Ultra2

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 11/29/2021 Version: 1.0

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

1.1. Product identifier

Product form : Article
Product name : Ultra2
Product code : 6062100
Product group : Trade product
Other means of identification : The Ultra2 is a LED rechargeable working light equipped with a battery consisting of max. 16 pcs of KOKAM-made Lithium Polymer cells.
Each cell is 11,8Wh, weight 84g.

The Ultra comes as:
- Ultra2-8h with a battery of 16 LiPo cells of total 189Wh
  Battery weight approx. 1,3 kg.
- Ultra2-4h with a battery of 8 LiPo cells of total 94,5Wh
  Battery weight approx. 0,65 kg.
- Ultra2-2h with a battery of 4 LiPo cells of total 47,3Wh
  Battery weight approx. 0,33 kg.

The batteries are an inseparable part of the lamp and well contained.
The batteries may not be removed by non-authorised personnel.

Battery cell type: KOKAM Superior Lithium Polymer Battery (SLPB) of the SLPB Series.

Manufacturer of the battery cells:
Kokam Co., Ltd
Head office : 3078, Gyeongsu-daero 1220beon-gil, Jangan-gu, Suwon-si, Gyeonggi-Do, South Korea 440-851
Factory : 19, Gayagongdan-gil, Gayagok-myeon, Nonsan-si, Chungcheongnam-do, South Korea 320-844

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

1.2.1. Relevant identified uses

Main use category : Professional use,Industrial use
Use of the substance/mixture : Atex approved rechargeable LED work light, Model Ultra2 with Kokam SLPB batteries
Use of the substance/mixture : These batteries are not 'substances' or 'mixtures' according to Regulation (EC) No 1907/2006 EC. In contrast, they have to be regarded as being 'articles', the release of substances is not intended during handling. Therefore, according to Regulation (EC) 1907/2006, Article 31, there is no obligation to supply a “safety data sheet"
This Safety Data Sheet is provided as a service to our customers. The details presented are in accordance with our present knowledge and experiences. They are no contractual assurances of product attributes

Title	Life cycle stage	Use descriptors
Ultra2	Industrial, Professional	SU0, AC2, AC3

Full text of use descriptors: see section 16

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Distributor
Atexindustries BV
Kerkstraat 17
4285 BA Woudrichem
The Netherlands

Manufacturer
Artidor Explosionsafety B.V.
Emopad 38
5663 PB Geldrop
The Netherlands
T +31 (0)40-7873911

T +31 (0)183-309333
info@atexindustries.com - www.atexindustries.com

1.4. Emergency telephone number

No additional information available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Not classified

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Class Name: Not applicable for regulated class. An object does not need conform to the mandatory labeling requirements for hazardous substances.
No labelling applicable

2.3. Other hazards

Other hazards which do not result in classification : The rechargeable Li-ion battery cells described in this Safety Data Sheet are sealed units which are not hazardous when used according to the manufacturer's recommendations. The product should not be disassembled. Do not short circuit, puncture, incinerate, crush, immerse in water, or expose to temperatures outside the temperature range stipulated by the manufacturer for the product. If this occurs, electrolyte leakage, or battery vent/explosion/fire may also occur depending on the circumstances. Risk of exposure only occurs if the battery cell is mechanically, thermally, or electrically abused and the enclosure is compromised. If this occurs, exposure to electrolyte solutions contained in the battery cell may occur by inhalation, eye contact, skin contact, or ingestion. Contact between the battery and eye will not cause any harm. Eye contact with the contents of a ruptured battery can cause severe irritation to the eye. Contact between the battery and skin will not cause any harm. Skin contact with a ruptured battery can cause skin irritation. Inhalation of material from a sealed battery is not expected to be a route of exposure. Vapours or mists from a ruptured battery may cause respiratory irritation.

Component	
ethylene carbonate (96-49-1)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Graphite (7782-42-5)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Comments : The batteries described in this Safety Data Sheet are sealed units which are not hazardous when used according to the Manufacturer's recommendations.
Under normal conditions of use, the solid electrode materials and liquid electrolyte in this batteries are non-reactive provided battery integrity is maintained and its seals remain intact
Risk of exposure only occurs in case of abuse (mechanical, thermal, electrical) leading to activation of safety valves and/or rupture of the battery containers.
Electrolyte leakage, electrode materials reacting with moisture/water, or battery vent/explosion/fire may follow depending on the circumstances.
Ingredients:
Electrolytes, Active material – positive electrode, Metal parts, Binder

