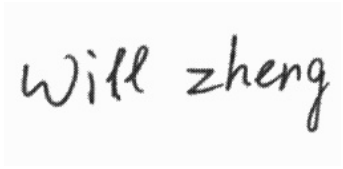
# Safety Data Sheet

(According to Regulation (EC) No. 1907/2006 (REACH)
and its amendment Regulation (EU) 2020/878)

| | |
|---|---|
| **Applicant:** | Rifen International Ltd |
| **Address:** | Unit 601, 6/F, Apec Plaza, 49 Hoi Yuen Road, Kwun Tong, Kowloon, HONG KONG |
| **Sample Description:** | Polymer li-ion battery |
| **Model No.:** | YD 502030 |

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
TÜV SÜD Group

Prepared by:



Will Zheng
**Project Handler**

Reviewed by:

Mario Ma
**Designated Reviewer**

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

### 1.1. Product identifier

| | | |
|---|---|---|
| Product form | : | Article |
| Trade name | : | Polymer li-ion battery |
| Model No. | : | YD 502030 |

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

#### 1.2.1. Relevant identified uses

| | | |
|---|---|---|
| Use of the substance/mixture | : | Power supply |

#### 1.2.2. Uses advised against

| | | |
|---|---|---|
| Restrictions on use | : | No information available |

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

**Supplier**

Rifen International Ltd

Unit 601, 6/F, Apec Plaza, 49 Hoi Yuen Road, Kwun Tong,
Kowloon, HONG KONG
T +(852) 2325 6228
herman@rifen-international.com

### 1.4. Emergency telephone number

| | | |
|---|---|---|
| Emergency number | : | (852) 2325 6228 |

## 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**

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

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

| | | |
|---|---|---|
| Hazard pictograms (CLP) | : | Not applicable |
| Signal word (CLP) | : | Not applicable |
| Hazard statements (CLP) | : | Not applicable |
| Precautionary statements (CLP) | : | Not applicable |
| EUH-statements | : | Not applicable |

### 2.3. Other hazards

| | | |
|---|---|---|
| Other hazards which do not result in classification | : | No information available. |

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
Contains no PBT/vPvB substances 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 at a concentration equal to or greater than 0,1 %

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable.

### 3.2. Mixtures

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---|---|---|---|
| Positive electrode (Cobalt lithium manganese nickel oxide) | CAS-No.: 182442-95-1 | 38.5 | Not classified |
| Negative electrode (Graphite) | CAS-No.: 7782-42-5<br>EC-No.: 231-955-3<br>REACH-no: No information available | 23.1 | Not classified |
| Cell Can (Aluminum) | CAS-No.: 7429-90-5<br>EC-No.: 231-072-3<br>EC Index-No.: 013-002-00-1 | 12.5 | Not classified |
| Phosphate(1-), hexafluoro-, lithium | CAS-No.: 21324-40-3<br>EC-No.: 244-334-7 | 9.8 | Acute Tox. 3 (Oral), H301<br>Skin Corr. 1A, H314<br>Eye Dam. 1, H318<br>STOT RE 1, H372 |
| Separato (Ethene, homopolymer) | CAS-No.: 9002-88-4<br>EC-No.: 618-339-3 | 8.2 | Not classified |
| Negative electrode tab | CAS-No.: / | 4.9 | Not classified |
| electrode tab | CAS-No.: / | 3 | 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 after inhalation : Not an expected route of exposure. Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or a doctor.

First-aid measures after skin contact : Not an expected route of exposure. Wash skin with plenty of water. If skin irritation occurs : Get medical advice/attention.

First-aid measures after eye contact : Not an expected route of exposure. Rinse eyes with water as a precaution. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Not an expected route of exposure. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation : No information available.

### 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 | : | Water spray. Dry powder. Foam. Carbon dioxide |
| Unsuitable extinguishing media | : | No information available. |

### 5.2. Special hazards arising from the substance or mixture

| | | |
|---|---|---|
| Hazardous decomposition products in case of fire | : | Toxic fumes may be released. |

### 5.3. Advice for firefighters

| | | |
|---|---|---|
| Firefighting instructions | : | Cool down the containers exposed to heat with a water spray. Do not allow run-off from fire fighting to enter drains or water courses. Eliminate every possible source of ignition. Ensure adequate ventilation, especially in confined areas. Evacuate personnel to a safe area. Avoid contact with skin, eyes and clothing. Move containers away from the fire area if this can be done without risk. Stay upwind. |
| Protection during firefighting | : | Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. |

