

# SAFETY DATA SHEET

Issuing Date 20-Sep-2020

## 1. IDENTIFICATION

### Product identifier

**Product Name** Lithium-ion Battery Pack GMBA6200-40 62V 216Wh

### Other means of identification

**Product Code(s)** 1617638

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

**Recommended Use** LITHIUM ION BATTERIES

**Restrictions on use** No information available

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

**Supplier Identification** Daye Garden Machinery Co. Ltd

**Address** 3400 Saint Vardell Lane  
Charlotte  
NC  
28217  
US

**Telephone** Phone:704 980-0904

**E-mail** graya@dayeope.com

### Emergency telephone number

**Company Emergency Phone Number** 7045911258

## 2. HAZARDS IDENTIFICATION

### Classification

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 3
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 2

Specific target organ toxicity (repeated exposure)

Category 1

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

**Appearance** Black with green**Physical state** Solid**Odor** Mild**GHS Label elements, including precautionary statements****Danger****Hazard statements**

Harmful if swallowed

Toxic in contact with skin

Causes severe skin burns and eye damage

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 eat, drink or smoke when using this product

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

**Precautionary Statements - Response**

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

Immediately call a POISON CENTER or doctor

**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**

Call a POISON CENTER or doctor if you feel unwell

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

Wash contaminated clothing 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: Call a POISON CENTER or doctor if you feel unwell

Rinse mouth

Do NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Other information**

Very toxic to aquatic life with long lasting effects.

**Unknown acute toxicity** 99.1 % of the mixture consists of ingredient(s) of unknown toxicity  
 79.1 % of the mixture consists of ingredient(s) of unknown acute oral toxicity  
 94.1 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
 99.1 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
 99.1 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
 99.1 % 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 Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Lithium Nickel Oxide	12325-84-7	35	-	-
Graphite	7782-42-5	27.1	-	-
Iron	7439-89-6	20	-	-
Copper	7440-50-8	10	-	-
cobalt lithium dioxide	12190-79-3	1	-	-
Methyl propanoate	554-12-1	1	-	-
Aluminium	7429-90-5	1	-	-
lithium hexafluorophosphate(1-)	21324-40-3	1	-	-
4-Fluoro-1,3-dioxolan-2-one	114435-02-8	1	-	-
dimethyl carbonate	616-38-6	1	-	-
Polyethylene	9002-88-4	1	-	-
diiiron trioxide	1309-37-1	0.1	-	-
Boehmite (Al(OH)O)	1318-23-6	0.1	-	-
Carbon black	1333-86-4	0.1	-	-
Nickel	7440-02-0	0.1	-	-
1-Methyl-2-pyrrolidinone	872-50-4	0.1	-	-
Aluminum lithium oxide (LiAlO)	11089-89-7	0.1	-	-
Chromium	7440-47-3	0.1	-	-

lithium carbonate	554-13-2	0.1	-	-
ethylbenzene	100-41-4	0.1	-	-

#### 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. 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. Get immediate medical advice/attention.
<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. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing.
<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

<b>Symptoms</b>	Burning sensation.
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##### 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.
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#### 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>	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

**Hazardous Combustion Products** Carbon oxides.

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**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** 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.

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## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### **Advice on safe handling practice.**

In case of rupture: Handle in accordance with good industrial hygiene and safety

Avoid contact with skin, eyes or clothing. Take off contaminated clothing and wash before

reuse. 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.