Name	Product identifier	% w/w (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Cobalt lithium manganese nickel oxide	CAS-No.: 182442-95-1 EC-No.: 695-690-9	20 – 30	Acute Tox. 2 (Inhalation), H330 Carc. 1B, H350 STOT RE 1, H372 Aquatic Chronic 3, H412
ethylene carbonate	CAS-No.: 96-49-1 EC-No.: 202-510-0 REACH-no: 01-2119540523-46	10 – 20	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 STOT RE 2, H373
Graphite	CAS-No.: 7782-42-5 EC-No.: 231-955-3 REACH-no: 01-2119486977-12	10 – 20	Not classified
Aluminium	CAS-No.: 7429-90-5 EC-No.: 231-072-3 REACH-no: 01-2119529243-45	10 – 20	Not classified
copper; copper, granulated	CAS-No.: 7440-50-8 EC-No.: 231-159-6 REACH-no: 01-2119480154-42	10 – 20	Not classified
Poly(vinylidene fluoride)	CAS-No.: 24937-79-9 EC-No.: 607-458-6	5 – 10	Not classified
Al. film cover	-	1 – 5	Not classified

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). The battery contains organic electrolyte. Further actions are required in case of electrolyte leakage from the battery.

First-aid measures after inhalation : Allow affected person to breathe fresh air. Allow the victim to rest. In all cases of doubt, or when symptoms persist, seek medical attention.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

No additional information available

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

Treat symptomatically. Effects of exposure (inhalation, ingestion, or skin contact) to substance might be delayed.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media : Use of heavy stream of water may spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : In case of fire, corrosive gases come free.
Reactivity in case of fire : Exposing battery cell to excessive heat, fire, or over voltage condition may cause a leak, fire, hazardous vapors, and hazardous decomposition products. Damaged or opened cells or batteries can result in rapid heating and the release of flammable vapors. Exposure to fire may cause containers to rupture/explode.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite. Keep in suitable, closed containers for disposal.
Other information : Avoid any direct or indirect contact with ingredients released. Keep away from any flames or sparking source.

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

No additional information available

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : The battery must be transported in its original or equivalent packaging. Do not expose the battery to high temperatures or fire. Do not disassemble, short circuit, puncture, incinerate, crush, or puncture the battery. Do not mix new and used batteries. Avoid deep discharge of the battery. Follow the manufacturer's recommendations regarding maximum recommended currents and operating temperature range.

Storage conditions : When battery is to be disposed of, isolate the battery's positive (+) and negative (-) terminals to avoid these terminals from touching each other. Store in a well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect material from direct sunlight. Elevated temperatures can result in reduced battery life.

7.3. Specific end use(s)

Follow advice on use, storage, maintenance and replacement. Observe instructions for use.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

copper; copper, granulated (7440-50-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Copper
IOEL TWA	0.01 mg/m³ (respirable fraction)
Remark	(Year of adoption 2014)
Regulatory reference	SCOEL Recommendations
United Kingdom - Occupational Exposure Limits	
Local name	Copper
WEL TWA (OEL TWA) [1]	1 mg/m³ and compounds, dusts and mists (as Cu) 0.2 mg/m³ fume (as Cu)
WEL STEL (OEL STEL)	2 mg/m³ and compounds, dusts and mists (as Cu)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

Graphite (7782-42-5)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	10 mg/m³ (inhalable aerosol) 4 mg/m³ (respirable aerosol)

Aluminium (7429-90-5)	
United Kingdom - Occupational Exposure Limits	
Local name	Aluminium
WEL TWA (OEL TWA) [1]	2 mg/m³ alkyl compounds 2 mg/m³ salts, soluble 10 mg/m³ metal, inhalable dust 4 mg/m³ metal, respirable dust
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

copper; copper, granulated (7440-50-8)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	273 mg/kg bodyweight/day
Acute - systemic effects, inhalation	20 mg/m³
Acute - local effects, inhalation	1 mg/m³
Long-term - systemic effects, dermal	137 mg/kg bodyweight/day
Long-term - local effects, inhalation	1 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	273 mg/kg bodyweight/day
Acute - systemic effects, inhalation	20 mg/m³
Acute - local effects, inhalation	1 mg/m³
Long-term - systemic effects,oral	41 µg/kg dw
Long-term - systemic effects, dermal	137 mg/kg bodyweight/day
Long-term - local effects, inhalation	1 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	7.8 µg/l
PNEC aqua (marine water)	5.2 µg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	87 mg/kg dwt
PNEC sediment (marine water)	676 mg/kg dwt
PNEC (Soil)	
PNEC soil	65 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	230 µg/l

Graphite (7782-42-5)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	170 µg/m³
Long-term - systemic effects, inhalation	1.2 mg/m³
Long-term - local effects, inhalation	28 µg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	813 mg/kg bodyweight/day
Long-term - local effects, inhalation	300 µg/m³
PNEC (Water)	
PNEC aqua (freshwater)	780 µg/l
PNEC aqua (marine water)	78 µg/l
PNEC (STP)	
PNEC sewage treatment plant	50 mg/l

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:
IN CASE ELECTROLYTE IS LEAKED FROM BATTERY: Handle only at a place with local exhaust system (or another appropriate exhaust). Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use explosion-proof equipment.

