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		Issue date : 14/12/2021
	rechargeable li-ion battery 3.7V ISR18650-2000 2000mAh 7.4Wh	Supersedes :

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

1.1. Product identifier

Product form : Article
Trade name : TJEP #124200, #124204

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

1.2.1. Relevant identified uses

Intended for general public
Main use category : Consumer use, Professional use, Industrial use
Use of the substance/mixture : Battery

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Jiangsu Highstar Battery Manufacturing Co., Ltd.
No.306 Heping Road(s), Qidong City, Jiangsu
226200 - CHINA
T 13862972515
luhf@highstar.com

1.4. Emergency telephone number

Country	Official advisory body	Emergency number
Deutschland	Giftinformationszentren der Bundesrepublik Deutschland	Berlin: 030/19240, Bonn: 0228/19240, Erfurt: 0361/730 730, Freiburg: 0761/19240, Göttingen: 0551/19 240, Hamburg: 06841/19240, Mainz: 06131/19240, München: 089/19240

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

2.2. Label elements

Article. According to EC directives or the corresponding national regulations there is no labelling obligation for this product.

Not applicable.

2.3. Other hazards

Other hazards : Results of PBT and vPvB assessment : Not applicable. This article contains neither dangerous substances nor dangerous mixtures which are intended to be released under normal or reasonably foreseeable conditions of use.

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Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Comments : Article
Battery

Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Cobalt lithium manganese nickel oxide	(CAS-No.) 182442-95-1	32	Acute Tox. 2 (Inhalation), H330 Carc. 1A, H350 STOT RE 1, H372
Graphite	(CAS-No.) 7782-42-5 (EC-No.) 231-955-3	17	Not classified
Iron	(CAS-No.) 7439-89-6 (EC-No.) 231-096-4	16	Not classified
Copper (Cu)	(CAS-No.) 7440-50-8 (EC-No.) 231-159-6 (EC Index) 029-024-00-X	12	Aquatic Acute 1, H400
Dimethyl carbonate	(CAS-No.) 616-38-6 (EC-No.) 210-478-4 (EC Index) 607-013-00-6	6	Flam. Liq. 2, H225
Aluminium	(CAS-No.) 7429-90-5 (EC-No.) 231-072-3 (EC Index) 013-002-00-1	6	Not classified
Polyethylene	(CAS-No.) 9002-88-4 (EC-No.) 618-339-3	3	Not classified
Ethylene carbonate	(CAS-No.) 96-49-1 (EC-No.) 202-510-0	3	Eye Irrit. 2, H319
Lithium hexafluorophosphate(1-)	(CAS-No.) 21324-40-3 (EC-No.) 244-334-7 (EC Index) -	3	Acute Tox. 3 (Oral), H301 Skin Corr. 1A, H314 STOT RE 1, H372
Carbonate, methyl ethyl	(CAS-No.) 623-53-0 (EC-No.) 433-480-9	1	Flam. Liq. 2, H225
Nickel	(CAS-No.) 7440-02-0 (EC-No.) 231-111-4 (EC Index) 028-002-00-7	1	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372

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

SECTION 4: First aid measures

4.1. Description of first aid measures

Additional advice : First aider: Pay attention to self-protection!. Concerning personal protective equipment to use, see section 8. Never give anything by mouth to an unconscious person. In case of doubt or persistent symptoms, consult always a physician. Show this safety data sheet to the doctor in attendance.

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Inhalation	: Not expected to be a primary route of exposure. Remove casualty to fresh air and keep warm and at rest. In case of doubt or persistent symptoms, consult always a physician.
Skin contact	: Not expected to be a primary route of exposure. Remove contaminated clothing and shoes. Gently wash with plenty of soap and water. In case of doubt or persistent symptoms, consult always a physician.
Eyes contact	: Not expected to be a primary route of exposure. Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. In case of doubt or persistent symptoms, consult always a physician.
Ingestion	: Rinse mouth thoroughly with water. Get medical advice/attention.

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

Inhalation	: Not expected to present a significant inhalation hazard under anticipated conditions of normal use. Fatal if inhaled. (Electrolyte).
Skin contact	: Not expected to present a significant skin hazard under anticipated conditions of normal use. May cause skin irritation. May cause an allergic skin reaction. (Electrolyte).
Eyes contact	: Not expected to present a significant eye contact hazard under anticipated conditions of normal use. Causes serious eye damage. (Electrolyte).
Ingestion	: Not expected to present a significant ingestion hazard under anticipated conditions of normal use. The following symptoms may occur: Burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. (Electrolyte).
Chronic symptoms	: Not expected to present a significant hazard under anticipated conditions of normal use. May cause cancer. Causes damage to organs (lungs, bone marrow) through prolonged or repeated exposure (Inhalation). (Electrolyte).

