SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Issuing Date 10-Dec-2019 **Revision Date** 16-Oct-2019 **Revision Number** 1

EGHS / English

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Name BA5600T battery pack (560Wh)

Chemical name
Contains Nickel, 1-Methyl-2-pyrrolidone, Phosphate(1-), hexafluoro-, lithium

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

Recommended Use LITHIUM ION BATTERIES.

Uses advised against No information available.

1.3. Details of the supplier of the safety data sheet

Supplier Name Nanjing Chervon Industry Co., Ltd.

Supplier Address 159 South Jiang Jun Rd. Jiangning Economic & Technical Development Zone
Nanjing
Jiangsu
211106
CN

Supplier Phone Number Phone: +862552101133

Supplier Email hj.ye@cn.chervongroup.com

For further information, please contact.

1.4. Emergency telephone number

Emergency telephone No information available

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

Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 1 - (H318)
Skin sensitization	Category 1 - (H317)
Carcinogenicity	Category 2 - (H351)
Reproductive Toxicity	Category 1B - (H360D)
Specific target organ toxicity (repeated exposure)	Category 2 - (H373)
Acute aquatic toxicity	Category 1 - (H400)
Chronic aquatic toxicity	Category 1 - (H410)

2.2. Label elements

Contains Nickel, 1-Methyl-2-pyrrolidone, Phosphate(1-), hexafluoro-, lithium

Signal word **Danger**

Hazard Statements

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H351 - Suspected of causing cancer
H360D - May damage the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H351 - Suspected of causing cancer
H360D - May damage the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)

P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P273 - Avoid release to the environment
P280 - Wear protective gloves and eye/face protection
P280 - Wear protective gloves/protective clothing/eye protection/face protection

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor
P391 - Collect spillage

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

2.3. Other hazards
No information available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable.

3.2 Mixtures

Chemical name	EC No	CAS No.	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
Litium nickel oxide(Li2NiO2)	-	12325-84-7	35	No data available	No data available
Graphite	231-955-3	7782-42-5	30	No data available	01-2119486977-12
Iron	231-096-4	7439-89-6	20	Acute Tox. 4 (H302) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	No data available
Copper	231-159-6	7440-50-8	15	STOT SE 3 (H335) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	01-2119480154-42
Methyl propionate	209-060-4	554-12-1	5	Flam. Liq. 2 (H225) Acute Tox. 4 (H332)	No data available
Lithium Cobalt Oxide (CoLiO2)	235-362-0	12190-79-3	5	No data available	No data available
Aluminum	231-072-3	7429-90-5	5	Pyr. Sol. 1 (H250) Water-react. 2 (H261) Flam. Sol. 1 (H228)	No data available
Phosphate(1-), hexafluoro-, lithium	244-334-7	21324-40-3	3	Acute Tox. 4 (H302) Acute Tox. 3 (H311) Skin Corr. 1B (H311) Eye Dam. 1 (H318 STOT RE 1 (H372)	No data available
Nickel	231-111-4	7440-02-0	1	STOT RE 1 (H372) Carc. 2 (H351) Skin Sens. 1 (H317) Aquatic Chronic 3 (H412)	No data available
Lithium carbonate	209-062-5	554-13-2	1	No data available	No data available

Iron oxide	215-168-2	1309-37-1	1	No data available	No data available
Ethylbenzene	202-849-4	100-41-4	1	Flam. Liq. 2 (H225) STOT RE 2 (H373) Asp. Tox. 1 (H304) Acute Tox. 4 (H332)	No data available
Chromium	231-157-5	7440-47-3	1	No data available	No data available
Carbon black	215-609-9 435-640-3	1333-86-4	1	No data available	No data available
1-Methyl-2-pyrrolidone	212-828-1	872-50-4	1	Skin Irrit. 2 (H315) Repr. 1B (H360D) STOT SE 3 (H335) Eye Irrit. 2 (H319)	No data available

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

This product contains one or more candidate substance(s) of very high concern (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Chemical name	CAS No.	SVHC candidates
1-Methyl-2-pyrrolidone	872-50-4	X

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Skin contact Wash off immediately with soap and plenty of water for at least 15 minutes. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.

Eye contact Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Ingestion Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

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

Symptoms Burning sensation. Itching. Rashes. Hives.

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

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

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

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

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

5.2. Special hazards arising from the substance or mixture

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

Hazardous Combustion Products
Carbon oxides.

5.3. Advice for firefighters

Special protective equipment 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 Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. 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.

