------------------------------------------------|--------------------|-------------------------|
| Melting point / freezing point                            | No data available  | None known              |
| Boiling point (or initial boiling point or boiling range) | No data available  | None known              |
| Flammability                                              | No data available  | None known              |
| Flammability Limit in Air                                 |                    | None known              |
| Upper flammability or explosive limits                    | No data available  |                         |
| Lower flammability or explosive limits                    | No data available  |                         |
| Flash point                                               | No data available  | None known              |
| Autoignition temperature                                  | No data available  | None known              |
| Decomposition temperature                                 | No data available  | None known              |
| SADT (°C)                                                 | No data available  | None known              |
| pH                                                        | No data available  | None known              |
| pH (as aqueous solution)                                  | No data available  | None known              |
| Kinematic viscosity                                       | No data available  | None known              |
| Dynamic viscosity                                         | No data available  | None known              |
| Solubility                                                | No data available  | None known              |
| Water solubility                                          | Insoluble in water | None known              |
| Partition coefficient n-octanol/water (log value)         | 1                  | None known              |
| Vapor pressure (includes evaporation rate)                | No data available  | None known              |
| Evaporation rate                                          | No data available  | None known              |
| Density and/or relative density                           | No data available  | None known              |
| Bulk density                                              | No data available  |                         |
| Liquid Density                                            | No data available  |                         |
| Relative vapor density                                    | No data available  | None known              |
| Particle characteristics                                  |                    | None known              |
| Particle Size                                             | No data available  |                         |
| Particle Size Distribution                                | No data available  |                         |

**Other information**

|                    |         |
|--------------------|---------|
| Miscible           | No      |
| Heat of combustion | 88.6335 |

**10. Stability and reactivity**

|                                    |                                                      |
|------------------------------------|------------------------------------------------------|
| Reactivity                         | No information available.                            |
| Chemical stability                 | Stable under normal conditions.                      |
| Possibility of hazardous reactions | None under normal processing.                        |
| Conditions to avoid                | None known based on information supplied.            |
| Incompatible materials             | Strong acids. Strong bases. Strong oxidizing agents. |
| Hazardous decomposition products   | None known based on information supplied.            |

**11. Toxicological information**

### Information on likely routes of exposure

|                            |                                                                                                                                                                                                                                                     |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Information</b> | Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:                                                                                                                                       |
| <b>Inhalation</b>          | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.                                                                                                                                        |
| <b>Eye contact</b>         | Specific test data for the substance or mixture is not available. Causes serious eye damage. May cause irreversible damage to eyes.                                                                                                                 |
| <b>Skin contact</b>        | Specific test data for the substance or mixture is not available. May cause sensitization by skin contact. Causes skin irritation. (based on components). Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. |
| <b>Ingestion</b>           | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.                                                                                                   |

### Symptoms related to the physical, chemical and toxicological characteristics

|                       |                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Symptoms</b>       | Redness. Burning. May cause blindness. Itching. Rashes. Hives. May cause redness and tearing of the eyes. |
| <b>Acute toxicity</b> | Harmful by skin contact.                                                                                  |

#### **Numerical measures of toxicity**

The following ATE values have been calculated for the mixture

|                               |                 |
|-------------------------------|-----------------|
| ATEmix (oral)                 | 11,082.20 mg/kg |
| ATEmix (dermal)               | 1,035.10 mg/kg  |
| ATEmix (inhalation-gas)       | 99,999.00 ppm   |
| ATEmix (inhalation-vapor)     | 99,999.00 mg/l  |
| ATEmix (inhalation-dust/mist) | 99,999.00 mg/l  |

#### **Unknown acute toxicity**

89.2 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

#### **Component Information**

| Chemical name                               | Oral LD50            | Dermal LD50              | Inhalation LC50                     |
|---------------------------------------------|----------------------|--------------------------|-------------------------------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3 | > 5000 mg/kg ( Rat ) | > 2000 mg/kg ( Rat )     | > 5.05 mg/L ( Rat ) 4 h             |
| Aluminum foil<br>7429-90-5                  | -                    | -                        | > 0.888 mg/L ( Rat ) 4 h            |
| Copper<br>7440-50-8                         | -                    | -                        | > 5.11 mg/L ( Rat ) 4 h             |
| Ethylene carbonate<br>96-49-1               | = 10 g/kg ( Rat )    | > 26420 mg/kg ( Rabbit ) | > 730 mg/m <sup>3</sup> ( Rat ) 8 h |
| Nickel<br>7440-02-0                         | > 9000 mg/kg ( Rat ) | -                        | > 10.2 mg/L ( Rat ) 1 h             |

