# SAFETY DATA SHEET

## 1. Identification

| | |
|---|---|
| **Product identifier** | **Lithium-Ion Batteries (4780-0, 4780-1, 4781-00, 4781-01)** |
| **Other means of identification** | Not available. |
| **Recommended use** | Sealed battery |
| **Recommended restrictions** | None known. |

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer**

| | |
|---|---|
| **Company name** | Nu-Calgon |
| **Address** | 2611 Schuetz Road<br>St. Louis, MO 63043<br>United States |
| **Telephone** | 314-469-7000 / 800-554-5499 |
| **E-mail** | Not available. |

| | |
|---|---|
| **Emergency phone number** | 1-800-424-9300 (CHEMTREC) |
| **Supplier** | See above. |

## 2. Hazard identification

| | |
|---|---|
| **Physical hazards** | Not classified. |
| **Health hazards** | Not classified. |
| **Environmental hazards** | Not classified. |
| **WHMIS 2015 defined hazards** | Not classified |

**Label elements**

| | |
|---|---|
| **Hazard symbol** | None. |
| **Signal word** | None. |
| **Hazard statement** | The mixture does not meet the criteria for classification. |
| **Precautionary statement** | |
| **Prevention** | Observe good industrial hygiene practices. |
| **Response** | Wash hands after handling. |
| **Storage** | Store away from incompatible materials. |
| **Disposal** | Dispose of waste and residues in accordance with local authority requirements. |

| | |
|---|---|
| **WHMIS 2015: Health Hazard(s) not otherwise classified (HHNOC)** | None known |
| **WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC)** | None known |
| **Hazard(s) not otherwise classified (HNOC)** | None known. |
| **Supplemental information** | This product is a manufactured article and is exempt.<br><br>US: As per OSHA, 1910.1200(b)(6)(v), articles are not regulated under HCS 2012.<br>As per OSHA Definitions: 1910.1200 (c). Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.<br><br>CANADA: As per the Hazardous Products Act: A manufactured article means any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product. |

## 3. Composition/Information on ingredients

**Mixture**

| Chemical name | Common name and synonyms | CAS number | % |
|---|---|---|---|
| Cobalt Lithium Manganese Nickel Oxide | | 182442-95-1 | 15 - 40 |
| Graphite | | 7782-42-5 | 10 - 30 |
| Copper | | 7440-50-8 | 5 - 10 |
| Phosphate(1-), Hexafluoro-, Lithium | | 21324-40-3 | 5 - 10 |
| Aluminium | | 7429-90-5 | 1 - 5 |
| Ethene, homopolymer | | 9002-88-4 | 1 - 5 |

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

**Composition comments**

CANADA GHS: The exact percentage (concentration) of composition has been withheld as a trade secret.
US GHS: The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.
*This composition applies to the cell of the battery

## 4. First-aid measures

**Inhalation**

Not a normal route of exposure. Inhalation of the ruptured battery vapors may be corrosive to the upper airways, cause a burning sensation in the nose, mouth and throat as well as leading to sneezing, coughing, breathing difficulties and chest pain. If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.

**Skin contact**

Not a normal route of exposure. Direct contact with the ruptured battery may cause chemical burns. Immediately flush with water. Wash with soap and water. Obtain medical attention if irritation persists.

**Eye contact**

Not a normal route of exposure. Direct contact with the ruptured battery may cause chemical burns. Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 15 minutes. Obtain medical attention immediately.

**Ingestion**

Not a normal route of exposure. Direct contact with the ruptured battery may cause chemical burns. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious or is convulsing. Obtain medical attention.

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

Direct contact with the ruptured battery may cause chemical burns.

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

Symptoms may be delayed. Treat patient symptomatically.

**General information**

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Wear rubber gloves and chemical splash goggles. Keep out of reach of children.

## 5. Fire-fighting measures

**Suitable extinguishing media**

Dry chemical powder. Sand.

**Unsuitable extinguishing media**

Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**

During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire-fighting equipment/instructions**

Move containers from fire area if you can do so without risk.

**Specific methods**

Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**

No unusual fire or explosion hazards noted.

**Hazardous combustion products**

May include and are not limited to: Oxides of carbon. Oxides of phosphorus. Toxic fumes.

