SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 as amended by Commission Regulation (EU) 2015/830 and Regulation (EC) No. 1272/2008

Issuing Date 27-Jul-2021 **Revision Date** 27-Jul-2021 **Revision Number** 1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Name Li-ion battery pack BA2242T 56V 4.0Ah 224Wh

Synonyms None

Pure substance/mixture Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use Battery

Uses advised against Do not short circuit or expose to temperatures higher than the maximum temperature rating specified by the manufacturer. Do not recharge, over charge or crush any cell or pack. Ensure cells and batteries are safely handled and stored. Review Section 7 completely before use

1.3. Details of the supplier of the safety data sheet

Importer
EGO EUROPE GMBH
Autenbachstraße 11
71711 Steinheim/Murr
Germany
Tel: 0044 1494 957 514

Manufacturer
Nanjing Chervon Industry Co., Ltd.
159 South Jiang Jun Rd. Jiangning
Economic & Technical Development Zone
Nanjing, Jiangsu 211106 P.R. China
Phone: +862552101133

For further information, please contact
E-mail address Joerg.bauerle@egopowerplus.eu; hj.ye@cn.chervongroup.com

1.4. Emergency telephone number

Emergency telephone 0044 1235 239 670 (Available 24/7)

Emergency telephone - §45 - (EC)1272/2008	
Europe	**112**

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute toxicity - Inhalation (Dusts/Mists)	Category 1 - (H330)
Skin sensitisation	Category 1 - (H317)
Carcinogenicity	Category 1A - (H350i)
Specific target organ toxicity — repeated exposure	Category 1 - (H372)
Acute aquatic toxicity	Category 1 - (H400)
Chronic aquatic toxicity	Category 1 - (H410)

2.2. Label elements

Contains Lithium cobalt nickel oxide, Carbon black

Signal word
Danger

Hazard statements
H317 - May cause an allergic skin reaction
H330 - Fatal if inhaled
H350i - May cause cancer by inhalation
H372 - Causes damage to organs through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P201 - Obtain special instructions before use
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor
P391 - Collect spillage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Additional information
This product requires tactile warnings if supplied to the general public This product requires child resistant fastenings if supplied to the general public

2.3. Other hazards

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	Weight-%	REACH registration number	EC No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Lithium cobalt nickel oxide 113066-89-0	<35	No data available	442-750-5	Acute Tox. 2 (H330) Skin Sens. 1 (H317) Carc. 1A (H350i) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	-	-	-

Graphite 7782-42-5	<20	No data available	231-955-3	[C]	-	-	-
Copper 7440-50-8	<15	No data available	231-159-6	Aquatic Chronic 2 (H411)	-	-	-
Aluminum 7429-90-5	<10	No data available	231-072-3	Flam. Sol. 1 (H228) Water-react. 2 (H261)	-	-	-
Phosphate(1-), hexafluoro-, lithium 21324-40-3	<5	No data available	244-334-7	Acute Tox. 3 (H301) Skin Corr. 1A (H314) Eye Dam. 1 (H318) STOT RE 1 (tooth, bone) (H372)	-	-	-
Carbon black 1333-86-4	<5	No data available	215-609-9 435-640-3	[C]	-	-	-

Classification according to Regulation (EC) No. 1272/2008 [CLP] - Notes
[C] - Components with occupational exposure limits and/or biological occupational exposure limits requiring monitoring

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate
If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Aluminum 7429-90-5	No data available	No data available	0.888	No data available	No data available
Carbon black 1333-86-4	15400	No data available	0.0046	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice First aid is upon rupture of sealed battery. Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation IF INHALED: If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Do not breathe dust. 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. Call a POISON CENTER or doctor/physician.

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a doctor or poison control centre immediately.

Skin contact	IF ON SKIN: Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a doctor.
Ingestion	IF SWALLOWED: Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a doctor or poison control centre immediately.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Do not breathe dust. 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. Use personal protective equipment as required. See section 8 for more information.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	Coughing and/ or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors	May cause sensitisation in susceptible persons. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	Use of water spray when fighting a lithium fire may be inefficient. However, copious amounts of water may be used to cool a battery fire and extinguish any surrounding combustible fires.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	Product is or contains a sensitiser. May cause sensitisation by skin contact.