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                                          |                                                                                                  |
|------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Skin corrosion/irritation</b>         | Classification based on data available for ingredients. Causes skin irritation.                  |
| <b>Serious eye damage/eye irritation</b> | Classification based on data available for ingredients. Causes burns. Causes serious eye damage. |
| <b>Respiratory or skin sensitization</b> | May cause an allergic skin reaction.                                                             |
| <b>Germ cell mutagenicity</b>            | No information available.                                                                        |

**Carcinogenicity** Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name                                     | ACGIH                                                                   | IARC     | NTP                    | OSHA |
|---------------------------------------------------|-------------------------------------------------------------------------|----------|------------------------|------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3       | A3<br>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans | Group 2B | Reasonably Anticipated | X    |
| Aluminum foil<br>7429-90-5                        | A4 - Not Classifiable as a Human Carcinogen                             | -        | -                      | -    |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | A4 - Not Classifiable as a Human Carcinogen                             | -        | -                      | -    |
| Nickel<br>7440-02-0                               | A5 - Not Suspected as a Human Carcinogen                                | Group 2B | Reasonably Anticipated | X    |

#### Legend

##### ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

A4 - Not classifiable as a human carcinogen

##### IARC (International Agency for Research on Cancer)

Group 2B - Possibly carcinogenic to humans

##### NTP (National Toxicology Program)

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

##### Occupational Safety and Health Administration of the US Department of Labor

X - Present

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard** No information available.

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

| Chemical name       | Algae/aquatic plants                                                                                                                     | Fish                                                                                                                                                                                                                                  | Toxicity to microorganisms | Crustacea                                |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------|
| Copper<br>7440-50-8 | 72h EC50: 0.0426 - 0.0535 mg/L<br>(Pseudokirchneriella subcapitata)<br>96h EC50: 0.031 - 0.054 mg/L<br>(Pseudokirchneriella subcapitata) | 96h LC50: 0.0068 - 0.0156 mg/L<br>(Pimephales promelas)<br>96h LC50: < 0.3 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.2 mg/L<br>(Pimephales promelas)<br>96h LC50: = 0.052 mg/L<br>(Oncorhynchus mykiss)<br>96h LC50: = 1.25 mg/L | -                          | 48h EC50: = 0.03 mg/L<br>(Daphnia magna) |

|                               |                                                                                                                                          |                                                                                                                                                                    |   |                                                                                  |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------|
|                               |                                                                                                                                          | (Lepomis macrochirus)<br>96h LC50: = 0.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.8 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 0.112 mg/L<br>(Poecilia reticulata) |   |                                                                                  |
| Ethylene carbonate<br>96-49-1 | -                                                                                                                                        | 96h LC50: > 100 mg/L<br>(Oncorhynchus mykiss)                                                                                                                      | - | -                                                                                |
| Nickel<br>7440-02-0           | 72h EC50: = 0.18 mg/L<br>(Pseudokirchneriella<br>subcapitata)<br>96h EC50: 0.174 -<br>0.311 mg/L<br>(Pseudokirchneriella<br>subcapitata) | 96h LC50: > 100 mg/L<br>(Brachydanio rerio)<br>96h LC50: = 1.3 mg/L<br>(Cyprinus carpio)<br>96h LC50: = 10.4 mg/L<br>(Cyprinus carpio)                             | - | 48h EC50: > 100 mg/L<br>(Daphnia magna)<br>48h EC50: = 1 mg/L<br>(Daphnia magna) |

**Persistence and degradability** No information available.

#### Bioaccumulation

#### Component Information

| Chemical name                 | Partition coefficient |
|-------------------------------|-----------------------|
| Ethylene carbonate<br>96-49-1 | 0.11                  |