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 Take up mechanically, placing in appropriate containers for disposal.

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

General Hygiene Considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits

Chemical name	European Union	United Kingdom	France	Spain	Germany
Litium nickel oxide(Li2NiO2) 12325-84-7	-	-	-	-	TWA: 0.03 mg/m^3
Graphite 7782-42-5	-	STEL: 30 mg/m^3 STEL: 12 mg/m^3 TWA: 10 mg/m^3 TWA: 4 mg/m^3	TWA: 2 mg/m^3	TWA: 2 mg/m^3	-
Copper 7440-50-8	-	STEL: 0.6 mg/m^3 STEL: 2 mg/m^3 TWA: 1 mg/m^3 TWA: 0.2 mg/m^3	TWA: 0.2 mg/m^3 TWA: 1 mg/m^3 STEL: 2 mg/m^3	TWA: 0.1 mg/m^3	-
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	-	STEL: 0.3 mg/m^3 TWA: 0.1 mg/m^3	-	TWA: 0.02 mg/m^3	-
Aluminum 7429-90-5	-	STEL: 30 mg/m^3 STEL: 12 mg/m^3 TWA: 10 mg/m^3 TWA: 4 mg/m^3	TWA: 10 mg/m^3 TWA: 5 mg/m^3	TWA: 10 mg/m^3	-
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	-	-	-	TWA: 1 mg/m^3
Nickel 7440-02-0	-	STEL: 1.5 mg/m^3 TWA: 0.5 mg/m^3 Sk*	TWA: 1 mg/m^3	TWA: 1 mg/m^3	TWA: 0.03 mg/m^3 TWA: 0.006 mg/m^3

Iron oxide 1309-37-1	-	STEL: 10 mg/m³ STEL: 30 mg/m³ STEL: 12 mg/m³ TWA: 5 mg/m³ TWA: 10 mg/m³ TWA: 4 mg/m³	TWA: 5 mg/m³ TWA: 10 mg/m³	TWA: 5 mg/m³	-
Ethylbenzene 100-41-4	: TWA: 100 ppm TWA: 442 mg/m³ STEL: 200 ppm STEL: 884 mg/m³	STEL: 125 ppm STEL: 552 mg/m³ TWA: 100 ppm TWA: 441 mg/m³ Skin	VME: 88.4 mg/m³ VME: 20 ppm VLCT: 100 ppm VLCT: 442 mg/m³	S* VLA-EC: 200 ppm VLA-EC; 884 mg/m³ VLA-EC VLA-ED: 100 ppm VLA-ED; 441 mg/m³ VLA-ED	TWA: 20 ppm TWA: 88 mg/m³ S*
Chromium 7440-47-3	TWA: 2 mg/m³	STEL: 1.5 mg/m³ TWA: 0.5 mg/m³	TWA: 2 mg/m³	TWA: 2 mg/m³	TWA: 2 mg/m³
Carbon black 1333-86-4	-	STEL: 7 mg/m³ TWA: 3.5 mg/m³	TWA: 3.5 mg/m³	TWA: 3.5 mg/m³	-
1-Methyl-2-pyrrolidone 872-50-4	S* TWA: 10 ppm TWA: 40 mg/m³ STEL: 20 ppm STEL: 80 mg/m³	STEL: 20 ppm STEL: 80 mg/m³ TWA: 10 ppm TWA: 40 mg/m³ Sk*	TWA: 40 mg/m³ TWA: 10 ppm * STEL: 80 mg/m³ STEL: 20 ppm	vía dérmica* STEL: 20 ppm STEL: 80 mg/m³ TWA: 10 ppm TWA: 40 mg/m³	TWA: 20 ppm TWA: 82 mg/m³ S*
Chemical name	Italy	Portugal	Netherlands	Finland	Denmark
Litium nickel oxide(Li2NiO2) 12325-84-7	-	-	-	TWA: 0.05 mg/m³ TWA: 0.01 mg/m³	-
Graphite 7782-42-5	-	TWA: 2 mg/m³	-	TWA: 2 mg/m³	TWA: 2.5 mg/m³
Copper 7440-50-8	-	TWA: 0.2 mg/m³ TWA: 1 mg/m³	TWA: 0.1 mg/m³	TWA: 0.02 mg/m³	TWA: 1.0 mg/m³ TWA: 0.1 mg/m³
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	-	TWA: 0.02 mg/m³	-	TWA: 0.02 mg/m³	TWA: 0.01 mg/m³
Aluminum 7429-90-5	-	TWA: 10 mg/m³	-	TWA: 1.5 mg/m³	TWA: 5 mg/m³ TWA: 2 mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	TWA: 2.5 mg/m³	-	-	TWA: 2.5 mg/m³
Nickel 7440-02-0	-	TWA: 1.5 mg/m³	-	TWA: 0.01 mg/m³	TWA: 0.05 mg/m³
Iron oxide 1309-37-1	-	TWA: 5 mg/m³	-	TWA: 5 mg/m³	TWA: 3.5 mg/m³
Ethylbenzene 100-41-4	TWA: 100 ppm TWA: 442 mg/m³ STEL: 200 ppm STEL: 884 mg/m³ Skin	STEL: 125 ppm TWA: 100 ppm	Skin STEL: 100 ppm STEL; 430 mg/m³ STEL MAC: 50 ppm MAC; 215 mg/m³ MAC	TWA: 50 ppm TWA: 220 mg/m³ STEL: 880 mg/m³ STEL: 200 ppm Skin	TWA: 217 mg/m³ TWA: 50 ppm
Chromium 7440-47-3	TWA: 0.5 mg/m³	TWA: 2 mg/m³	TWA: 0.5 mg/m³	TWA: 0.5 mg/m³	TWA: 0.5 mg/m³
Carbon black 1333-86-4	-	TWA: 3.5 mg/m³	-	TWA: 3.5 mg/m³ STEL: 7 mg/m³	TWA: 3.5 mg/m³