### Conditions for safe storage, including any incompatibilities

#### **Storage Conditions**

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Limits

Name	ACGIH regulation	Biological exposure index	OSHA regulation	NIOSH regulation	EU regulation
Lithium Nickel Oxide	TWA = 1.5 mg/m <sup>3</sup> (inhalable particulate matter)(Nickel CAS.no 7440-02-0)	Not available	TWA = 1 mg/m <sup>3</sup> (metal and insoluble compounds (as Ni)) TWA = 1 mg/m <sup>3</sup> (soluble compounds (as Ni)) (Nickel CAS.no7440-02-0)	Ca TWA = 0.015 mg/m <sup>3</sup> (metal and insoluble compounds (as Ni)) Ca TWA =0.015 mg/m <sup>3</sup> (soluble compounds (as Ni)) (Nickel CAS.no 7440-02-0)	Not applicable
Graphite	TWA = 2mg/m <sup>3</sup>	Not available	Not applicable	Not applicable	Not applicable
Iron	Not applicable	Not available	Not applicable	Not applicable	Not applicable
Copper	TWA = 0.2 mg/m <sup>3</sup> (fume)	Not available	Not applicable	Not applicable	Not applicable
cobalt lithium dioxide	TWA = 0.2 mg/m <sup>3</sup> (Cobalt and cobal compounds,CAS. no7440-48-4)	Not available	TWA = 0.1 mg/m <sup>3</sup> (Cobalt metal, dust, and fume (as Co),CAS.no7440-48-4)	TWA = 0.05 mg/m <sup>3</sup> (Cobalt metal, dust, and fume (as Co),CAS.no7440-48-4)	Not applicable
Cobalt, Co	TWA = 0.02 mg/m <sup>3</sup>	Not available	Not available	TWA 0.05 mg/m <sup>3</sup>	Not available
Methyl propanoate	Not applicable	Not available	Not applicable	Not applicable	Not applicable
Aluminium	TWA = 1 mg/m <sup>3</sup> (respirable particulate matter)	Not available	TWA = 15 mg/m <sup>3</sup> (Aluminum Metal (as Al) Total dust) TWA = 5 mg/m <sup>3</sup> (Aluminum Metal (as Al) Respirable fraction)	TWA = 1 mg/m <sup>3</sup> (Aluminum Metal (as Al),Respirable fraction)	Not applicable
lithium hexafluorophosphate(1-)	Not applicable	Not available	Not applicable	Not applicable	Not applicable
4-Fluoro-1,3-dioxolan-2-one	Not applicable	Not available	Not applicable	Not applicable	Not applicable
dimethyl carbonate	Not applicable	Not available	Not applicable	Not applicable	Not applicable
Polyethylene	Not applicable	Not available	Not applicable	Not applicable	Not applicable
diiron trioxide	TWA = 5 mg/m <sup>3</sup>	Not available	TWA = 10 mg/m <sup>3</sup> (fume)	TWA = 5 mg/m <sup>3</sup> (dust and fume)	Not applicable
Boehmite (Al(OH)O)	Not applicable	Not available	Not applicable	Not applicable	Not applicable

Carbon black	TWA = 3mg/m <sup>3</sup> (inhalable particulate matter)	Not available	TWA = 3.5 mg/m <sup>3</sup>	TWA = 3.5 mg/m <sup>3</sup> Ca TWA = 0.1 mg PAHs/m <sup>3</sup> [Carbon black in presence of polycyclic aromatic hydrocarbons (PAHs)]	Not applicable
Nickel	TWA = 1.5 mg/m <sup>3</sup> (inhalable particulate matter)	Not available	TWA = 1 mg/m <sup>3</sup> (metal and insoluble compounds (as Ni)) TWA = 1 mg/m <sup>3</sup> (soluble compounds (as Ni))	Ca TWA = 0.015 mg/m <sup>3</sup> (metal and insoluble compounds (as Ni)) Ca TWA = 0.015 mg/m <sup>3</sup> (soluble compounds (as Ni))	Not applicable
1-Methyl-2-pyrrolidinone	Not applicable	Not available	Not applicable	Not applicable	TWA = 40 mg/m <sup>3</sup> , TWA= 10 ppm, STEL = 80 mg/m <sup>3</sup> , STEL = 20 ppm
Aluminum lithium oxide (LiAlO)	TWA = 1 mg/m <sup>3</sup> (respirable particulate matter)(Aluminum CAS.no 7429-90-5)	Not available	TWA = 15 mg/m <sup>3</sup> (Aluminum Metal (as Al) Total dust) TWA = 5 mg/m <sup>3</sup> (Aluminum Metal (as Al) Respirable fraction) (Aluminum CAS.no 7429-90-5)	TWA = 1 mg/m <sup>3</sup> (Aluminum Metal (as Al), Respirable fraction)(Aluminum CAS.no 7429-90-5)	Not applicable
Chromium	TWA = 0.5 mg/m <sup>3</sup> (inhalable particulate matter); TLV basis: respiratory tract irritation, TWA = 0.5 mg/m <sup>3</sup>	Not available	TWA = 0.5 mg/m <sup>3</sup> (Chromium (II) compounds (as Cr), Chromium (III) compounds (as Cr)) TWA = 1 mg/m <sup>3</sup> (Chromium metal and insol. salts	TWA = 0.5 mg/m <sup>3</sup> (Chromium (II) compounds (as Cr), Chromium (III) compounds (as Cr)) TWA = 0.5 mg/m <sup>3</sup> (Chromium metal	TWA = 2 mg/m <sup>3</sup>



			(as Cr))	and insol. salts (as Cr))	
lithium carbonate	Not applicable	Not available	Not applicable	Not applicable	Not applicable
ethylbenzene	TWA = 20 ppm	Not available	TWA = 100 ppm TWA = 435 mg/m <sup>3</sup>	TWA = 100 ppm (ST) 125 ppm	TWA = 442 mg/m <sup>3</sup> , TWA= 100 ppm, STEL = 884 mg/m <sup>3</sup> , STEL = 200 ppm