**Other adverse effects** No information available.

### 13. Disposal considerations

#### Disposal methods

|                                            |                                                                                                                 |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Waste from residues/unused products</b> | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. |
| <b>Contaminated packaging</b>              | Do not reuse empty containers.                                                                                  |
| <b>California waste information</b>        | This product contains one or more substances that are listed with the State of California as a hazardous waste. |

### 14. Transport information

**Note:** The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)  
Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods"

|                                        |                                                                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|                                        | when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code" |
| <b>DOT</b>                             | NOT REGULATED                                                                                                   |
| Hazard Class                           | N/A                                                                                                             |
| Reportable quantity (lbs)              | Nickel: RQ (lb)= 100.00                                                                                         |
| Reportable quantity (lbs) (calculated) | Nickel: RQ (lb)= 22222.00                                                                                       |
| Reportable Quantity (RQ)               | (Nickel: RQ (kg)= 45.40)                                                                                        |
| Reportable quantity (kg) (calculated)  | Nickel: RQ (kg)= 10088.89                                                                                       |
| DOT Marine Pollutant                   | PP                                                                                                              |
| Marine pollutant                       | Copper                                                                                                          |
| Emergency Response Guide Number        | 147                                                                                                             |
| <b>TDG</b>                             | Not applicable                                                                                                  |
| <b>MEX</b>                             | Not applicable                                                                                                  |
| <b>ICAO (air)</b>                      |                                                                                                                 |
| UN number or ID number                 | UN3480                                                                                                          |
| UN proper shipping name                | LITHIUM ION BATTERIES                                                                                           |
| Transport hazard class(es)             | 9                                                                                                               |
| Description                            | UN3480, LITHIUM ION BATTERIES, 9                                                                                |
| Special Provisions                     | A88, A99, A154, A183, A201, A213                                                                                |
| <b>IATA</b>                            |                                                                                                                 |
| UN number or ID number                 | UN3480                                                                                                          |
| UN proper shipping name                | LITHIUM ION BATTERIES                                                                                           |
| Transport hazard class(es)             | 9                                                                                                               |
| Environmental hazards                  | Yes                                                                                                             |
| ERG Code                               | 12FZ                                                                                                            |
| Description                            | UN3480, LITHIUM ION BATTERIES, 9                                                                                |
| <b>IMDG</b>                            | Not applicable                                                                                                  |
| Transport hazard class(es)             | N/A                                                                                                             |
| Marine pollutant indicator             | NP                                                                                                              |
| EmS-No.                                | F-A, S-I                                                                                                        |

## 15. Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

#### International Inventories

TSCA Contact supplier for inventory compliance status.

DSL/NDSL Contact supplier for inventory compliance status.  
EINECS/ELINCS Contact supplier for inventory compliance status.

|       |                                                   |
|-------|---------------------------------------------------|
| ENCS  | Contact supplier for inventory compliance status. |
| IECSC | Contact supplier for inventory compliance status. |
| KECI  | Contact supplier for inventory compliance status. |
| PICCS | Contact supplier for inventory compliance status. |
| AIIC  | Contact supplier for inventory compliance status. |
| NZIoC | Contact supplier for inventory compliance status. |
| TCSI  | Contact supplier for inventory compliance status. |

**Legend:****TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCS** - Japan Existing and New Chemical Substances**IECSC** - China Inventory of Existing Chemical Substances**KECL** - Korean Existing Chemicals Inventory**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**AIIC** - Australian Inventory of Industrial Chemicals**NZIoC** - New Zealand Inventory of Chemicals**TCSI** - Taiwan Chemical Substance Inventory**US Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Chemical name                                           | SARA 313 - Threshold Values % |
|---------------------------------------------------------|-------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) - 12190-79-3 | 0.1                           |
| Aluminum foil - 7429-90-5                               | 1.0                           |
| Copper - 7440-50-8                                      | 1.0                           |
| Nickel - 7440-02-0                                      | 0.1                           |