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: carbon dioxide (CO2), dry chemical powder, foam. Dry sand.
Unsuitable extinguishing media	: Do not use extinguishing media containing water.

5.2. Special hazards arising from the substance or mixture

Specific hazards	: Heating may cause a fire or explosion.
Hazardous decomposition products in case of fire	: Carbon oxides (CO, CO2). Metallic oxides.

5.3. Advice for firefighters

Firefighting instructions	: Evacuate area. Use water spray or fog for cooling exposed containers. Contain the extinguishing fluids by bunding. Prevent fire fighting water from entering the environment.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.
Other information	: Do not allow run-off from fire-fighting to enter drains or water courses. Dispose of waste in accordance with environmental legislation.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

For non-emergency personnel : Evacuate unnecessary personnel. Keep upwind. Provide adequate ventilation. Wear recommended personal protective equipment. Concerning personal protective equipment to use, see section 8. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

6.1.2. For emergency responders

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place. Concerning personal protective equipment to use, see section 8.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Large spills: scoop solid spill into closing containers. This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Provide adequate ventilation. Use personal protective equipment as required. Concerning personal protective equipment to use, see section 8. Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time). Avoid release to the environment. Keep out of reach of children. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take any precaution to avoid mixing with Incompatible materials, Refer to Section 10 on Incompatible Materials.

Hygiene measures : Keep good industrial hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feedingstuffs. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry, cool and well-ventilated place. Protect from moisture. Avoid shock and friction. Do not store near or with any of the incompatible materials listed in section 10.

Incompatible materials : Water.

Heat and ignition sources : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep out of direct sunlight.

Special rules on packaging : Do not pierce or burn, even after use.

Packaging materials : Keep only in the original container.

7.3. Specific end use(s)

Battery.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Graphite (7782-42-5)		
Austria	MAK (OEL TWA)	5 mg/m ³ (alveolar dust with <1% Quartz, respirable fraction)
Austria	MAK (OEL STEL)	10 mg/m ³ (alveolar dust with <1% Quartz, respirable fraction)
Belgium	OEL TWA	2 mg/m ³ (except fibers-alveolar fraction)
Bulgaria	OEL TWA	5 mg/m ³ (inhalable fraction)
Croatia	GVI (OEL TWA) [1]	4 mg/m ³ (respirable dust) 10 mg/m ³ (total dust, inhalable particles)
Czech Republic	PEL (OEL TWA)	2 mg/m ³ (dust)
Denmark	OEL TWA [1]	2,5 mg/m ³ (natural-respirable)
Estonia	OEL TWA	5 mg/m ³ (total dust (Dusts))
Finland	HTP (OEL TWA) [1]	2 mg/m ³
France	VME (OEL TWA)	2 mg/m ³ (alveolar fraction)
Germany	Occupational exposure limit value (mg/m ³) (TRGS900)	1,25 mg/m ³ (respirable fraction (dust)) 10 mg/m ³ (inhalable fraction (dust))
Greece	OEL TWA	10 mg/m ³ (inhalable fraction) 5 mg/m ³ (respirable fraction)
Hungary	AK (OEL TWA)	5 mg/m ³ (respirable)
Ireland	OEL TWA [1]	2 mg/m ³ (all forms except fibres; respirable fraction)
Ireland	OEL STEL	6 mg/m ³ (calculated-all forms except fibres; respirable fraction)
Latvia	OEL TWA	2 mg/m ³ (Carbon dust)
Lithuania	IPRV (OEL TWA)	5 mg/m ³ (dust)
Poland	NDS (OEL TWA)	4 mg/m ³ (natural-inhalable fraction) 1 mg/m ³ (natural-respirable fraction)
Portugal	OEL TWA	2 mg/m ³ (all forms except Graphite fibers-respirable fraction)
Romania	OEL TWA	2 mg/m ³ (Quartz <=5%-dust, respirable fraction)
Spain	VLA-ED (OEL TWA) [1]	2 mg/m ³ (see UNE EN 481:1995 on workplace atmospheres-dust; respirable fraction)
United Kingdom	WEL TWA (OEL TWA) [1]	10 mg/m ³ (inhalable dust) 4 mg/m ³ (respirable dust)
United Kingdom	WEL STEL (OEL STEL)	30 mg/m ³ (calculated-inhalable dust) 12 mg/m ³ (calculated-respirable dust)
Norway	Grenseverdi (OEL TWA) [1]	5 mg/m ³ (natural-total dust) 2 mg/m ³ (natural-respirable dust) 10 mg/m ³ (synthetic-total dust) 4 mg/m ³ (synthetic-respirable dust)
Norway	Korttidsverdi (OEL STEL)	10 mg/m ³ (natural-total dust) 4 mg/m ³ (natural-respirable dust) 20 mg/m ³ (synthetic-total dust) 8 mg/m ³ (synthetic-respirable dust)