5.3. Advice for firefighters

Specific/special fire-fighting measures	Fires need to be assessed to determine appropriate protocols and safety measures for firefighting, including establishing safe zones, extinguishing media to be used, firefighter protection, and actions to control or extinguish the fire.
Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	In case of rupture: Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid generation of dust. Do not breathe dust. 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.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. Should not be released into the

environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

6.3. 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 During a release, ensure the Personal Protection listed in Section 8 is worn. Neutralize any electrolyte contaminated surfaces with baking soda, soda lime or sodium bicarbonate. Transfer damaged battery and any clean up materials to a sealed container a neutralizing material as stated above. Ensure the container is properly labeled.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Do not crush, pierce, short circuit (+) and (-) battery terminals with conductive (metal) goods. Do not directly heat or solder. Do not throw into fire. Do not mix batteries of different types and brands. Do not mix new and used batteries. Keep batteries in non-conductive (plastic) trays. Cells or batteries that have been dropped or experience mechanical shock should be isolated and monitored for approximately 5 days to identify a possible internal short circuit and resulting fire. Jewelry, and all metal, should be removed before handling batteries to avoid short circuit. In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not breathe dust. Avoid generation of dust. 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 it before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not breathe dust. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. 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.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Store at room temperature. Elevated temperature (>60◦C) can shorten battery life. Do not store near combustible materials. Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children. Do not store in high humidity environments. Never stack heavy objects on top of battery boxes. Keep batteries in original packaging until use and do not expose them to unnecessary or excessive handling.

7.3. Specific end use(s)

Specific use(s).
No information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia

Lithium cobalt nickel oxide 113066-89-0	-	H* Respiratory sensitizer	TWA: 0.2 mg/m³	TWA: 0.05 mg/m³ TWA: 0.1 mg/m³	TWA: 0.1 mg/m³ TWA: 0.5 mg/m³ STEL: 1 mg/m³ Skin Sensitisation
Graphite 7782-42-5	-	TWA: 5 mg/m³ STEL 10 mg/m³	TWA: 2 mg/m³	TWA: 5.0 mg/m³	TWA: 4 mg/m³ TWA: 10 mg/m³
Copper 7440-50-8	-	TWA: 1 mg/m³ TWA: 0.1 mg/m³ STEL 4 mg/m³ STEL 0.4 mg/m³	TWA: 0.2 mg/m³ TWA: 1 mg/m³	TWA: 0.1 mg/m³	TWA: 0.2 mg/m³ TWA: 1 mg/m³ STEL: 2 mg/m³
Aluminum 7429-90-5	-	TWA: 10 mg/m³ STEL 20 mg/m³	TWA: 1 mg/m³	TWA: 10.0 mg/m³ TWA: 1.5 mg/m³	TWA: 10 mg/m³ TWA: 4 mg/m³
Carbon black 1333-86-4	-	-	TWA: 3 mg/m³	-	TWA: 3.5 mg/m³ STEL: 7 mg/m³
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Lithium cobalt nickel oxide 113066-89-0	-	TWA: 0.05 mg/m³ Ceiling: 0.1 mg/m³ Ceiling: 0.25 mg/m³	TWA: 0.05 mg/m³ TWA: 0.01 mg/m³	TWA: 0.1 mg/m³ TWA: 0.05 mg/m³	TWA: 0.05 mg/m³ TWA: 0.01 mg/m³ TWA: 0.02 mg/m³
Graphite 7782-42-5	-	TWA: 2.0 mg/m³	TWA: 2.5 mg/m³	TWA: 5 mg/m³	TWA: 2 mg/m³
Copper 7440-50-8	-	TWA: 1 mg/m³ TWA: 0.1 mg/m³ Ceiling: 2 mg/m³ Ceiling: 0.2 mg/m³	TWA: 1.0 mg/m³ TWA: 0.1 mg/m³	TWA: 1 mg/m³ TWA: 0.2 mg/m³	TWA: 0.02 mg/m³
Aluminum 7429-90-5	-	TWA: 10.0 mg/m³	TWA: 5 mg/m³ TWA: 2 mg/m³	TWA: 10 mg/m³ TWA: 4 mg/m³	TWA: 1.5 mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	-	TWA: 2.5 mg/m³	TWA: 2.5 mg/m³	-
Carbon black 1333-86-4	-	TWA: 2.0 mg/m³	TWA: 3.5 mg/m³	TWA: 3 mg/m³	TWA: 3.5 mg/m³ STEL: 7 mg/m³
Chemical name	France	Germany	Germany MAK	Greece	Hungary
Lithium cobalt nickel oxide 113066-89-0	-	TWA: 0.03 mg/m³	*	TWA: 0.1 mg/m³ TWA: 1 mg/m³	TWA: 0.01 mg/m³ TWA: 0.02 mg/m³
Graphite 7782-42-5	TWA: 2 mg/m³	TWA: 1.25 mg/m³ TWA: 10 mg/m³	TWA: 0.3 mg/m³ TWA: 4 mg/m³ Peak: 2.4 mg/m³	TWA: 10 mg/m³ TWA: 5 mg/m³	TWA: 5 mg/m³
Copper 7440-50-8	TWA: 0.2 mg/m³ TWA: 1 mg/m³ STEL: 2 mg/m³	-	TWA: 0.01 mg/m³ Peak: 0.02 mg/m³	TWA: 0.2 mg/m³ TWA: 1 mg/m³ STEL: 2 mg/m³	TWA: 0.1 mg/m³ TWA: 0.01 mg/m³ STEL: 0.2 mg/m³
Aluminum 7429-90-5	TWA: 10 mg/m³ TWA: 5 mg/m³	TWA: 1.25 mg/m³ TWA: 10 mg/m³	TWA: 4 mg/m³ TWA: 1.5 mg/m³	TWA: 10 mg/m³ TWA: 5 mg/m³	TWA: 1 mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	TWA: 1 mg/m³	TWA: 1 mg/m³ *	TWA: 2.5 mg/m³	TWA: 2.5 mg/m³ *
Carbon black 1333-86-4	TWA: 3.5 mg/m³	-	-	TWA: 3.5 mg/m³ STEL: 7 mg/m³	TWA: 3 mg/m³
Chemical name	Ireland	Italy	Italy REL	Latvia	Lithuania
Lithium cobalt nickel oxide 113066-89-0	TWA: 0.02 mg/m³ TWA: 0.5 mg/m³ STEL: 0.3 mg/m³ STEL: 1.5 mg/m³ Sensitizer	-	TWA: 0.02 mg/m³ TWA: 0.2 mg/m³	TWA: 0.05 mg/m³	Sensitizer TWA: 0.05 mg/m³
Graphite 7782-42-5	TWA: 2 mg/m³ STEL: 6 mg/m³	-	TWA: 2 mg/m³	TWA: 2 mg/m³	TWA: 5 mg/m³
Copper 7440-50-8	TWA: 0.2 mg/m³ TWA: 1 mg/m³ STEL: 2 mg/m³ STEL: 0.6 mg/m³	-	TWA: 0.2 mg/m³	TWA: 0.5 mg/m³ STEL: 1 mg/m³	TWA: 1 mg/m³ TWA: 0.2 mg/m³
Aluminum	TWA: 1 mg/m³	-	TWA: 1 mg/m³	TWA: 2 mg/m³	TWA: 5 mg/m³