## 6. Accidental release measures

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

Keep unnecessary personnel away. Keep out of low areas. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS.

| | |
|---|---|
| **Methods and materials for containment and cleaning up** | In the case of a leaking battery: Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. |
| **Environmental precautions** | Do not discharge into lakes, streams, ponds or public waters. |

## 7. Handling and storage

| | |
|---|---|
| **Precautions for safe handling** | Do not puncture or incinerate container. Avoid short-circuiting the battery. Avoid mechanical damage to the battery. Do not open or disassemble. Battery may explode or cause burns if disassembled, crushed or exposed to fire or high temperatures. Do not install with incorrect polarity Do not immerse in liquids. Use good industrial hygiene practices in handling this material. |
| **Conditions for safe storage, including any incompatibilities** | Keep out of the reach of children. Keep this material away from food, drink and animal feed. Keep away from heat, sparks, and flame. Store in a cool dry place below 30°C (86°F) Do not store below -20°C. |

## 8. Exposure controls/Personal protection

**Occupational exposure limits**

**Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 5 mg/m3 | Pyrophoric powder. |
| | | 10 mg/m3 | Dust. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0.2 mg/m3 | Fume. |
| Ethene, homopolymer (CAS 9002-88-4) | TWA | 3 mg/m3 | Respirable particles. |
| | | 10 mg/m3 | Total |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m3 | Respirable. |

**Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 1 mg/m3 | Respirable. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0.2 mg/m3 | Fume. |
| Ethene, homopolymer (CAS 9002-88-4) | TWA | 3 mg/m3 | Respirable fraction. |
| | | 10 mg/m3 | Total dust. |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m3 | Respirable. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | TWA | 2.5 mg/m3 | |

**Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 1 mg/m3 | Respirable fraction. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0.2 mg/m3 | Fume. |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m3 | Respirable fraction. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | TWA | 2.5 mg/m3 | |

**Canada. New Brunswick Regulation 91-191, as amended**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 5 mg/m3 | |
| | | 10 mg/m3 | Dust. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust. |
| | | 0.2 mg/m3 | |
| Ethene, homopolymer (CAS 9002-88-4) | TWA | 3 mg/m3 | Respirable. |
| | | 10 mg/m3 | Inhalable |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m3 | Respirable. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | TWA | 2.5 mg/m3 | |

**Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 1 mg/m3 | Respirable fraction. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0.2 mg/m3 | Fume. |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m3 | Respirable fraction. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | TWA | 2.5 mg/m3 | |

**Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 5 mg/m3 | Welding fume. |
| | | 5 mg/m3 | |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0.2 mg/m3 | Fume. |
| Ethene, homopolymer (CAS 9002-88-4) | TWA | 10 mg/m3 | Total dust. |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m3 | Respirable dust. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | TWA | 2.5 mg/m3 | |

**Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 2020. S-15.1 Reg. 10. Table 18)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | 15 minute | 20 mg/m3 | Dust. |
| | | 10 mg/m3 | Pyrophoric powder. |
| Copper (CAS 7440-50-8) | 15 minute | 3 mg/m3 | Dust and mist. |
| | | 0.6 mg/m3 | Fume. |
| Ethene, homopolymer (CAS 9002-88-4) | 15 minute | 6 mg/m3 | Respirable fraction. |
| | | 20 mg/m3 | Inhalable fraction. |
| Graphite (CAS 7782-42-5) | 15 minute | 4 mg/m3 | Respirable fraction. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | 15 minute | 5 mg/m3 | |

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | PEL | 5 mg/m3 | Respirable fraction. |
| | | 15 mg/m3 | Total dust. |
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | Ceiling | 5 mg/m3 | |
| Copper (CAS 7440-50-8) | PEL | 1 mg/m3 | Dust and mist. |
| | | 0.1 mg/m3 | Fume. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | PEL | 2.5 mg/m3 | |

**US. OSHA Table Z-2 (29 CFR 1910.1000)**

| Components | Type | Value | Form |
|---|---|---|---|
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | TWA | 2.5 mg/m3 | Dust. |