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Graphite (7782-42-5)		
Switzerland	MAK (OEL TWA) [1]	3 mg/m ³ (natural-respirable dust)
Australia	OES TWA [1]	3 mg/m ³ (containing no asbestos and <1% crystalline silica-respirable dust)
Canada (Quebec)	VEMP (OEL TWA)	2 mg/m ³ (containing no Asbestos and <1% Crystalline silica, except Graphite fibres-respirable dust)
USA - ACGIH	ACGIH OEL TWA	2 mg/m ³ (all forms except graphite fibers-respirable particulate matter)
USA - IDLH	IDLH	1250 mg/m ³ (Graphite (natural))
USA - NIOSH	NIOSH REL TWA	2,5 mg/m ³ (natural-respirable dust)
USA - OSHA	OSHA PEL TWA [1]	15 mg/m ³ (synthetic-total dust) 5 mg/m ³ (synthetic-respirable fraction)
Polyethylene (9002-88-4)		
Bulgaria	OEL TWA	10 mg/m ³ (dust (Dust from Polyethylene))
Czech Republic	PEL (OEL TWA)	5 mg/m ³ (dust)
Latvia	OEL TWA	5 mg/m ³ (dust (Polymers dust))
Lithuania	IPRV (OEL TWA)	10 mg/m ³
Copper (Cu) (7440-50-8)		
Austria	MAK (OEL TWA)	1 mg/m ³ (inhalable fraction) 0,1 mg/m ³ (respirable fraction, smoke)
Austria	MAK (OEL STEL)	4 mg/m ³ (inhalable fraction) 0,4 mg/m ³ (respirable fraction, smoke)
Belgium	OEL TWA	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Bulgaria	OEL TWA	0,1 mg/m ³ (metal vapor)
Croatia	GVI (OEL TWA) [1]	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Croatia	KGVI (OEL STEL)	2 mg/m ³ (dust)
Czech Republic	PEL (OEL TWA)	1 mg/m ³ (dust) 0,1 mg/m ³ (fume)
Denmark	OEL TWA [1]	1 mg/m ³ (dust and powder) 0,1 mg/m ³ (fume)
Estonia	OEL TWA	1 mg/m ³ (total dust) 0,2 mg/m ³ (respirable dust)
Finland	HTP (OEL TWA) [1]	0,02 mg/m ³ (respirable dust)
France	VME (OEL TWA)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
France	VLE (OEL C/STEL)	2 mg/m ³ (dust)
Greece	OEL TWA	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Greece	OEL STEL	2 mg/m ³ (dust)
Hungary	AK (OEL TWA)	0,1 mg/m ³ 0,01 mg/m ³ (fume)
Hungary	CK (OEL STEL)	0,2 mg/m ³
Ireland	OEL TWA [1]	0,2 mg/m ³ (fume) 1 mg/m ³ (dusts and mists)