7429-90-5	STEL: 3 mg/m³				TWA: 2 mg/m³ TWA: 1 mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m³ STEL: 7.5 mg/m³	-	TWA: 2.5 mg/m³	-	TWA: 2.5 mg/m³
Carbon black 1333-86-4	TWA: 3 mg/m³ STEL: 15 mg/m³	-	TWA: 3 mg/m³	-	-
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Lithium cobalt nickel oxide 113066-89-0	-	-	-	TWA: 0.05 mg/m³ TWA: 0.02 mg/m³ STEL: 0.15 mg/m³ STEL: 0.06 mg/m³	TWA: 0.25 mg/m³ TWA: 0.02 mg/m³
Graphite 7782-42-5	-	-	-	TWA: 5 mg/m³ TWA: 2 mg/m³ TWA: 10 mg/m³ TWA: 4 mg/m³ STEL: 10 mg/m³ STEL: 4 mg/m³ STEL: 20 mg/m³ STEL: 8 mg/m³	TWA: 4.0 mg/m³ TWA: 1.0 mg/m³
Copper 7440-50-8	-	-	TWA: 0.1 mg/m³	TWA: 0.1 mg/m³ TWA: 1 mg/m³ STEL: 3 mg/m³ STEL: 0.3 mg/m³	TWA: 0.2 mg/m³
Aluminum 7429-90-5	-	-	-	TWA: 5 mg/m³ STEL: 10 mg/m³	TWA: 2.5 mg/m³ TWA: 1.2 mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	-	-	-	TWA: 2 mg/m³
Carbon black 1333-86-4	-	-	-	TWA: 3.5 mg/m³ STEL: 7 mg/m³	TWA: 4 mg/m³
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Lithium cobalt nickel oxide 113066-89-0	TWA: 0.2 mg/m³ TWA: 0.02 mg/m³	TWA: 0.1 mg/m³ STEL: 0.5 mg/m³	TWA: 0.05 mg/m³ Sensitizer	-	TWA: 0.02 mg/m³ TWA: 0.2 mg/m³
Graphite 7782-42-5	TWA: 2 mg/m³	TWA: 2 mg/m³	-	-	TWA: 2 mg/m³
Copper 7440-50-8	TWA: 0.2 mg/m³ TWA: 1 mg/m³	TWA: 0.5 mg/m³ STEL: 0.2 mg/m³ STEL: 1.5 mg/m³	TWA: 1 mg/m³ TWA: 0.2 mg/m³	-	TWA: 0.1 mg/m³
Aluminum 7429-90-5	TWA: 10 mg/m³	TWA: 3 mg/m³ TWA: 1 mg/m³ STEL: 10 mg/m³ STEL: 3 mg/m³	TWA: 4 mg/m³ TWA: 1.5 mg/m³	-	TWA: 10 mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m³	-	TWA: 2.5 mg/m³	-	-
Carbon black 1333-86-4	TWA: 3 mg/m³	-	TWA: 2 mg/m³ TWA: 10 mg/m³	-	TWA: 3.5 mg/m³

Chemical name	Sweden	Switzerland	United Kingdom
Lithium cobalt nickel oxide 113066-89-0	NGV: 0.1 mg/m³ NGV: 0.02 mg/m³ * Sensitizer	TWA: 0.05 mg/m³ H*	TWA: 0.1 mg/m³ TWA: 0.5 mg/m³ Sk* Capable of causing occupational asthma
Graphite 7782-42-5	-	TWA: 3 mg/m³	TWA: 10 mg/m³ TWA: 4 mg/m³ STEL: 30 mg/m³ STEL: 12 mg/m³
Copper 7440-50-8	NGV: 0.01 mg/m³	TWA: 0.1 mg/m³ STEL: 0.2 mg/m³	TWA: 1 mg/m³ TWA: 0.2 mg/m³

			STEL: 0.6 mg/m³ STEL: 2 mg/m³
Aluminum 7429-90-5	NGV: 5 mg/m³ NGV: 2 mg/m³	TWA: 3 mg/m³	TWA: 10 mg/m³ TWA: 4 mg/m³ STEL: 30 mg/m³ STEL: 12 mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3	NGV: 2 mg/m³	-	-
Carbon black 1333-86-4	NGV: 3 mg/m³	-	TWA: 3.5 mg/m³ STEL: 7 mg/m³

Biological occupational exposure limits

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
Lithium cobalt nickel oxide 113066-89-0	-	10 µg/L (urine - spontaneous urine after end of work day, at the end of a work week/end of the shift) (-) 7 µg/L (urine - spontaneous urine after end of work day, at the end of a work week/end of the shift)	-	-	-
Aluminum 7429-90-5	-	60 µg/g Creatinine (urine - Aluminum after end of work day, at the end of a work week/end of the shift) (-)	-	200 µg/L - urine (Aluminum) - at the end of the work shift	-
Carbon black 1333-86-4	-	(-)	-	-	-
Chemical name	Denmark	Finland	France	Germany	Germany
Lithium cobalt nickel oxide 113066-89-0	-	-	0.015 mg/L - urine (Cobalt) - end of shift at end of workweek 0.001 mg/L - blood (Cobalt) - end of shift at end of workweek	35 µg/L - BLW (for long-term exposures: at the end of the shift after several shifts) urine 1.5 µg/L - BAR (for long-term exposures: at the end of the shift after several shifts) urine 3 µg/L - BAR (for long-term exposures: at the end of the shift after several shifts) urine	-
Aluminum 7429-90-5	-	-	-	50 µg/g Creatinine (urine - Aluminum for long-term exposures: at the end of the shift after several shifts) 50 µg/g Creatinine - BAT (for long-term	50 µg/g Creatinine (urine - Aluminum for long-term exposures: at the end of the shift after several shifts)