**US. OSHA Table Z-3 (29 CFR 1910.1000)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 5 mg/m3 | Respirable fraction. |
| | | 15 mg/m3 | Total dust. |
| | | 50 Mppcf | Total dust. |
| | | 15 Mppcf | Respirable fraction. |
| Ethene, homopolymer (CAS 9002-88-4) | TWA | 5 mg/m3 | Respirable fraction. |
| | | 15 mg/m3 | Total dust. |
| | | 50 Mppcf | Total dust. |
| | | 15 Mppcf | Respirable fraction. |
| Graphite (CAS 7782-42-5) | TWA | 15 Mppcf | |

**US. ACGIH Threshold Limit Values**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 1 mg/m3 | Respirable fraction. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0.2 mg/m3 | Fume. |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m3 | Respirable fraction. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | TWA | 2.5 mg/m3 | |

**US. NIOSH: Pocket Guide to Chemical Hazards**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 5 mg/m3 | Welding fume or pyrophoric powder. |
| | | 5 mg/m3 | Respirable. |
| | | 10 mg/m3 | Total |
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | STEL | 3 mg/m3 | Fume. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0.1 mg/m3 | Fume. |
| Graphite (CAS 7782-42-5) | TWA | 2.5 mg/m3 | Respirable. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | TWA | 2.5 mg/m3 | |

**Biological limit values**

**ACGIH Biological Exposure Indices**

| Components | Value | Determinant | Specimen | Sampling Time |
|---|---|---|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | 15 µg/l | Cobalt | Urine | * |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | 3 mg/L | Fluoride | Urine | * |
| | 2 mg/L | Fluoride | Urine | * |

* - For sampling details, please see the source document.

**Appropriate engineering controls** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

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

**Eye/face protection** Not normally required under normal use conditions. When handling in large quantities or responding to emergency situations, the use of appropriate eye protection is recommended.

**Skin protection**

**Hand protection** Not normally required under normal use conditions. When handling in large quantities or responding to emergency situations, the use of appropriate skin protection is recommended.

**Other** Wear appropriate chemical resistant clothing.

**Respiratory protection** Not normally required if good ventilation is maintained. Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

**Thermal hazards** Not available.

**General hygiene considerations** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

**Appearance** Cylinder

**Physical state** Liquid.

**Form** Solid.

**Colour** Black

**Odour** Odourless

**Odour threshold** Not available.

| | |
|---|---|
| **pH** | Not available. |
| **Melting point/freezing point** | Not available. |
| **Initial boiling point and boiling range** | Not available. |
| **Specific gravity** | Not available. |
| **Flash point** | Not available. |
| **Evaporation rate** | Not available. |
| **Flammability (solid, gas)** | Not applicable. |
| **Upper/lower flammability or explosive limits** | |
| **Flammability limit - lower (%)** | Not available. |
| **Flammability limit - upper (%)** | Not available. |
| **Explosive limit - lower ( %)** | Not available. |
| **Explosive limit – upper (%)** | Not available. |
| **Vapour pressure** | Not available. |
| **Vapour density** | Not available. |
| **Relative density** | Not available. |
| **Solubility(ies)** | Not available. |
| **Partition coefficient (n-octanol/water)** | Not available. |
| **Auto-ignition temperature** | Not available. |
| **Decomposition temperature** | Not available. |
| **Viscosity** | Not available. |
| **Other information** | |
| **Pour point** | Not available. |
| **Explosive properties** | Not explosive. |
| **Oxidising properties** | Not oxidising. |

## 10. Stability and reactivity

| | |
|---|---|
| **Reactivity** | Reaction with water or moist air will release toxic, corrosive or flammable gases. |
| **Possibility of hazardous reactions** | No dangerous reaction known under conditions of normal use. |
| **Chemical stability** | Material is stable under normal conditions. |
| **Conditions to avoid** | Heat, open flames, static discharge, sparks and other ignition sources. Humid air. Exposure to water or water vapour. Avoid direct sunlight. High temperatures. |
| **Incompatible materials** | Strong acids. Strong oxidising agents. Conductive materials. Seawater. |
| **Hazardous decomposition products** | May include and are not limited to: Oxides of carbon. Oxides of lithium. Oxides of phosphorus. |