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Copper (Cu) (7440-50-8)		
Ireland	OEL STEL	2 mg/m ³ (dusts and mists) 0,6 mg/m ³ (calculated-fume)
Latvia	OEL TWA	0,5 mg/m ³
Lithuania	IPRV (OEL TWA)	1 mg/m ³ (inhalable fraction) 0,2 mg/m ³ (respirable fraction)
Netherlands	TGG-8u (OEL TWA)	0,1 mg/m ³ (inhalable dust)
Poland	NDS (OEL TWA)	0,2 mg/m ³
Portugal	OEL TWA	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Romania	OEL TWA	0,5 mg/m ³ (dust)
Romania	OEL STEL	0,2 mg/m ³ (fume) 1,5 mg/m ³ (dust)
Slovakia	NPHV (OEL TWA) [1]	1 mg/m ³ (inhalable fraction) 0,2 mg/m ³ (respirable fraction)
Spain	VLA-ED (OEL TWA) [1]	0,1 mg/m ³ (see UNE EN 481:1995 on workplace atmospheres-respirable fraction)
Sweden	NGV (OEL TWA)	0,01 mg/m ³ (respirable fraction)
United Kingdom	WEL TWA (OEL TWA) [1]	1 mg/m ³ (dust and mists) 0,2 mg/m ³ (fume)
United Kingdom	WEL STEL (OEL STEL)	0,6 mg/m ³ (calculated-fume) 2 mg/m ³ (dust and mist)
Norway	Grenseverdi (OEL TWA) [1]	0,1 mg/m ³ (fume) 1 mg/m ³ (dust)
Norway	Korttidsverdi (OEL STEL)	3 mg/m ³ (value calculated-dust) 0,3 mg/m ³ (value calculated-fume)
Switzerland	MAK (OEL TWA) [1]	0,1 mg/m ³ (inhalable dust)
Switzerland	KZGW (OEL STEL)	0,2 mg/m ³ (inhalable dust)
Australia	OES TWA [1]	1 mg/m ³ (dust and mist) 0,2 mg/m ³ (fume)
Canada (Quebec)	VEMP (OEL TWA)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
USA - ACGIH	ACGIH OEL TWA	0,2 mg/m ³ (fume)
USA - IDLH	IDLH	100 mg/m ³ (dust, fume and mist)
USA - NIOSH	NIOSH REL TWA	1 mg/m ³ (dust and mist) 0,1 mg/m ³ (fume)
USA - OSHA	OSHA PEL TWA [1]	0,1 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Aluminium (7429-90-5)		
Austria	MAK (OEL TWA)	10 mg/m ³ (inhalable fraction)
Austria	MAK (OEL STEL)	20 mg/m ³ (inhalable fraction)
Belgium	OEL TWA	1 mg/m ³
Bulgaria	OEL TWA	10 mg/m ³ (inhalable fraction) 1,5 mg/m ³ (respirable fraction)
Croatia	GVI (OEL TWA) [1]	10 mg/m ³ (total dust, inhalable particles) 4 mg/m ³ (respirable dust)
Czech Republic	PEL (OEL TWA)	10 mg/m ³ (dust)

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Aluminium (7429-90-5)		
Denmark	OEL TWA [1]	5 mg/m ³ (dust and powder; total) 2 mg/m ³ (dust and powder; respirable)
Estonia	OEL TWA	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
France	VME (OEL TWA)	10 mg/m ³ (metal) 5 mg/m ³ (dust)
Germany	Occupational exposure limit value (mg/m ³) (TRGS900)	1,25 mg/m ³ (respirable fraction (dust)) 10 mg/m ³ (inhalable fraction (dust))
Germany	Biological limit value	50 µg/g creatinine Parameter: Aluminum - Medium: urine - Sampling time: for long-term exposures: at the end of the shift after several shifts
Greece	OEL TWA	10 mg/m ³ (inhalable fraction) 5 mg/m ³ (respirable fraction)
Hungary	AK (OEL TWA)	1 mg/m ³ (respirable dust)
Ireland	OEL TWA [1]	1 mg/m ³ (respirable fraction)
Ireland	OEL STEL	3 mg/m ³ (calculated-respirable dust)
Latvia	OEL TWA	2 mg/m ³
Lithuania	IPRV (OEL TWA)	5 mg/m ³ (inhalable fraction) 2 mg/m ³ (respirable fraction) 1 mg/m ³
Poland	NDS (OEL TWA)	2,5 mg/m ³ (non-stabilized-inhalable fraction) 1,2 mg/m ³ (non-stabilized-respirable fraction)
Portugal	OEL TWA	10 mg/m ³ (metal dust)
Romania	OEL TWA	3 mg/m ³ (dust) 1 mg/m ³ (fume)
Romania	OEL STEL	10 mg/m ³ (dust) 3 mg/m ³ (fume)
Slovakia	NPHV (OEL TWA) [1]	4 mg/m ³ (inhalable dust) 1,5 mg/m ³ (respirable dust)
Spain	VLA-ED (OEL TWA) [1]	1 mg/m ³ (see UNE EN 481:1995 on workplace atmospheres-respirable fraction)
Sweden	NGV (OEL TWA)	5 mg/m ³ (total dust) 2 mg/m ³ (respirable fraction)
United Kingdom	WEL TWA (OEL TWA) [1]	10 mg/m ³ (inhalable dust) 4 mg/m ³ (respirable dust)
United Kingdom	WEL STEL (OEL STEL)	30 mg/m ³ (calculated-inhalable dust) 12 mg/m ³ (calculated-respirable dust)
Norway	Grenseverdi (OEL TWA) [1]	5 mg/m ³ (pyrotechnical-powder)
Norway	Korttidsverdi (OEL STEL)	10 mg/m ³ (pyrotechnical-powder)
Switzerland	MAK (OEL TWA) [1]	3 mg/m ³ (respirable dust)
Australia	OES TWA [1]	10 mg/m ³ (dust) 5 mg/m ³ (welding fume)
Canada (Quebec)	VEMP (OEL TWA)	10 mg/m ³
USA - ACGIH	ACGIH OEL TWA	1 mg/m ³ (respirable particulate matter)
USA - NIOSH	NIOSH REL TWA	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)