1-Methyl-2-pyrrolidone 872-50-4	TWA: 10 ppm TWA: 40 mg/m³ STEL: 20 ppm STEL: 80 mg/m³ pelle*	STEL: 20 ppm STEL: 80 mg/m³ TWA: 10 ppm TWA: 40 mg/m³	H* STEL: 80 mg/m³ TWA: 40 mg/m³	TWA: 10 ppm TWA: 40 mg/m³ STEL: 20 ppm STEL: 80 mg/m³ iho*	TWA: 5 ppm TWA: 20 mg/m³ H*
Chemical name	Austria	Switzerland	Poland	Norway	Ireland
Litium nickel oxide(Li2NiO2) 12325-84-7	-	-	TWA: 0.25 mg/m³	TWA: 0.05 mg/m³ STEL: 0.15 mg/m³	-
Graphite 7782-42-5	STEL 10 mg/m³ TWA: 5 mg/m³	TWA: 2.5 mg/m³ TWA: 5 mg/m³	TWA: 4.0 mg/m³ TWA: 1.0 mg/m³	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: 15 mg/m³ STEL: 8 mg/m³	TWA: 2 mg/m³ STEL: 6 mg/m³
Copper 7440-50-8	STEL 4 mg/m³ STEL 0.4 mg/m³ TWA: 1 mg/m³ TWA: 0.1 mg/m³	STEL: 0.2 mg/m³ TWA: 0.1 mg/m³	TWA: 0.2 mg/m³	TWA: 0.1 mg/m³ TWA: 1 mg/m³ STEL: 0.3 mg/m³ STEL: 2 mg/m³	TWA: 0.2 mg/m³ TWA: 1 mg/m³ STEL: 2 mg/m³ STEL: 0.6 mg/m³
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	H*	H* TWA: 0.05 mg/m³	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³ STEL: 0.06 mg/m³	TWA: 0.02 mg/m³ STEL: 0.3 mg/m³
Aluminum 7429-90-5	STEL 20 mg/m³ TWA: 10 mg/m³	TWA: 3 mg/m³	TWA: 2.5 mg/m³ TWA: 1.2 mg/m³	TWA: 5 mg/m³ STEL: 10 mg/m³	TWA: 1 mg/m³ STEL: 3 mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	-	TWA: 2 mg/m³	-	TWA: 2.5 mg/m³ STEL: 7.5 mg/m³
Nickel 7440-02-0	-	TWA: 0.5 mg/m³	TWA: 0.25 mg/m³	TWA: 0.05 mg/m³ STEL: 0.15 mg/m³	TWA: 0.5 mg/m³ STEL: 1.5 mg/m³
Iron oxide 1309-37-1	STEL 10 mg/m³ TWA: 5 mg/m³	TWA: 3 mg/m³	STEL: 10 mg/m³ STEL: 5 mg/m³ TWA: 2.5 mg/m³ TWA: 5 mg/m³	TWA: 3 mg/m³ STEL: 6 mg/m³	TWA: 5 mg/m³ TWA: 10 mg/m³ TWA: 4 mg/m³ STEL: 10 mg/m³ STEL: 12 mg/m³ STEL: 30 mg/m³
Ethylbenzene 100-41-4	Skin STEL 200 ppm STEL; 880 mg/m³ STEL MAK: 100 ppm MAK; 440 mg/m³ MAK	Skin STEL: 100 ppm STEL (15 min); 435 mg/m³ STEL (15 min) MAK: 100 ppm MAK; 435 mg/m³ MAK	NDSCh: 350 mg/m³ NDS: 100 mg/m³ Skin	TWA: 20 mg/m³ TWA: 5 ppm Skin STEL: 10 ppm STEL: 30 mg/m³	TWA: 100 ppm TWA: 442 mg/m³ STEL: 200 ppm STEL: 884 mg/m³ Sk*
Chromium 7440-47-3	TWA: 2 mg/m³	H* TWA: 0.5 mg/m³	TWA: 0.5 mg/m³	TWA: 0.5 mg/m³ STEL: 1.5 mg/m³	TWA: 2 mg/m³ STEL: 6 mg/m³
Carbon black 1333-86-4	-	-	TWA: 4 mg/m³	TWA: 3.5 mg/m³ STEL: 7 mg/m³	TWA: 3 mg/m³ STEL: 15 mg/m³
1-Methyl-2-pyrrolidone 872-50-4	H* STEL 20 ppm STEL 80 mg/m³ TWA: 10 ppm	H* STEL: 40 ppm STEL: 160 mg/m³ TWA: 20 ppm	P* STEL: 80 mg/m³ TWA: 40 mg/m³	TWA: 5 ppm TWA: 20 mg/m³ H* STEL: 20 ppm	TWA: 10 ppm TWA: 40 mg/m³ STEL: 20 ppm STEL: 80 mg/m³