## 11. Toxicological information

| | |
|---|---|
| **Routes of exposure** | Inhalation. Ingestion. Skin contact. Eye contact. |
| **Information on likely routes of exposure** | |
| **Ingestion** | Direct contact with the ruptured battery may cause chemical burns. |
| **Inhalation** | Inhalation of the ruptured battery vapors may be corrosive to the upper airways, cause a burning sensation in the nose, mouth and throat as well as leading to sneezing, coughing, breathing difficulties and chest pain. |
| **Skin contact** | No adverse effects due to skin contact are expected. |
| **Eye contact** | Direct contact with the ruptured battery may cause chemical burns. May cause blindness. |
| **Symptoms related to the physical, chemical and toxicological characteristics** | Direct contact with the ruptured battery may cause chemical burns. |
| **Information on toxicological effects** | |
| **Acute toxicity** | See below. |

| Components | Species | Test Results |
|---|---|---|
| Aluminium (CAS 7429-90-5) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Not available | |
| *Inhalation* | | |
| LC50 | Rat | > 0.9 mg/L, 4 Hours, ECHA |
| *Oral* | | |
| LD50 | Rat | > 2000 mg/kg, ECHA |
| Copper (CAS 7440-50-8) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Rat | > 2000 mg/kg, ECHA |
| *Inhalation* | | |
| LC50 | Rat | > 5.1 mg/l/4h, ECHA |
| *Oral* | | |
| LD50 | Rat | 300 - 500 mg/kg, ECHA |
| Ethene, homopolymer (CAS 9002-88-4) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Not available | |
| *Inhalation* | | |
| LC50 | Not available | |
| *Oral* | | |
| LD50 | Rat | > 11280 mg/kg |
| Graphite (CAS 7782-42-5) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Not available | |
| *Inhalation* | | |
| LC50 | Rat | > 2000 mg/m3, 4 Hours, ECHA |
| *Oral* | | |
| LD50 | Rat | > 2000 mg/kg, ECHA |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Not available | |
| *Inhalation* | | |
| LC50 | Not available | |
| *Oral* | | |
| LD50 | Rat | 50 - 300 mg/kg, ECHA |

| | |
|---|---|
| **Skin corrosion/irritation** | Prolonged skin contact may cause temporary irritation. |
| **Exposure minutes** | Not available. |
| **Erythema value** | Not available. |
| **Oedema value** | Not available. |
| **Serious eye damage/eye irritation** | Direct contact with the electrolyte may cause chemical burns. |
| **Corneal opacity value** | Not available. |
| **Iris lesion value** | Not available. |
| **Conjunctival reddening value** | Not available. |
| **Conjunctival oedema value** | Not available. |
| **Recover days** | Not available. |

**Respiratory or skin sensitisation**

**ACGIH sensitisation**

| | |
|---|---|
| Cobalt and inorganic compounds, inhalable fraction, as Co (CAS 182442-95-1) | Dermal sensitisation |
| | Respiratory sensitisation |

**Canada - Alberta OELs: Irritant**

| | |
|---|---|
| Aluminium (CAS 7429-90-5) | Irritant |
| Ethene, homopolymer (CAS 9002-88-4) | Irritant |
| Graphite (CAS 7782-42-5) | Irritant |

**Canada - Manitoba OELs Hazard: Dermal sensitization**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | Dermal sensitisation |

**Canada - Manitoba OELs Hazard: Respiratory sensitization**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | Respiratory sensitisation |

**Respiratory sensitisation** The finished product is not expected to have chronic health effects.

**Skin sensitisation** The finished product is not expected to have chronic health effects.

**Mutagenicity** The finished product is not expected to have chronic health effects.

**Carcinogenicity** The finished product is not expected to have chronic health effects.

**ACGIH Carcinogens**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | A3 Confirmed animal carcinogen with unknown relevance to humans. |

**California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1)
Nickel (CAS 7440-02-0)

**Canada - Manitoba OELs: carcinogenicity**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | Confirmed animal carcinogen with unknown relevance to humans. |

**Canada - Quebec OELs: Carcinogen category**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | Detected carcinogenic effect in animals. |

**IARC Monographs. Overall Evaluation of Carcinogenicity**

| | |
|---|---|
| Ethene, homopolymer (CAS 9002-88-4) | Volume 19, Supplement 7 - 3 Not classifiable as to carcinogenicity to humans. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | Volume 27, Supplement 7 - 3 Not classifiable as to carcinogenicity to humans. |

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)**

Not listed.