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Aluminium (7429-90-5)		
USA - OSHA	OSHA PEL TWA [1]	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
Iron (7439-89-6)		
Bulgaria	OEL TWA	6 mg/m ³ (containing <2% free Crystalline silicon dioxide in respirable fraction-dust, inhalable fraction)
Slovakia	NPHV (OEL TWA) [1]	6 mg/m ³ (total aerosol)
Nickel (7440-02-0)		
Austria	TRK (OEL TWA)	0,5 mg/m ³ (dust, inhalable fraction)
Belgium	OEL TWA	1 mg/m ³
Bulgaria	OEL TWA	0,05 mg/m ³
Croatia	GVI (OEL TWA) [1]	0,5 mg/m ³
Czech Republic	PEL (OEL TWA)	0,5 mg/m ³ (respirable fraction of aerosol)
Denmark	OEL TWA [1]	0,05 mg/m ³ (dust and powder)
Estonia	OEL TWA	0,5 mg/m ³
Finland	HTP (OEL TWA) [1]	0,01 mg/m ³ (respirable dust)
France	VME (OEL TWA)	1 mg/m ³ 1 mg/m ³ (metal gratings)
Germany	Occupational exposure limit value (mg/m ³) (TRGS900)	0,03 mg/m ³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-respirable fraction) 0,006 mg/m ³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-inhalable fraction)
Greece	OEL TWA	1 mg/m ³
Ireland	OEL TWA [1]	0,5 mg/m ³
Ireland	OEL STEL	1,5 mg/m ³ (calculated)
Latvia	OEL TWA	0,05 mg/m ³
Lithuania	IPRV (OEL TWA)	0,5 mg/m ³
Poland	NDS (OEL TWA)	0,25 mg/m ³
Portugal	OEL TWA	1,5 mg/m ³ (inhalable fraction)
Romania	OEL TWA	0,1 mg/m ³
Romania	OEL STEL	0,5 mg/m ³
Slovenia	OEL TWA	0,006 mg/m ³ (respirable fraction)
Slovenia	OEL STEL	0,048 mg/m ³ (respirable fraction)
Spain	VLA-ED (OEL TWA) [1]	1 mg/m ³ (manufacturing, commercialization and use restrictions according to REACH)
Sweden	NGV (OEL TWA)	0,5 mg/m ³ (total dust)
United Kingdom	WEL TWA (OEL TWA) [1]	0,5 mg/m ³
United Kingdom	WEL STEL (OEL STEL)	1,5 mg/m ³ (calculated)
Norway	Grenseverdi (OEL TWA) [1]	0,05 mg/m ³
Norway	Korttidsverdi (OEL STEL)	0,15 mg/m ³ (value calculated)

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Nickel (7440-02-0)		
Switzerland	MAK (OEL TWA) [1]	0,5 mg/m ³ (inhalable dust)
Australia	OES TWA [1]	1 mg/m ³
Canada (Quebec)	VEMP (OEL TWA)	1,5 mg/m ³ (inhalable dust)
USA - ACGIH	ACGIH OEL TWA	1,5 mg/m ³ (inhalable particulate matter)
USA - IDLH	IDLH	10 mg/m ³
USA - NIOSH	NIOSH REL TWA	0,015 mg/m ³
USA - OSHA	OSHA PEL TWA [1]	1 mg/m ³

Additional information : Recommended monitoring procedures :. Personal air monitoring. Room air monitoring

8.2. Exposure controls

Engineering measure(s) : Provide adequate ventilation. Organisational measures to prevent /limit releases, dispersion and exposure. See Section 7 for information on safe handling.