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

| Chemical name       | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Copper<br>7440-50-8 | -                           | X                      | X                         | -                          |
| Nickel<br>7440-02-0 | -                           | X                      | X                         | -                          |

**CAA (Clean Air Act)**

This product contains the following substances which are regulated pollutants to the Clean Air Act (CAA).

| Chemical name                                            | Hazardous air pollutants (HAPs) | Ozone-depleting substances (ODS) |
|----------------------------------------------------------|---------------------------------|----------------------------------|
| Lithium Cobalt Oxide (CoLiO <sub>2</sub> )<br>12190-79-3 | Present                         | -                                |
| Aluminum foil<br>7429-90-5                               | Hazardous air pollutants (HAPs) | -                                |

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

| Chemical name       | Hazardous Substances RQs | Extremely Hazardous Substances RQs | Reportable Quantity (RQ)                   |
|---------------------|--------------------------|------------------------------------|--------------------------------------------|
| Copper<br>7440-50-8 | 5000 lb                  | -                                  | RQ 5000 lb final RQ<br>RQ 2270 kg final RQ |
| Nickel<br>7440-02-0 | 100 lb                   | -                                  | RQ 100 lb final RQ<br>RQ 45.4 kg final RQ  |

**US State Regulations****California Proposition 65**

This product contains the following Proposition 65 chemicals:.

| Chemical name      | California Proposition 65 |
|--------------------|---------------------------|
| Nickel - 7440-02-0 | Carcinogen                |

**U.S. State Right-to-Know Regulations**

| Chemical name                                     | New Jersey | Massachusetts | Pennsylvania |
|---------------------------------------------------|------------|---------------|--------------|
| Lithium Cobalt Oxide (CoLiO2)<br>12190-79-3       | X          | -             | X            |
| Aluminum foil<br>7429-90-5                        | X          | X             | X            |
| Copper<br>7440-50-8                               | X          | X             | X            |
| Phosphate(1-), hexafluoro-, lithium<br>21324-40-3 | X          | -             | -            |
| Ethylene carbonate<br>96-49-1                     | -          | X             | X            |
| Dimethyl carbonate<br>616-38-6                    | X          | X             | X            |
| Nickel<br>7440-02-0                               | X          | X             | X            |

**U.S. EPA Label Information****EPA Pesticide Registration Number** Not applicable**16. Other information**

|             |                         |                       |                           |                              |
|-------------|-------------------------|-----------------------|---------------------------|------------------------------|
| <b>NFPA</b> | <b>Health hazards</b> 1 | <b>Flammability</b> 0 | <b>Instability</b> 0      | <b>Special hazards</b> -     |
| <b>HMIS</b> | <b>Health hazards</b> 0 | <b>Flammability</b> 0 | <b>Physical hazards</b> 0 | <b>Personal protection</b> X |

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend**

|         |                                                                                                 |
|---------|-------------------------------------------------------------------------------------------------|
| ACGIH   | American Conference of Governmental Industrial Hygienists                                       |
| ADN     | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR     | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)             |
| AIIC    | Australian Inventory of Industrial Chemicals                                                    |
| ATE     | Acute Toxicity Estimate                                                                         |
| ASTM    | American Society for the Testing of Materials                                                   |
| bar     | Biological Reference Values for Chemical Compounds in the Work Area                             |
| BAT     | Biological tolerance values for occupational exposure                                           |
| BEL     | Biological exposure limits                                                                      |
| bw      | Body weight                                                                                     |
| Ceiling | Maximum limit value                                                                             |
| CMR     | Carcinogen, Mutagen or Reproductive Toxicant                                                    |