**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** 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** 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** Handle in accordance with good industrial hygiene and safety practice. 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. Contaminated work clothing should not be allowed out of the workplace.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

**Physical state** Solid  
**Appearance** Black  
**Odor** Mild  
**Color** No information available  
**Odor Threshold** Not applicable

<u>Property</u>	<u>Values</u>	<u>Remarks Method</u>
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

<b>Water Solubility</b>	Insoluble in water	
<b>Solubility(ies)</b>	No data available	None known
<b>Partition coefficient:</b>	n-octanol/water0	
<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
<b><u>Other Information</u></b>		
<b>Explosive properties</b>	No information available	
<b>Oxidizing properties</b>	No information available	
<b>Softening Point</b>	No information available	
<b>Molecular Weight</b>	No information available	
<b>VOC Content (%)</b>	No information available	
<b>Liquid Density</b>	No information available	
<b>Bulk Density</b>	No information available	
<b>Particle Size</b>	No information available	
<b>Particle Size Distribution</b>	No information available	

## 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	No information available. <b>Chemical</b>
<b>stability</b>	Stable under normal conditions.
<b>Possibility of Hazardous Reactions</b>	None under normal processing.
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Exposure to air or moisture over prolonged periods.
<b>Incompatible materials</b>	Acids. Bases. Oxidizing agent.
<b>Hazardous Decomposition Products</b>	Carbon oxides.

## 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 burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. 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. Corrosive. (based on components). Causes burns. Toxic in contact with skin
<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.

**Information on toxicological effects**

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing.

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

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

<b>ATEmix (oral)</b>	1,858.60 mg/kg
<b>ATEmix (dermal)</b>	354.00 mg/kg

**Unknown acute toxicity** 99.1 % of the mixture consists of ingredient(s) of unknown toxicity  
 79.1 % of the mixture consists of ingredient(s) of unknown acute oral toxicity  
 94.1 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
 99.1 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
 99.1 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
 99.1 % 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	> 2,000 mg/kg( Rat )	-	> 2 mg/L/4hr( Rat )
Fe	=98,600 mg/kg( Rat )	-	> 100 mg/m <sup>3</sup> /6hr( Rat )
Copper	> 2,500 mg/kg( Rat )	> 2,000 mg/kg( Rat )	-
Aluminum	> 15,900 mg/kg( Rat )	-	> 0.888 mg/L/4hr( Rat )
Lithium	= 50 ~ 300 mg/kg ( Rat )	-	-
4-fluoro-1,3-dioxolan-2-one	=500 mg/kg( Rat )	> 2,000 mg/kg ( Rat )	-
Dimethyl carbonate	> 5,000 mg/kg( Rat )	> 2,000 mg/kg ( Rabbit )	> 5.36 mg/L/4hr( Rat )
Polyethylene	> 2,000 mg/kg( Rat )	-	-
Diiron trioxide	> 5,000 mg/kg ( Rat )	-	= 5.05 mg/L/4hr( Rat )
Boehmite (Al(OH)O)	> 2,000 mg/kg( Rat )	-	>0.888 mg/kg/4hr( Rat )
Carbon black	> 8,000 mg/kg ( Rat )	-	> 0.005 mg/L/4hr( Rat )
Nickel; Raney nickel	> 9,000 mg/kg( Rat )	-	-
1-Methyl-2-pyrrolidinone	= 4,150 mg/kg( Rat )	>5,000 mg/kg( Rat )	> 5.1 mg/L/4hr( Rat )
Chromium	> 5,000 mg/kg( Rat )	-	> 5.41 mg/L/4hr( Rat )
Lithium carbonate;Lithane	= 525 mg/kg( Rat )	>3,000 mg/kg ( Rabbit )	> 2 mg/L/4hr( Rat )
Ethylbenzene	= 3,500 mg/kg( Rat )	= 15,432 mg/kg	= 17.8 mg/L/4hr( Rat )

**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 burns.
<b>Serious eye damage/eye irritation</b>	Classification based on data available for ingredients. Risk of serious damage to eyes. Causes burns.
<b>Respiratory or skin sensitization</b>	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
Nickel	A4	Group 2B	R	Present
Cobalt and cobalt compounds	A3	Group 3B		
Polyethylene	A5	Group 3B		
diron trioxide	A4	Group 2B		
Carbon black	A3	Group 2B	Present	Present
Chromium	A4	Group 3B		
Ethylbenzene	A3	Group 2B		