Personal protective equipment : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hand protection : Not required for normal conditions of use. As appropriate. Wear suitable gloves (EN 374). Protection against mechanical risks.

Eye protection : Not required for normal conditions of use. tightly fitting safety goggles (EN 166)

Body protection : Wear suitable protective clothing

Respiratory protection : Not required for normal conditions of use. In case of insufficient ventilation, wear suitable respiratory equipment. full face mask (DIN EN 136). Half-face mask (DIN EN 140). Filter type: ABEKP (EN141).

Thermal hazard protection : Not required for normal conditions of use. Use dedicated equipment.

Environmental exposure controls : Avoid release to the environment. Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Article.

Colour : orange.

Odour : odourless.

Odour threshold : Not applicable

pH : Not applicable

pH solution : Not available

Relative evaporation rate (butylacetate=1) : Not applicable

Melting / freezing point : Not applicable

Freezing point : Not applicable

Initial boiling point and boiling range : Not applicable

Flash point : Not applicable

Auto-ignition temperature : Not applicable

Decomposition temperature : Not applicable

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Flammability (solid, gas)	: Article, Not applicable
Vapour pressure	: Not applicable
Vapour density	: Not applicable
Relative density	: Not applicable
Solubility	: Water: Not applicable
Partition coefficient n-octanol/water	: Not applicable
Kinematic viscosity	: Not applicable
Dynamic viscosity	: Not applicable
Explosive properties	: Not applicable. The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidising properties	: Not applicable. The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.
Explosive limits	: Not applicable
Particle size	: Not applicable
Particle size distribution	: Not applicable
Particle shape	: Not applicable
Particle aspect ratio	: Not applicable
Particle aggregation state	: Not applicable Not applicable
Particle agglomeration state	: Not applicable
Particle specific surface area	: Not applicable
Particle dustiness	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

Relative evaporation rate (butylacetate=1) : Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

None under normal conditions. Reference to other sections: 10.4 & 10.5.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Heating may cause a fire or explosion. See Section 7 for information on safe handling.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from sunlight. Avoid shock and friction. See Section 7 for information on safe handling.

10.5. Incompatible materials

Water. See Section 7 for information on safe handling.

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10.6. Hazardous decomposition products

Reference to other sections 5.2.

SECTION 11: Toxicological information

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

Acute toxicity : Not classified (Article: Not applicable)

Graphite (7782-42-5)	
LC50/inhalation/4h/rat	> 2000 mg/m ³ (Exposure time: 4 h)
Polyethylene (9002-88-4)	
LD50/oral/rat	> 8 g/kg
LD50 oral	> 8 g/kg Rat
Ethylene carbonate (96-49-1)	
LD50/oral/rat	10 g/kg
LD50/dermal/rabbit	> 26420 mg/kg
LC50/inhalation/4h/rat	> 730 mg/m ³ (Exposure time: 8 h)
Dimethyl carbonate (616-38-6)	
LD50/oral/rat	> 6000 mg/kg (small rat) >13000 mg/kg (big rat)
Copper (Cu) (7440-50-8)	
LC50/inhalation/4h/rat	> 5,11 mg/l/4h
Aluminium (7429-90-5)	
LC50/inhalation/4h/rat	> 0,888 mg/l/4h
Iron (7439-89-6)	
LD50/oral/rat	30 g/kg
Carbonate, methyl ethyl (623-53-0)	
LD50/oral/rat	> 15000 mg/kg
LC50/inhalation/4h/rat	> 17,6 mg/l/4h
Nickel (7440-02-0)	
LD50/oral/rat	> 9000 mg/kg
LD50 oral	> 9000 mg/kg
LC50/inhalation/4h/rat	> 10,2 mg/l (Exposure time: 1 h)

Skin corrosion/irritation : Not classified (Article: Not applicable)
pH: Not applicable

Serious eye damage/irritation : Not classified (Article: Not applicable)
pH: Not applicable

Respiratory or skin sensitisation : Not classified (Article: Not applicable)

Germ cell mutagenicity : Not classified (Article: Not applicable)

Carcinogenicity : Not classified (Article: Not applicable)

Reproductive toxicity : Not classified (Article: Not applicable)

STOT-single exposure : Not classified (Article: Not applicable)

STOT-repeated exposure : Not classified (Article: Not applicable)

Aspiration hazard : Not classified (Article: Not applicable)

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Kinematic viscosity	Not applicable

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Other information : Symptoms related to the physical, chemical and toxicological characteristics.
For further information see section 4.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

11.2.2 Other information

Other information : Symptoms related to the physical, chemical and toxicological characteristics, For further information see section 4

SECTION 12: Ecological information

12.1. Toxicity

Environmental properties : According to the criteria of the European classification and labelling system, the substance/the product has not to be labelled as "dangerous for the environment".