8.2.2. Personal protection equipment

8.2.2.1. Eye and face protection

Eye protection:
Not required for normal conditions of use. Personal precautions in case of spillage or leakage: Wear eye glasses with side protection according to EN 166.

8.2.2.2. Skin protection

Skin and body protection:
Not required for normal conditions of use. Personal precautions in case of spillage or leakage: Rubber Apron

Hand protection:
Not required for normal conditions of use. Personal precautions in case of spillage or leakage: Wear suitable gloves tested to EN374. Suitable material: Viton. Layer thickness : 0.7 mm. Breakthrough time : refer to the recommendations of the supplier. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. Gloves must be replaced after each use and whenever signs of wear or perforation appear

8.2.2.3. Respiratory protection

Respiratory protection:
Not required for normal conditions of use. Personal precautions in case of spillage or leakage: Self-contained breathing apparatus. EN 14387

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Other information:
Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Colour	:	Grey.
Appearance	:	Battery-powered equipment.
Odour	:	Not available
Odour threshold	:	Not available
Melting point	:	Not available
Freezing point	:	Not available
Boiling point	:	Not available
Flammability	:	Not available
Explosive limits	:	Not applicable
Lower explosive limit (LEL)	:	Not applicable
Upper explosive limit (UEL)	:	Not applicable
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	Not available
pH	:	Not available
pH solution	:	Not available
Viscosity, kinematic	:	Not applicable

Solubility	:	Not available
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50 °C	:	Not available
Density	:	Not available
Relative density	:	Not available
Relative vapour density at 20 °C	:	Not applicable
Particle size	:	Not available
Particle size distribution	:	Not available
Particle shape	:	Not available
Particle aspect ratio	:	Not available
Particle aggregation state	:	Not available
Particle agglomeration state	:	Not available
Particle specific surface area	:	Not available
Particle dustiness	:	Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable in use and storage conditions as recommended in item 7.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Do not pierce or burn, even after use.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

The following substance may appaer in case of fire or leakage: organice carbonate, hydrogen fluoride, carbon monoxide, carbon dioxide, phosphorus fluoride.

SECTION 11: Toxicological information

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

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

copper; copper, granulated (7440-50-8)	
LD50 oral rat	300 – 2500 mg/kg
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: EPA OTS 798.1100 (Acute Dermal Toxicity), Guideline: other:MAFF 4200 (1985)

copper; copper, granulated (7440-50-8)	
LC50 Inhalation - Rat	> 5.11 mg/l air Animal: rat, Guideline: OECD Guideline 436 (Acute Inhalation Toxicity: Acute Toxic Class Method)

Graphite (7782-42-5)	
LD50 oral rat	2000 mg/kg
LD50 dermal rat	2000 mg/kg
LC50 Inhalation - Rat	2 mg/l (4h)

Aluminium (7429-90-5)	
LD50 oral rat	> 15900 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LC50 Inhalation - Rat	> 0.888 mg/l air Animal: rat, Animal sex: male, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)

ethylene carbonate (96-49-1)	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), Guideline: other:EPA FR, vol.50,No.188,1985
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified

Aluminium (7429-90-5)	
NOAEL (animal/male, F0/P)	1000 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

STOT-single exposure : Not classified

copper; copper, granulated (7440-50-8)	
LOAEL (oral, rat)	2000 ppm
NOAEL (oral, rat)	1000 ppm

STOT-repeated exposure : Not classified

Graphite (7782-42-5)	
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.000279 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)

Cobalt lithium manganese nickel oxide (182442-95-1)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aluminium (7429-90-5)	
LOAEC (inhalation, rat,dust/mist/fume, 90 days)	0.05 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
NOAEL (subchronic, oral, animal/male, 90 days)	1034 mg/kg bodyweight Animal: dog, Animal sex: male, Guideline: OECD Guideline 409 (Repeated Dose 90-Day Oral Toxicity Study in Non-Rodents)
NOAEL (subchronic, oral, animal/female, 90 days)	1087 mg/kg bodyweight Animal: dog, Animal sex: female, Guideline: OECD Guideline 409 (Repeated Dose 90-Day Oral Toxicity Study in Non-Rodents)

ethylene carbonate (96-49-1)	
NOAEL (oral, rat, 90 days)	150 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 452 (Chronic Toxicity Studies)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

No additional information available

11.2.2. Other information

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met

Other information : The rechargeable Li-ion battery cells described in this Safety Data Sheet are sealed units which are not hazardous when used according to the manufacturer's recommendations,Risk of exposure only occurs if the battery cell is mechanically, thermally, or electrically abused and the enclosure is compromised. If this occurs, exposure to electrolyte solutions contained in the battery cell may occur by inhalation, eye contact, skin contact, or ingestion.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Ecological problems are not known or expected under normal use. In case of leakage battery: . Not in groundwater, surfacewater or sewerage.