				exposures: at the end of the shift after several shifts) urine 15 µg/g Creatinine - BAR (for long-term exposures: at the end of the shift after several shifts) urine	
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	-	3 mg/g creatinine - urine (Fluorides) - beginning of shift 10 mg/g creatinine - urine (Fluorides) - end of shift	-	-

Chemical name	Hungary	Ireland	Italy	Italy REL
Lithium cobalt nickel oxide 113066-89-0	-	3 µg/L (urine - Nickel after several consecutive working shifts)	-	15 µg/L - urine (Cobalt) - end of shift at end of workweek
Phosphate(1-), hexafluoro-, lithium 21324-40-3	7 mg/g Creatinine (urine - Fluoride end of shift) 4 mg/g Creatinine (urine - Fluoride prior to next shift) 42 µmol/mmol Creatinine (urine - Fluoride end of shift) 24 µmol/mmol Creatinine (urine - Fluoride prior to next shift)	-	-	2 mg/g Creatinine - urine (Fluorides) - prior to shift 3 mg/g Creatinine - urine (Fluorides) - end of shift

Chemical name	Latvia	Luxembourg	Romania	Slovakia
Aluminum 7429-90-5	-	-	200 µg/L - urine (Aluminum) - end of shift	60 µg/g creatinine (urine - Aluminum not critical)
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	-	5 mg/g Creatinine - urine (Fluorine) - end of shift	-

Chemical name	Slovenia	Spain	Switzerland	United Kingdom
Aluminum 7429-90-5	50 µg/L - urine (Aluminum) - for long-term exposure: at the end of the work shift after several consecutive workdays	-	50 µg/g creatinine (urine - Aluminum after several shifts (for long-term exposures))	-

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering controls

Showers
Eyewash stations
Ventilation systems.

Personal protective equipment

Eye/face protection

None required for normal handling of the finished product. If necessary to handle damaged product where exposure to the electrolyte is a possibility, chemical splash goggles and a face shield are recommended. Eye protection must conform to standard EN 166.

Hand protection

None required for normal handling of the finished product. If necessary to handle damaged product where exposure to the electrolyte is a possibility, chemically resistant gloves are recommended. Gloves must conform to standard EN 374.

Skin and body protection	None required for normal handling of the finished product. If necessary to handle damaged product where exposure to the electrolyte is a possibility, a chemically resistant apron is recommended. (EN ISO 6529).
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General hygiene considerations	Avoid contact with skin, eyes or clothing. Do not breathe dust. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. 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.
Environmental exposure controls	No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Solid
Colour	Green and black
Odour	Odourless
Odour threshold	No information available

Property	Values	Remarks • Method
Melting point / freezing point		No data available
Initial boiling point and boiling range		No data available
Flammability		No data available
Flammability Limit in Air		
Upper flammability or explosive limits		No data available
Lower flammability or explosive limits		No data available
Flash point		No data available
Autoignition temperature		No data available
Decomposition temperature		No data available
pH		No data available
pH (as aqueous solution)		No data available
Kinematic viscosity		No data available
Dynamic viscosity		No data available
Water solubility		No data available
Solubility(ies)		No data available
Partition coefficient		No data available
Vapour pressure		No data available
Relative density		No data available
Bulk density		No data available
Liquid Density		No data available
Vapour density		No data available
Particle characteristics		
Particle Size		No data available
Particle Size Distribution		No data available

9.2. Other information

9.2.1. Information with regards to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity None under normal use conditions.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data
Sensitivity to mechanical impact None.
Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal use conditions. In the event of a leak or rupture: electrolyte and lithium will react with water.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks.