	TWA: 40 mg/m^3	TWA: 80 mg/m^3		STEL: 80 mg/m^3	Sk*

Biological occupational exposure limits

Chemical name	European Union	United Kingdom	France	Spain	Germany
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	-	-	Blood : 0.001 mg/L Urine : 0.015 mg/L	15 1	-
Aluminum 7429-90-5	-	-	-	-	50 µg/g Creatinine
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	-	Urine : 3 mg/g creatinine Urine : 10 mg/g creatinine	-	-
Ethylbenzene 100-41-4	-	-	Urine : 1500 mg/g creatinine	700	250 mg/g Creatinine
Chromium 7440-47-3	-	-	Urine : 0.01 mg/g creatinine Urine : 0.03 mg/g creatinine	-	-
1-Methyl-2-pyrrolidone 872-50-4	-	-	-	20 70	150 mg/L
Chemical name	**Italy**	**Portugal**	**Netherlands**	**Finland**	**Denmark**
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	-	-	-	130	-
Nickel 7440-02-0	-	-	-	0.1	-
Ethylbenzene 100-41-4	-	-	-	5.2	-
Chemical name	**Austria**	**Switzerland**	**Poland**	**Norway**	**Ireland**
Litium nickel oxide(Li2NiO2) 12325-84-7	-	-	-	-	3 µg/L
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	-	30	-	-	-
Aluminum 7429-90-5	-	60	-	-	-
Phosphate(1-), hexafluoro-, lithium 21324-40-3	-	4	-	-	-
Nickel 7440-02-0	-	45	-	-	3 µg/L
Ethylbenzene 100-41-4	-	600	-	-	0.7 g/g Creatinine 0.7 g
1-Methyl-2-pyrrolidone 872-50-4	-	-	-	-	20 mg/g Creatinine 70 mg/g Creatinine

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

8.2. Exposure controls

Personal protective equipment

Eye/face protection	Tight sealing safety goggles.
Hand Protection	Wear suitable gloves. Impervious gloves.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Environmental exposure controls No information available.

General Hygiene Considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Solid
Odor	Odorless
Color	No information available
Odor Threshold	No information available

Property	Values	Remarks Method
pH	No data available	None known
Melting / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation Rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	No data available	None known
Water Solubility	Insoluble	
Solubility(ies)	No data available	None known
Partition coefficient: n-octanol/water	0	
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Explosive properties	No data available
Oxidizing properties	No data available

9.2. Other information

Softening Point	No information available
Molecular Weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk Density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Remarks No data available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Possibility of Hazardous Reactions None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

10.4. Conditions to avoid

None known.