|         |                                                                                                     |
|---------|-----------------------------------------------------------------------------------------------------|
| DOT     | Department of Transportation (United States)                                                        |
| DSL     | Domestic Substances List (Canada)                                                                   |
| EmS     | Emergency Schedule                                                                                  |
| ENCS    | Existing and New Chemical Substances (Japan)                                                        |
| EPA     | Environmental Protection Agency                                                                     |
| GHS     | Globally Harmonized System                                                                          |
| HMIS    | Hazardous Materials Identification System                                                           |
| IARC    | International Agency for Research on Cancer                                                         |
| IATA    | International Air Transport Association                                                             |
| IBC     | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO    | International Civil Aviation Organization                                                           |
| IECSC   | Inventory of Existing Chemical Substances in China                                                  |
| IMDG    | International Maritime Dangerous Goods                                                              |
| IMO     | International Maritime Organization                                                                 |
| ISO     | International Organization for Standardization                                                      |
| KECI    | Korean Existing Chemicals Inventory                                                                 |
| LC50    | Lethal Concentration to 50% of a test population                                                    |
| LD50    | Lethal Dose to 50% of a test population (Median Lethal Dose)                                        |
| MARPOL  | International Convention for the Prevention of Pollution from Ships                                 |
| NFPA    | National Fire Protection Association                                                                |
| NIOSH   | National Institute for Occupational Safety and Health                                               |
| n.o.s.  | Not Otherwise Specified                                                                             |
| NOAEC   | No Observed Adverse Effect Concentration                                                            |
| NOAEL   | No Observed Adverse Effect Level                                                                    |
| NOELR   | No Observable Effect Loading Rate                                                                   |
| NTP     | National Toxicology Program (United States)                                                         |
| NZIoC   | New Zealand Inventory of Chemicals                                                                  |
| OECD    | Organization for Economic Cooperation and Development                                               |
| OEL     | Occupational exposure limits                                                                        |
| OSHA    | Occupational Safety and Health Administration of the US Department of Labor                         |
| PBT     | Persistent, Bioaccumulative and Toxic substance                                                     |
| PICCS   | Philippines Inventory of Chemicals and Chemical Substances                                          |
| PMT     | Persistent, Mobile and Toxic                                                                        |
| PPE     | Personal protective equipment                                                                       |
| QSAR    | Quantitative Structure Activity Relationship                                                        |
| RID     | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)                 |
| SADT    | Self-Accelerating Decomposition Temperature                                                         |
| SAR     | Structure-activity relationship                                                                     |
| SARA    | Superfund Amendments and Reauthorization Act                                                        |
| SDS     | Safety Data Sheet                                                                                   |
| SL      | Surface Limit                                                                                       |
| STEL    | Short Term Exposure Limit                                                                           |
| STOT RE | Specific target organ toxicity - Repeated exposure                                                  |
| STOT SE | Specific target organ toxicity - Single exposure                                                    |
| TCSI    | Taiwan Chemical Substance Inventory                                                                 |
| TDG     | Transport of Dangerous Goods (Canada)                                                               |
| TSCA    | Toxic Substances Control Act (United States)                                                        |
| TWA     | Time-Weighted Average                                                                               |
| UN      | United Nations                                                                                      |
| VOC     | Volatile organic compounds                                                                          |
| vPvB    | Very Persistent and Very Bioaccumulative                                                            |
| vPvM    | Very Persistent and Very Mobile                                                                     |
| As      | Allergenic substance                                                                                |
| DS      | Dermal Sensitizer                                                                                   |
| Ot      | Ototoxicant                                                                                         |
| pOt     | Ototoxicant - potential to cause hearing disorders                                                  |

|     |                                                       |
|-----|-------------------------------------------------------|
| PS  | Photosensitizer                                       |
| RS  | Respiratory Sensitizer                                |
| S   | Sensitizer                                            |
| poS | Sensitizer - capable of causing occupational asthma   |
| Sa  | Simple asphyxiant                                     |
| Sd  | Skin designation                                      |
| pSd | Skin designation - potential for cutaneous absorption |
| Sdv | Skin designation - vacated                            |
| Sk  | Skin notation                                         |
| dSk | Skin notation - danger of cutaneous absorption        |
| pSk | Skin notation - potential for cutaneous absorption    |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 Environmental Protection Agency  
 Acute Exposure Guideline Level(s) (AEGL(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 National Institute of Technology and Evaluation (NITE)  
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 U.S. National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
 Organization for Economic Co-operation and Development Screening Information Data Set  
 World Health Organization

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**Issuing Date** 15-Aug-2025

**Revision date** 15-Aug-2025

**Revision Note** No information available.

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**End of Safety Data Sheet**