## SECTION 6: Accidental release measures

#### 6.1.1. For non-emergency personnel

| | | |
|---|---|---|
| Emergency procedures | : | Ventilate spillage area. Only qualified personnel equipped with suitable protective equipment may intervene. |
| Protective equipment | : | Remove all sources of ignition. Avoid contact with eyes, skin and clothing. Wear personal protective equipment |

#### 6.1.2. For emergency responders

| | | |
|---|---|---|
| Emergency procedures | : | Stop leak if safe to do so. Do not touch spilled material. Avoid breathing dust, mist or<br>Spray. Remove all sources of ignition |
| Protective equipment | : | Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection". |

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

| | | |
|---|---|---|
| For containment | : | Collect spillage. |
| Methods for cleaning up | : | Mechanically recover the product. Absorb spillage to prevent material damage. Place in an appropriate container and dispose of the contaminated material at a licensed site. Absorb and/or contain spill with inert material (sand, vermiculite or other appropriate material), then place in suitable container. Collect all waste in suitable and labelled containers and dispose according to local legislation. |
| Other information | : | Dispose of materials or solid residues at an authorized site. |

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Do not open, destroy, or incinerate batteries because the battery may explode, break, or vent during these processes. Do not short-circuit the battery, overcharge, forced discharge or thrown into the fire. Do not squeeze the battery or immerse the battery in the solution. Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a cool, dry, well-ventilated place. Keep away from heat, avoiding the long time of sunlight.

Incompatible materials : No information available.

Packaging materials : No information available.

### 7.3. Specific end use(s)

Apart from the uses mentioned in SECTION 1.2, no other specific uses are stipulated.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

| **Graphite (7782-42-5)** | |
|---|---|
| **Austria - Occupational Exposure Limits** | |
| MAK (OEL TWA) | 5 mg/m³ (alveolar dust with <1% Quartz, respirable fraction) |
| MAK (OEL STEL) | 10 mg/m³ (alveolar dust with <1% Quartz, respirable fraction) |
| **Belgium - Occupational Exposure Limits** | |
| OEL TWA | 2 mg/m³ (except fibers-alveolar fraction) |
| **Bulgaria - Occupational Exposure Limits** | |
| OEL TWA | 5 mg/m³ (inhalable fraction) |
| **Croatia - Occupational Exposure Limits** | |
| GVI (OEL TWA) | 4 mg/m³ (respirable dust)<br>10 mg/m³ (total dust, inhalable particles) |
| **Czech Republic - Occupational Exposure Limits** | |
| PEL (OEL TWA) | 2 mg/m³ (dust) |
| **Denmark - Occupational Exposure Limits** | |
| OEL TWA | 2.5 mg/m³ (natural-respirable) |
| OEL STEL | 5 mg/m³ (natural-respirable) |
| **Estonia - Occupational Exposure Limits** | |
| OEL TWA | 5 mg/m³ (total dust) |

| | |
|---|---|
| **Graphite (7782-42-5)** | |
| **Finland - Occupational Exposure Limits** | |
| HTP (OEL TWA) | 2 mg/m³ |
| **France - Occupational Exposure Limits** | |
| VME (OEL TWA) | 2 mg/m³ (alveolar fraction) |
| **Germany - Occupational Exposure Limits (TRGS 900)** | |
| AGW (OEL TWA) | 1.25 mg/m³ (respirable fraction (dust)<br>10 mg/m³ (inhalable fraction (dust) |
| **Greece - Occupational Exposure Limits** | |
| OEL TWA | 10 mg/m³ (inhalable fraction)<br>5 mg/m³ (respirable fraction) |
| **Hungary - Occupational Exposure Limits** | |
| AK (OEL TWA) | 5 mg/m³ (inhalable concentration (flying and fibrous powders)<br>2 mg/m³ (respirable concentration (flying and fibrous powders) |
| **Ireland - Occupational Exposure Limits** | |
| OEL TWA | 2 mg/m³ (all forms except fibres; respirable fraction) |
| OEL STEL | 6 mg/m³ (calculated-all forms except fibres; respirable fraction) |
| **Latvia - Occupational Exposure Limits** | |
| OEL TWA | 2 mg/m³ (Carbon dust) |
| **Lithuania - Occupational Exposure Limits** | |
| IPRV (OEL TWA) | 5 mg/m³ (dust) |
| **Poland - Occupational Exposure Limits** | |
| NDS (OEL TWA) | 4 mg/m³ (natural-inhalable fraction)<br>1 mg/m³ (natural-respirable fraction)<br>6 mg/m³ (synthetic-inhalable fraction) |
| **Portugal - Occupational Exposure Limits** | |
| OEL TWA | 2 mg/m³ (all forms except Graphite fibers-respirable fraction) |
| **Romania - Occupational Exposure Limits** | |
| OEL TWA | 2 mg/m³ (Quartz <=5%-dust, respirable fraction) |
| **Slovakia - Occupational Exposure Limits** | |
| NPHV (OEL TWA) | 10 mg/m³ (total aerosol)<br>2 mg/m³ (respirable fraction) |
| **Spain - Occupational Exposure Limits** | |
| VLA-ED (OEL TWA) | 2 mg/m³ (see UNE EN 481:1995 on workplace atmospheres-dust; respirable fraction) |
| **United Kingdom - Occupational Exposure Limits** | |
| WEL TWA (OEL TWA) | 10 mg/m³ (inhalable dust)<br>4 mg/m³ (respirable dust) |