Explosion Data

Sensitivity to Mechanical Impact	NONE.
Sensitivity to Static Discharge	NONE.

10.5. Incompatible materials

Strong acids, Strong bases, Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon oxides.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Severely irritating to eyes. Causes serious eye damage. May cause burns. May cause irreversible damage to eyes. (based on components).

Skin contact Specific test data for the substance or mixture is not available. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). Causes skin irritation.

Ingestion Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

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

Numerical measures of toxicity

Acute Toxicity

Unknown acute toxicity

131 % of the mixture consists of ingredient(s) of unknown toxicity
97 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
131 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
130 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
130 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
130 % 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
Iron	= 30 g/kg (Rat)	-	-
Methyl propionate	= 5 g/kg (Rat)	> 5 g/kg (Rabbit)	-
Lithium Cobalt Oxide (CoLiO2)	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rat)	> 5.05 mg/L (Rat) 4 h
Nickel	> 9000 mg/kg (Rat)	-	> 10.2 mg/L (Rat) 1 h
Lithium carbonate	= 525 mg/kg (Rat)	-	> 2.17 mg/L (Rat) 4 h
Iron oxide	> 10000 mg/kg (Rat)	-	-
Ethylbenzene	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.4 mg/L (Rat) 4 h
Carbon black	> 15400 mg/kg (Rat)	> 3 g/kg (Rabbit)	-
1-Methyl-2-pyrrolidone	= 3914 mg/kg (Rat)	= 8 g/kg (Rabbit)	> 5.1 mg/L (Rat) 4 h

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

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

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

Respiratory or skin sensitization May cause sensitization by skin contact.

Germ cell mutagenicity No information available.

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

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

Chemical name	European Union
Nickel	Carc. 2

Reproductive Toxicity Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	European Union
1-Methyl-2-pyrrolidone	Repr. 1B

STOT - single exposure No information available.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

H373 - May cause damage to the following organs through prolonged or repeated exposure: Respiratory system.

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

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

Unknown aquatic toxicity 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Graphite	-	96h LC50: > 100 mg/L (Danio rerio)	-	-
Iron	-	96h LC50: = 13.6 mg/L (Morone saxatilis)	-	-
Copper	72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata) 96h	96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.3 mg/L (Cyprinus	-	48h EC50: = 0.03 mg/L

	EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata)	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)		
Nickel	96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata) 72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 1.3 mg/L (Cyprinus carpio) 96h LC50: = 10.4 mg/L (Cyprinus carpio) 96h LC50: > 100 mg/L (Brachydanio rerio)	-	48h EC50: = 1 mg/L 48h EC50: > 100 mg/L
Lithium carbonate	-	96h LC50: = 30.3 mg/L (Oncorhynchus mykiss)	-	-
Iron oxide	-	96h LC50: = 100000 mg/L (Danio rerio)	-	-
Ethylbenzene	72h EC50: = 4.6 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 2.6 - 11.3 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 1.7 - 7.6 mg/L (Pseudokirchneriella subcapitata) 96h EC50: > 438 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 11.0 - 18.0 mg/L (Oncorhynchus mykiss) 96h LC50: = 4.2 mg/L (Oncorhynchus mykiss) 96h LC50: 7.55 - 11 mg/L (Pimephales promelas) 96h LC50: 9.1 - 15.6 mg/L (Pimephales promelas) 96h LC50: = 32 mg/L (Lepomis macrochirus) 96h LC50: = 9.6 mg/L (Poecilia reticulata)	EC50 = 9.68 mg/L 30 min EC50 = 96 mg/L 24 h	48h EC50: 1.8 - 2.4 mg/L
Carbon black	-	-	-	24h EC50: > 5600 mg/L
1-Methyl-2-pyrrolidone	72h EC50: > 500 mg/L (Desmodesmus subspicatus)	96h LC50: = 1400 mg/L (Poecilia reticulata) 96h LC50: = 832 mg/L (Lepomis macrochirus) 96h LC50: = 1072 mg/L (Pimephales promelas) 96h LC50: = 4000 mg/L (Leuciscus idus)	-	48h EC50: = 4897 mg/L

12.2. Persistence and degradability

Persistence and Degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation

.