**US NTP Report on Carcinogens: Anticipated carcinogen**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | Reasonably Anticipated to be a Human Carcinogen. |

**US NTP Report on Carcinogens: Known carcinogen**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | Known To Be Human Carcinogen. |

**Reproductive toxicity** The finished product is not expected to have chronic health effects.

**Teratogenicity** The finished product is not expected to have chronic health effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not an aspiration hazard.

**Chronic effects** The finished product is not expected to have chronic health effects.

## 12. Ecological information

**Ecotoxicity** See below

**Ecotoxicological data**

| Components | | Species | Test Results |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | | | |
| **Aquatic** | | | |
| Fish | LC50 | Rainbow trout,donaldson trout (Oncorhynchus mykiss) | 0.16 mg/L, 96 hours |

| Components | | Species | Test Results |
|---|---|---|---|
| Copper (CAS 7440-50-8) | | | |
| Algae | IC50 | Algae | 0.048 mg/L, 72 Hours |
| Crustacea | EC50 | Daphnia | 0.03 mg/L, 48 Hours |
| **Aquatic** | | | |
| Crustacea | EC50 | Water flea (Daphnia magna) | 0.036 mg/L, 48 hours |
| Fish | LC50 | Fathead minnow (Pimephales promelas) | 0.032 - 0.054 mg/L, 96 hours |

**Persistence and degradability** No data is available on the degradability of any ingredients in the mixture.

**Bioaccumulative potential** No data available.

**Mobility in soil** No data available.

**Mobility in general** Not available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

**Transport of Dangerous Goods (TDG) Proof of Classification** Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the product will appear below.

**General** Canada: See special provisions to determine the packaging requirements and exemptions for shipping lithium batteries.

US: See special provisions to determine the packaging requirements and exemptions for shipping lithium batteries.

**U.S. Department of Transportation (DOT)**

**Basic shipping requirements:**

**UN number** UN3480
**Proper shipping name** Lithium ion batteries including lithium ion polymer batteries
**Hazard class** 9

**Transportation of Dangerous Goods (TDG - Canada)**

**Basic shipping requirements:**

**UN number** UN3481
**Proper shipping name** Lithium ion batteries contained in equipment including lithium ion polymer batteries
**Hazard class** 9

**IATA/ICAO (Air)**

**Basic shipping requirements:**

**UN number** UN3480
**Proper shipping name** Lithium ion batteries including lithium ion polymer batteries
**Hazard class** 9

**IMDG (Marine Transport)**

**Basic shipping requirements:**

**UN number** UN3481
**Proper shipping name** Lithium ion batteries contained in equipment including lithium ion polymer batteries
**Hazard class** 9

**DOT; IATA; IMDG; TDG**


## 15. Regulatory information

**Canadian federal regulations**

This product is a manufactured article and is exempt.
As per the Hazardous Products Act: A manufactured article means any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product.

**Canada CEPA Schedule I: Listed substance**

| | |
|---|---|
| Aluminium (CAS 7429-90-5) | Listed. |
| Ethene, homopolymer (CAS 9002-88-4) | Listed. |
| Graphite (CAS 7782-42-5) | Listed. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | Listed. |

**Canada Priority Substances List (Second List): Listed substance**

| | |
|---|---|
| Aluminium (CAS 7429-90-5) | Listed. |
| Ethene, homopolymer (CAS 9002-88-4) | Listed. |
| Graphite (CAS 7782-42-5) | Listed. |

**Canada SNAc Reporting Requirements: Listed substance/Publication date**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | 01/21/2012 Listed. |

**Export Control List (CEPA 1999, Schedule 3)**

Not listed.

**Greenhouse Gases**

Not listed.

**Precursor Control Regulations**

Not regulated.

**WHMIS 2015 Exemptions**

Not applicable

**US Federal regulations**

This product is a manufactured article and is exempt.
As per OSHA Definitions: 1910.1200 (c). Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | 0.1 % One-Time Export Notification only. |

**CERCLA Hazardous Substance List (40 CFR 302.4)**

| | |
|---|---|
| Copper (CAS 7440-50-8) | Listed. |

**SARA 304 Emergency release notification**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**SARA 302 Extremely hazardous substance** No

**SARA 313 (TRI reporting)**

| Chemical name | CAS number | % by wt. |
|---|---|---|
| Aluminium | 7429-90-5 | 1 - 5 |
| Copper | 7440-50-8 | 5 - 10 |