#### 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

**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	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganism	Daphnia Magna (Water Flea)
Graphite	72hr-EC50 (Selenastrum capricornutum) > 100 mg/L	96h LC50: > 100 mg/L (Danio rerio)	-	-
Copper	72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: < 0.3 mg/L (Pimephales promelas)	-	48h EC50: = 0.03 mg/L
Propylene carbonate	72h EC50: > 500 mg/L (Desmodesmus subspicatus)	96h LC50: = 5300 mg/L (Leuciscus idus) 96h LC50: > 1000 mg/L (Cyprinus carpio)	EC50 > 10000 mg/L 17 h	48h EC50: > 500 mg/L
Fe		96hr-LC50 > 10000 mg/L (OECD TG 203, GLP)	-	-
Aluminum	72hr-EC50 = 0.0169 mg/L (OECD TG 201), (Read across; CAS 13473-90-0)	96hr-LC50 > 218.64 mg/L (GLP)(Read across; aluminium chloride hexahydrate), 28d-NOEC (Pimephales promelas) = 4.7 mg/L (Read across; aluminium sulphate)	-	-
Carbon black	72hr-EC50 > 10000 mg/L, 72hr-NOEC > 10,000mg/l (OECD TG 201, GLP)	96hr-LC0 = 1000 mg/L (OECD TG 203, GLP)	-	-
1-Methyl-2-pyrrolidinone	72hr-EC50 = 600.5 mg/L	96hr-LC50 > 500 mg/L (BBA-bulletin No. 33, 2. edition)	-	-
Lithium carbonate	72hr-EC50 > 400 mg/L	96hr-LC50 = 30.3 mg/L (OECD Guideline 203, GLP), 34d-NOEC (Danio rerio) = 15.28 mg/L (Read across;	-	-

**Persistence and Degradability** No information available.**Bioaccumulation****Component Information****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 hexafluorophosphate(1-) 21324-40-3	Toxic
Copper 7440-50-8	Toxic
Aluminum 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**

**UN-No.** UN3480  
**Proper Shipping Name** LITHIUM ION BATTERIES  
**Hazard Class** 9  
**Description** UN3480, LITHIUM ION BATTERIES, 9  
**Emergency Response Guide Number** 147

**TDG**

**UN-No.** UN3480  
**Proper Shipping Name** LITHIUM ION BATTERIES  
**Hazard Class** 9  
**Marine Pollutant** This product contains a chemical which is listed as a severe marine pollutant according to TDG.  
**Description** UN3480, LITHIUM ION BATTERIES, 9

**MEX**

**UN-No.** UN3480  
**Proper Shipping Name** LITHIUM ION BATTERIES  
**Hazard Class** 9

Description UN3480, LITHIUM ION BATTERIES, 9

**ICAO**

UN-No. UN3480  
 Proper Shipping Name LITHIUM ION BATTERIES  
 Hazard Class 9  
 Description UN3480, LITHIUM ION BATTERIES, 9

**IATA**

UN-No. UN3480  
 Proper Shipping Name LITHIUM ION BATTERIES  
 Hazard Class 9  
 ERG Code 9F  
 Description UN3480, LITHIUM ION BATTERIES, 9

**IMDG/IMO**

UN-No. UN3480  
 Proper Shipping Name LITHIUM ION BATTERIES  
 Hazard Class 9  
 EmS-No. F-A, S-I  
 Description UN3480, LITHIUM ION BATTERIES, 9

**RID**

UN-No. UN3480  
 Proper Shipping Name LITHIUM ION BATTERIES  
 Hazard Class 9  
 Classification code M4  
 Description UN3480, LITHIUM ION BATTERIES, 9

**ADR**

UN-No. UN3480  
 Proper Shipping Name LITHIUM ION BATTERIES  
 Hazard Class 9  
 Classification code M4  
 Tunnel restriction code (E)  
 Description UN3480, LITHIUM ION BATTERIES, 9

**ADN**

UN-No. UN3480  
 Proper Shipping Name LITHIUM ION BATTERIES  
 Hazard Class 9  
 Classification code M4  
 Special Provisions 188, 230, 310, 348, 636, 661  
 Description UN3480, LITHIUM ION BATTERIES, 9  
 Limited Quantity 0

## 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 %
Copper - 7440-50-8	7440-50-8	14.1	1.0
Aluminum - 7429-90-5	7429-90-5	10	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. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard 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 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 7440-50-8	5000 lb		RQ 5000 lb final RQ 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
Graphite 7782-42-5	X	X	X		
Copper 7440-50-8	X	X	X	X	X
Aluminum 7429-90-5	X	X	X	X	
Phosphate(1-), hexafluoro-, lithium 21324-40-3	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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**Revision Date**

**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**