10.5. Incompatible materials

Incompatible materials Under normal use, batteries are not incompatible. The electrolyte is incompatible with: Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition can lead to release of toxic/corrosive gases and vapours.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information Exposure is not expected for product under normal conditions of use. In the event of an exposure to electrolyte the following toxicological information is provided:

Inhalation Specific test data for the substance or mixture is not available. Fatal if inhaled. (based on components).

Eye contact Specific test data for the substance or mixture is not available. Contact with eyes may cause irritation.

Skin contact Specific test data for the substance or mixture is not available. May cause sensitisation 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. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Coughing and/ or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

Acute toxicity

Numerical measures of toxicity

Based on available data, the classification criteria are not met.

The following values are calculated based on chapter 3.1 of the GHS document:
ATEmix (inhalation-dust/mist) 0.029 mg/l

Unknown acute toxicity
48.4 % 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	-	-	> 2000 mg/m³ (Rat) 4 h
Copper	-	-	> 5.11 mg/L (Rat) 4 h
Aluminum	-	-	> 0.888 mg/L (Rat) 4 h
Carbon black	> 15400 mg/kg (Rat)	-	> 4.6 mg/m³ (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 May cause eye irritation.

Respiratory or skin sensitisation May cause sensitisation 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	European Union
Lithium cobalt nickel oxide	Carc. 1A

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.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Very toxic to aquatic life with long lasting effects. Avoid release to the environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Graphite	-	LC50: >100mg/L (96h,	-	-

7782-42-5		Danio rerio)		
Copper 7440-50-8	EC50: 0.031 - 0.054mg/L (96h, Pseudokirchneriella subcapitata) EC50: 0.0426 - 0.0535mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 0.0068 - 0.0156mg/L (96h, Pimephales promelas) LC50: <0.3mg/L (96h, Pimephales promelas) LC50: =0.052mg/L (96h, Oncorhynchus mykiss) LC50: =0.112mg/L (96h, Poecilia reticulata) LC50: =0.2mg/L (96h, Pimephales promelas) LC50: =0.3mg/L (96h, Cyprinus carpio) LC50: =0.8mg/L (96h, Cyprinus carpio) LC50: =1.25mg/L (96h, Lepomis macrochirus)	-	EC50: =0.03mg/L (48h, Daphnia magna)

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment

Chemical name	PBT and vPvB assessment
Graphite 7782-42-5	The substance is not PBT / vPvB PBT assessment does not apply
Copper 7440-50-8	The substance is not PBT / vPvB PBT assessment does not apply
Aluminum 7429-90-5	The substance is not PBT / vPvB PBT assessment does not apply
Phosphate(1-), hexafluoro-, lithium 21324-40-3	The substance is not PBT / vPvB PBT assessment does not apply
Carbon black 1333-86-4	The substance is not PBT / vPvB PBT assessment does not apply

12.6. Endocrine disrupting properties

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. 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.
Waste codes / waste designations according to EWC / AVV	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

IMDG

14.1 UN number or ID number	UN3480
14.2 EPNM	LITHIUM ION BATTERIES
14.3 Transport hazard class(es)	9
14.4 Packing group	
Description	UN3480, LITHIUM ION BATTERIES, 9
14.5 Environmental hazards	Not applicable
14.6 Special Precautions for Users	
Special Provisions	188, 230,310, 348, 376, 377, 384, 387
EmS-No	F-A, S-I
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number	UN3480
14.2 EPNR	LITHIUM ION BATTERIES
14.3 Transport hazard class(es)	9
Subsidiary hazard class	9A
14.4 Packing group	
Description	UN3480, LITHIUM ION BATTERIES, 9 (9A)
14.5 Environmental hazards	Not applicable
14.6 Special Precautions for Users	
Special Provisions	None
Classification code	M4

ADR

14.1 UN number or ID number	UN3480
14.2 UN proper shipping name	LITHIUM ION BATTERIES
14.3 Transport hazard class(es)	9
Subsidiary class	9A
14.4 Packing group	
Description	UN3480, LITHIUM ION BATTERIES, 9 (9A)
14.5 Environmental hazards	Not applicable
14.6 Special Precautions for Users	
Special Provisions	188, 230, 310, 348, 376, 377, 387, 636
Classification code	M4
Tunnel restriction code	(E)