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**US state regulations**

**US - California Hazardous Substances (Director's): Listed substance**

| | |
|---|---|
| Aluminium (CAS 7429-90-5) | Listed. |
| Copper (CAS 7440-50-8) | Listed. |
| Graphite (CAS 7782-42-5) | Listed. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | Listed. |

**US - Illinois Chemical Safety Act: Listed substance**

Copper (CAS 7440-50-8)

**US - Louisiana Spill Reporting: Listed substance**

| | |
|---|---|
| Copper (CAS 7440-50-8) | Listed. |

**US - Michigan Critical Materials Register: Parameter number**

Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1)
Copper (CAS 7440-50-8)

**US - Minnesota Haz Subs: Listed substance**

| | |
|---|---|
| Aluminium (CAS 7429-90-5) | Listed. |
| Copper (CAS 7440-50-8) | Listed. |
| Ethene, homopolymer (CAS 9002-88-4) | Listed. |
| Graphite (CAS 7782-42-5) | Listed. |

**US - North Carolina Toxic Air Pollutants: Listed substance**

Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1)
Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3)

**US - Texas Effects Screening Levels: Listed substance**

| | |
|---|---|
| Aluminium (CAS 7429-90-5) | Listed. |
| Copper (CAS 7440-50-8) | Listed. |
| Ethene, homopolymer (CAS 9002-88-4) | Listed. |
| Graphite (CAS 7782-42-5) | Listed. |
| Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3) | Listed. |

**US - Washington Chemical of High Concern to Children: Listed substance**

Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1)

**US. Massachusetts RTK - Substance List**

Aluminium (CAS 7429-90-5)
Copper (CAS 7440-50-8)
Graphite (CAS 7782-42-5)

**US. New Jersey Worker and Community Right-to-Know Act**

Aluminium (CAS 7429-90-5)
Copper (CAS 7440-50-8)
Graphite (CAS 7782-42-5)
Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3)

**US. Pennsylvania Worker and Community Right-to-Know Law**

Aluminium (CAS 7429-90-5)
Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1)
Copper (CAS 7440-50-8)
Graphite (CAS 7782-42-5)
Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3)

**US. Rhode Island RTK**

Aluminium (CAS 7429-90-5)
Copper (CAS 7440-50-8)
Ethene, homopolymer (CAS 9002-88-4)
Graphite (CAS 7782-42-5)
Phosphate(1-), Hexafluoro-, Lithium (CAS 21324-40-3)

**US. California Proposition 65**

This product can expose you to chemicals including Cobalt Lithium Manganese Nickel Oxide, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

**California Proposition 65 - CRT: Listed date/Carcinogenic substance**

| | |
|---|---|
| Cobalt Lithium Manganese Nickel Oxide (CAS 182442-95-1) | Listed: May 7, 2004 |
| Nickel (CAS 7440-02-0) | Listed: October 1, 1989 |

**Inventory status**

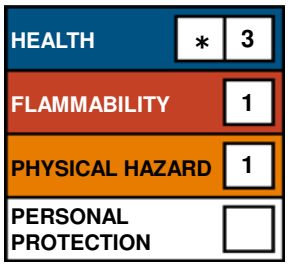
| Country(s) or region | Inventory name | On inventory (yes/no)* |
|---|---|---|
| Canada | Domestic Substances List (DSL) | No** |
| Canada | Non-Domestic Substances List (NDSL) | No |

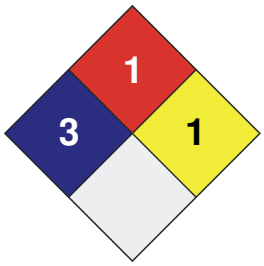
| Country(s) or region | Inventory name | On inventory (yes/no)* |
|---|---|---|
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | No |

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
**If manufacturing or importing over 1000 kg/yr, new substance notification must be submitted 30 days before exceeding amount

## 16. Other information

| LEGEND | |
|---|---|
| Severe | 4 |
| Serious | 3 |
| Moderate | 2 |
| Slight | 1 |
| Minimal | 0 |




**Disclaimer**

The information in the sheet was written based on the best knowledge and experience currently available. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

**Issue date** 25-April-2023

**Version No.** 01

**Effective date** 25-April-2023

**Prepared by** Nu-Calgon Technical Service Phone: (314) 469-7000

**Further information** Not available.