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

Graphite (7782-42-5)

LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Danio rerio [semi-static])
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Ethylene carbonate (96-49-1)

LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
-----------------	---

Copper (Cu) (7440-50-8)

LC50 - Fish [1]	0,0068 – 0,0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
-----------------	---

LC50 - Fish [2]	< 0,3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
-----------------	--

EC50 - Crustacea [1]	(Exposure time: 48 h - Species: Daphnia magna [Static])
----------------------	---

EC50 72h - Algae [1]	≤ 0,0535 mg/l (Species: Pseudokirchneriella subcapitata [static])
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EC50 96h - Algae [1]	≤ 0,054 mg/l (Species: Pseudokirchneriella subcapitata [static])
----------------------	--

Carbonate, methyl ethyl (623-53-0)

LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])
-----------------	---

Nickel (7440-02-0)

LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
-----------------	---

LC50 - Fish [2]	1,3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
-----------------	---

EC50 - Crustacea [1]	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
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EC50 - Crustacea [2]	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
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EC50 72h - Algae [1]	(Species: Pseudokirchneriella subcapitata)
EC50 96h - Algae [1]	(Species: Pseudokirchneriella subcapitata [static])

12.2. Persistence and degradability

rechargeable li-ion battery 3.7V ISR18650-2000 2000mAh 7.4Wh	
Persistence and degradability	No additional information available.

12.3. Bioaccumulative potential

rechargeable li-ion battery 3.7V ISR18650-2000 2000mAh 7.4Wh	
Partition coefficient n-octanol/water	Not applicable
Bioaccumulative potential	No additional information available.

12.4. Mobility in soil

rechargeable li-ion battery 3.7V ISR18650-2000 2000mAh 7.4Wh	
Mobility in soil	No data available

12.5. Results of PBT and vPvB assessment

rechargeable li-ion battery 3.7V ISR18650-2000 2000mAh 7.4Wh	
Results of PBT assessment	Not applicable.

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

12.7. Other adverse effects

Other adverse effects : No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods






Product/Packaging disposal recommendations : Avoid release to the environment. Dispose of empty containers and wastes safely. See Section 7 for information on safe handling. Refer to manufacturer/supplier for information on recovery/recycling. Recycling is preferred to disposal or incineration. If recycling is not possible, eliminate in accordance with local valid waste disposal regulations. Handle contaminated packages in the same way as the substance itself. Dispose of contaminated materials in accordance with current regulations.

Additional information : Do not puncture or incinerate.
European waste catalogue (2001/573/EC, 75/442/EEC, 91/689/EEC) : Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities

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SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3480	3480	3480	3480	3480
14.2. UN proper shipping name				
LITHIUM ION BATTERIES	LITHIUM ION BATTERIES	Lithium ion batteries	LITHIUM ION BATTERIES	LITHIUM ION BATTERIES
Transport document description				
UN 3480 LITHIUM ION BATTERIES, 9A, (E)	UN 3480 LITHIUM ION BATTERIES, 9	UN 3480 Lithium ion batteries, 9A	UN 3480 LITHIUM ION BATTERIES, 9A	UN 3480 LITHIUM ION BATTERIES, 9A
14.3. Transport hazard class(es)				
9A	9	9A	9A	9A
				
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
Not applicable				

14.6. Special precautions for user

Special precautions for user : No data available

- Overland transport

Classification code (ADR) : M4
 Special provisions : 188, 230, 310, 348, 376, 377, 387, 636
 Limited quantities (ADR) : 0
 Excepted quantities (ADR) : E0
 Packing instructions (ADR) : P903, P908, P909, P910, P911, LP903, LP904, LP905, LP906
 Transport category (ADR) : 2
 Tunnel restriction code : E
 EAC code : 2Y

- Transport by sea

Special provisions (IMDG) : 188, 230, 310, 348, 376, 377, 384, 387
 Limited quantities (IMDG) : 0
 Excepted quantities (IMDG) : E0
 Packing instructions (IMDG) : P903, P908, P909, P910, P911, LP903, LP904, LP905, LP906
 EmS-No. (Fire) : F-A
 EmS-No. (Spillage) : S-I
 Stowage category (IMDG) : A
 Stowage and handling (IMDG) : SW19

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Properties and observations (IMDG) : Electrical batteries containing lithium ion encased in a rigid metallic body. Lithium ion batteries may also be shipped in, or packed with, equipment. Electrical lithium batteries may cause fire due to an explosive rupture of the body caused by improper construction or reaction with contaminants.