IATA

14.1 UN number or ID number	UN3480
14.2 EPNI	Lithium ion batteries
14.3 Transport hazard class(es)	9
Subsidiary hazard class	9A
14.4 Packing group	
Description	UN3480, Lithium ion batteries, 9 (9A)
14.5 Environmental hazards	Not applicable
14.6 Special Precautions for Users	
Special Provisions	A88, A99, A154, A164, A183, A201, A206, A213 A331, A334, A802
ERG Code	12FZ
Note:	None

SECTION 15: Regulatory information

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

National regulations

France
Occupational Illnesses (R-463-3, France)

Chemical name	French RG number
Graphite 7782-42-5	RG 16 RG 25
Aluminum 7429-90-5	RG 32 RG 16,RG 16bis
Carbon black 1333-86-4	RG 16,RG 16bis

Germany
Water hazard class (WGK) obviously hazardous to water (WGK 2)

Netherlands

Chemical name	Netherlands - List of Carcinogens	Netherlands - List of Carcinogens	Netherlands - List of Reproductive Toxins
Lithium cobalt nickel oxide	Present	-	-

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:
This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
Lithium cobalt nickel oxide - 113066-89-0	28. 75.	
Aluminum - 7429-90-5	75.	
Carbon black - 1333-86-4	75.	

Persistent Organic Pollutants
Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)
H1 - ACUTE TOXIC
E1 - Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

Ozone-depleting substances (ODS) regulation (EC) 1005/2009
Not applicable

Plant protection products directive (91/414/EEC)

Chemical name	Plant protection products directive (91/414/EEC)
Carbon black - 1333-86-4	Plant protection agent

Chemical name	EU - Biocidal Product Regulation ((EU) 528/2012)

Copper - 7440-50-8	8 - Wood preservatives 21 - Antifouling products

International Inventories
Contact supplier for inventory compliance status

15.2. Chemical safety assessment

Chemical Safety Report No information available

SECTION 16: Other information

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

Full text of H-Statements referred to under section 3
H228 - Flammable solid
H261 - In contact with water releases flammable gases
H301 - Toxic if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H330 - Fatal if inhaled
H350i - May cause cancer by inhalation
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
H411 - Toxic to aquatic life with long lasting effects

Legend
SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - Vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)

European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
EPA (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)
Japan GHS Classification
Australian 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 Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Issuing Date 27-Jul-2021

Revision Date 27-Jul-2021

Revision Note Initial Release.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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

EU SDS version information - EGHS
UL release date 1 October 2021
GHS Revision 7

Europe Partial process, including GHS Wizard, NO TW

Specific target organ toxicity — repeated exposure	Category 1

Full text of H-Statements referred to under section 3: H228 - Flammable solid H261 - In contact with water releases flammable gases H301 - Toxic if swallowed H314 - Causes severe skin burns and eye damage H317 - May cause an allergic skin reaction H318 - Causes serious eye damage H330 - Fatal if inhaled H350i - May cause cancer by inhalation H372 - Causes damage to organs through prolonged or repeated exposure H400 - Very toxic to aquatic life H410 - Very toxic to aquatic life with long lasting effects H411 - Toxic to aquatic life with long lasting effects

Chemical name	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)
Lithium cobalt nickel oxide	Acute Tox. 2 (H330) Skin Sens. 1 (H317) Carc. 1A (H350i) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	
Graphite	[C]	
Copper	Aquatic Chronic 2 (H411)	
Aluminum	Flam. Sol. 1 (H228)	

	Water-react. 2 (H261)	
Phosphate(1-), hexafluoro-, lithium	Acute Tox. 3 (H301) Skin Corr. 1A (H314) Eye Dam. 1 (H318) STOT RE 1 (tooth, bone) (H372)	
Carbon black	[C]	

Chemical name	CAS No	French RG number
Graphite	7782-42-5	RG 16 RG 25
Aluminum	7429-90-5	RG 32 RG 16,RG 16bis
Carbon black	1333-86-4	RG 16,RG 16bis