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

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

copper; copper, granulated (7440-50-8)	
LC50 - Fish [1]	2.8 – 9150 µg/l
EC50 - Crustacea [1]	1 – 1213 µg/l
EC50 72h - Algae [1]	16.5 – 987 µg/L
EC50 96h - Algae [1]	0.047 mg/l
NOEC chronic fish	0.066 mg/l 9 months
NOEC chronic crustacea	9.9 µg/l 46 days

Graphite (7782-42-5)	
LC50 - Fish [1]	100 mg/l
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	19 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	7.2 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
NOEC (chronic)	47 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

Aluminium (7429-90-5)	
LC50 - Fish [1]	78 – 218644.1 µg/l
EC50 - Crustacea [1]	1.5 – 2.56 mg/l
EC50 72h - Algae [1]	1.05 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

Aluminium (7429-90-5)	
EC50 72h - Algae [2]	0.2 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

ethylene carbonate (96-49-1)	
LC50 - Fish [1]	> 100 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, Lethal)
EC50 72h - Algae [1]	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth rate)

12.2. Persistence and degradability

Ultra2	
Persistence and degradability	Not established.

Graphite (7782-42-5)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

ethylene carbonate (96-49-1)	
Persistence and degradability	Readily biodegradable in water.

12.3. Bioaccumulative potential

Ultra2	
Bioaccumulative potential	Not established.

Graphite (7782-42-5)	
Bioaccumulative potential	Not bioaccumulative.

ethylene carbonate (96-49-1)	
Partition coefficient n-octanol/water (Log Pow)	0.11 (Practical experience/observation, EU Method A.8: Partition Coefficient, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

12.4. Mobility in soil

ethylene carbonate (96-49-1)	
Surface tension	No data available in the literature
Ecology - soil	Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

Component	
ethylene carbonate (96-49-1)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Graphite (7782-42-5)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Waste disposal according to official state regulations.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Additional information : Return to manufacturer. Discarded cells should not be treated as ordinary trash. Recycling is recommended and is required by law in many jurisdictions. Do not incinerate. Leaking or damaged cells should be treated as chemical waste. . When battery is to be disposed of, isolate the battery's positive (+) and negative (-) terminals to avoid these terminals from touching each other. Batteries may be short-circuited when piled up or mixed with the other batteries disordinately. Dispose of in accordance with applicable federal, state, and local regulations.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

ADR	IMDG	IATA
14.1. UN number or ID number		
UN 3481	UN 3481	UN 3481
14.2. UN proper shipping name		
LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT	Lithium ion batteries contained in equipment
Transport document description		
UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, 9A, (E)	UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, 9	UN 3481 Lithium ion batteries contained in equipment,
14.3. Transport hazard class(es)		
9A	9	9A
		
14.4. Packing group		
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
No supplementary information available		

14.6. Special precautions for user

Special transport precautions : Any person preparing or offering cells or batteries for transport must receive appropriate instruction on these requirements commensurate with their responsibilities.

Overland transport
Classification code (ADR) : M4
Special provisions (ADR) : 188, 230, 310, 348, 360, 376, 377, 387, 390, 670

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 (ADR)	:	E
EAC code	:	2Y

Transport by sea

Special provisions (IMDG)	:	188, 230, 310, 348, 360, 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
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.
MFAG-No	:	154

Air transport

PCA Excepted quantities (IATA)	:	E0
PCA Limited quantities (IATA)	:	Forbidden
PCA limited quantity max net quantity (IATA)	:	Forbidden
PCA packing instructions (IATA)	:	967
PCA max net quantity (IATA)	:	5kg
CAO packing instructions (IATA)	:	967
CAO max net quantity (IATA)	:	35kg
Special provisions (IATA)	:	A48, A88, A99, A154, A164, A181, A185, A206, A213, A220
ERG code (IATA)	:	12FZ

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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
Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.
Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants
Contains no substance subject to Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the substance or the mixture by the supplier

SECTION 16: Other information

Abbreviations and acronyms:	
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
EC50	Median effective concentration
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
STP	Sewage treatment plant
vPvB	Very Persistent and Very Bioaccumulative

Data sources : ECHA (European Chemicals Agency). Manufacturer/Supplier.

Other information : DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

Full text of H- and EUH-statements:	
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Carc. 1B	Carcinogenicity, Category 1B
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2

Full text of use descriptors	
AC2	Machinery, mechanical appliances, electrical/electronic articles
AC3	Electrical batteries and accumulators
SU0	Other

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.