Chemical name	Log Pow
Ethylbenzene	3.2
1-Methyl-2-pyrrolidone	-0.46

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

Chemical name	PBT and vPvB assessment
Graphite	The substance is not PBT / vPvB PBT assessment does not apply
Iron	The substance is not PBT / vPvB PBT assessment does not apply
Copper	The substance is not PBT / vPvB PBT assessment does not apply
Lithium Cobalt Oxide (CoLiO2)	PBT assessment does not apply
Aluminum	The substance is not PBT / vPvB PBT assessment does not apply
Phosphate(1-), hexafluoro-, lithium	The substance is not PBT / vPvB PBT assessment does not apply
Nickel	The substance is not PBT / vPvB PBT assessment does not apply
Lithium carbonate	The substance is not PBT / vPvB PBT assessment does not apply
Iron oxide	The substance is not PBT / vPvB PBT assessment does not apply
Ethylbenzene	The substance is not PBT / vPvB
Chromium	The substance is not PBT / vPvB PBT assessment does not apply
Carbon black	The substance is not PBT / vPvB PBT assessment does not apply
1-Methyl-2-pyrrolidone	The substance is not PBT / vPvB PBT assessment does not apply

12.6. Other adverse effects

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	No information available.

Section 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"

IMDG/IMO

14.1 UN-No.	UN3480
14.2 Proper Shipping Name	LITHIUM ION BATTERIES
Description	UN3480, LITHIUM ION BATTERIES, 9
14.3 Hazard Class	9
14.4 Packing Group	-
14.5 Marine Pollutant	This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO
14.6 Special Provisions	NONE
EmS-No.	F-A, S-I
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

RID

14.1 UN-No.	UN3480
14.2 Proper Shipping Name	LITHIUM ION BATTERIES
Description	UN3480, LITHIUM ION BATTERIES, 9
14.3 Hazard Class	9
14.4 Packing Group	-
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	NONE
Classification code	M4

ADR

14.1 UN-No.	UN3480
14.2 Proper Shipping Name	LITHIUM ION BATTERIES

Description	UN3480, LITHIUM ION BATTERIES, 9
14.3 Hazard Class	9
14.4 Packing Group	-
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	NONE
Classification code	M4

IATA

14.1 UN-No.	UN3480
14.2 Proper Shipping Name	LITHIUM ION BATTERIES
Description	UN3480, LITHIUM ION BATTERIES, 9
14.3 Hazard Class	9
14.4 Packing Group	-
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	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	Title
Litium nickel oxide(Li2NiO2) 12325-84-7	RG 37,RG 37bis	-
Graphite 7782-42-5	RG 16 RG 25	-
Iron 7439-89-6	RG 44,RG 44bis,RG 94	-
Copper 7440-50-8	RG 5,RG 14,RG 15,RG 15bis,RG 20bis	-
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	RG 65,RG 70	-
Aluminum 7429-90-5	RG 32 RG 16,RG 16bis	-
Nickel 7440-02-0	RG 37ter	-
Iron oxide 1309-37-1	RG 44,RG 44bis,RG 94	-
Ethylbenzene 100-41-4	RG 84	-
Chromium 7440-47-3	RG 10	-
Carbon black 1333-86-4	RG 16,RG 16bis	-
1-Methyl-2-pyrrolidone 872-50-4	RG 84	-

Germany

Water hazard class (WGK) Obviously hazardous to water (WGK 2)

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 .

Authorizations 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 authorization per REACH Annex XIV
Litium nickel oxide(Li2NiO2) - 12325-84-7	Use restricted. See item 27.	
Nickel - 7440-02-0	Use restricted. See item 27.	
1-Methyl-2-pyrrolidone - 872-50-4	Use restricted. See item 72. Use restricted. See item 30. Use restricted. See item 71.	

Persistent Organic Pollutants
Not applicable.

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

Named dangerous substances per Seveso Directive (2012/18/EU)

Chemical name	Lower-tier requirements (tons)	Upper-tier requirements (tons)
Litium nickel oxide(Li2NiO2) - 12325-84-7		1
Nickel - 7440-02-0		1

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

International Inventories

TSCA	Contact supplier for inventory compliance status.
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AICS	Contact supplier for inventory compliance status.

Legend

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

AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

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
H225 - Highly flammable liquid and vapor
H302 - Harmful if swallowed
H304 - May be fatal if swallowed and enters airways
H311 - Toxic in contact with skin
H332 - Harmful if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure

Legend
SVHC: Substances of Very High Concern for Authorization:

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

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

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Disclaimer
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End of Safety Data Sheet