- Air transport

PCA Excepted quantities (IATA) : E0
 PCA Limited quantities (IATA) : Forbidden
 PCA limited quantity max net quantity (IATA) : Forbidden
 PCA packing instructions (IATA) : Forbidden
 PCA max net quantity (IATA) : Forbidden
 CAO packing instructions (IATA) : See 965
 CAO max net quantity (IATA) : See 965
 Special provisions (IATA) : A88, A99, A154, A164, A183, A201, A206, A213, A331, A334, A802
 ERG code (IATA) : 12FZ

- Inland waterway transport

Classification code (ADN) : M4
 Special provisions (ADN) : 188, 230, 310, 348, 376, 377, 387, 636
 Limited quantities (ADN) : 0
 Excepted quantities (ADN) : E0
 Equipment required (ADN) : PP
 Number of blue cones/lights (ADN) : 0

- Rail transport

Classification code (RID) : M4
 Special provisions (RID) : 188, 230, 310, 348, _376, 377, 387, 636
 Limited quantities (RID) : 0
 Excepted quantities (RID) : E0
 Packing instructions (RID) : P903, 908, 909, P910, P911, LP903, LP904, LP905, LP906
 Transport category (RID) : 2
 Colis express (express parcels) (RID) : CE2
 Hazard identification number (RID) : 90

14.7. Maritime transport in bulk according to IMO instruments

Code: IBC : No data available.

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no substance on the REACH candidate list

15.1.2. National regulations

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France

No ICPE	Installations classées Désignation de la rubrique	Code Régime	Rayon
na	Not Applicable	na	na

Germany

Regulatory reference	: WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1)
WGK remark	: Electrolyte
Hazardous Incident Ordinance (12. BImSchV)	: Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

Waterbezwaarlijkheid	: Not determined
SZW-lijst van kankerverwekkende stoffen	: None of the components are listed
SZW-lijst van mutagene stoffen	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	: None of the components are listed

Denmark

Recommendations Danish Regulation	: Young people below the age of 18 years are not allowed to use the product Pregnant/breastfeeding women working with the product must not be in direct contact with the product
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15.2. Chemical safety assessment

Not applicable

For the following substances of this mixture a chemical safety assessment has been carried out
Aluminium

SECTION 16: Other information

Abbreviations and acronyms:

	ABM = Algemene beoordelingsmethodiek
	ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin
	ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
	CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC
	IATA = International Air Transport Association
	IMDG = International Maritime Dangerous Goods Code
	LEL = Lower Explosive Limit/Lower Explosion Limit
	UEL = Upper Explosion Limit/Upper Explosive Limit
	REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
	BTT = Breakthrough time (maximum wearing time)
	DMEL = Derived Minimal Effect level
	DNEL = Derived No Effect Level
	EC50 = Median Effective Concentration

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	EL50 = Median effective level
	ErC50 = EC50 in terms of reduction of growth rate
	ErL50 = EL50 in terms of reduction of growth rate
	EWC = European waste catalogue
	LC50 = Median lethal concentration
	LD50 = Median lethal dose
	LL50 = Median lethal level
	NA = Not applicable
	NOEC = No observed effect concentration
	NOEL: no-observed-effect level
	NOELR = No observed effect loading rate
	NOAEC = No observed adverse effect concentration
	NOAEL = No observed adverse effect level
	N.O.S. = Not Otherwise Specified
	OEL = Occupational Exposure Limits - Short Term Exposure Limits (STELs)
	PNEC = Predicted No Effect Concentration
	Quantitative structure-activity relationship (QSAR)
	STOT = Specific Target Organ Toxicity
	TWA = time weighted average
	VOC = Volatile organic compounds
	WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

Sources of key data used to compile the : ECHA (European Chemicals Agency). LOLI. Supplier sds. datasheet

Training advice : Training staff on good practice.

Full text of H- and EUH-statements:

Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Carc. 1A	Carcinogenicity, Category 1A
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H350	May cause cancer.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Sens. 1	Skin sensitisation, Category 1

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STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Labelling according to Regulation (EC) No. 1272/2008 [CLP]

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