| | |
|---|---|
| **Graphite (7782-42-5)** | |
| WEL STEL (OEL STEL) | 30 mg/m³ (calculated-inhalable dust)<br>12 mg/m³ (calculated-respirable dust) |
| **Norway - Occupational Exposure Limits** | |
| Grenseverdi (OEL TWA) | 5 mg/m³ (natural-total dust)<br>2 mg/m³ (natural-respirable dust)<br>10 mg/m³ (synthetic-total dust)<br>4 mg/m³ (synthetic-respirable dust) |
| Korttidsverdi (OEL STEL) | 10 mg/m³ (natural-total dust)<br>4 mg/m³ (natural-respirable dust)<br>20 mg/m³ (synthetic-total dust)<br>8 mg/m³ (synthetic-respirable dust) |
| **Switzerland - Occupational Exposure Limits** | |
| MAK (OEL TWA) | 3 mg/m³ (natural-respirable dust)<br>3 mg/m³ (total dust limit values-respirable fraction)<br>10 mg/m³ (total dust limit values-inhalable fraction) |
| **USA - ACGIH - Occupational Exposure Limits** | |
| ACGIH OEL TWA | 2 mg/m³ (all forms except graphite fibers-respirable particulate matter) |

| | |
|---|---|
| **Ethene, homopolymer (9002-88-4)** | |
| **Bulgaria - Occupational Exposure Limits** | |
| OEL TWA | 10 mg/m³ (dust (Dust from Polyethylene) |
| **Czech Republic - Occupational Exposure Limits** | |
| PEL (OEL TWA) | 5 mg/m³ (dust) |
| **Latvia - Occupational Exposure Limits** | |
| OEL TWA | 5 mg/m³ (dust (Polymers dust) |
| **Lithuania - Occupational Exposure Limits** | |
| IPRV (OEL TWA) | 10 mg/m³ |

| | |
|---|---|
| **Aluminum (7429-90-5)** | |
| **Austria - Occupational Exposure Limits** | |
| MAK (OEL TWA) | 10 mg/m³ (inhalable fraction) |
| MAK (OEL STEL) | 20 mg/m³ (inhalable fraction) |
| **Belgium - Occupational Exposure Limits** | |
| OEL TWA | 1 mg/m³ |
| **Bulgaria - Occupational Exposure Limits** | |
| OEL TWA | 10 mg/m³ (inhalable fraction)<br>1.5 mg/m³ (respirable fraction) |
| **Croatia - Occupational Exposure Limits** | |
| GVI (OEL TWA) | 10 mg/m³ (total dust, inhalable particles)<br>4 mg/m³ (respirable dust) |

| | |
|---|---|
| **Aluminum (7429-90-5)** | |
| **Croatia - Biological limit values** | |
| BLV | 200 µg/l Parameter: Aluminum - Medium: urine - Sampling time: at the end of the work shift |
| **Czech Republic - Occupational Exposure Limits** | |
| PEL (OEL TWA) | 10 mg/m³ (dust) |
| **Denmark - Occupational Exposure Limits** | |
| OEL TWA | 5 mg/m³ (total, dust and powder)<br>2 mg/m³ (respirable, dust and powder) |
| OEL STEL | 10 mg/m³ (total, dust and powder)<br>4 mg/m³ (respirable, dust and powder) |
| **Estonia - Occupational Exposure Limits** | |
| OEL TWA | 10 mg/m³ (total dust)<br>4 mg/m³ (respirable dust) |
| **France - Occupational Exposure Limits** | |
| VME (OEL TWA) | 10 mg/m³ (metal)<br>5 mg/m³ (dust) |
| **Germany - Occupational Exposure Limits (TRGS 900)** | |
| AGW (OEL TWA) | 1.25 mg/m³ (respirable fraction (dust)<br>10 mg/m³ (inhalable fraction (dust) |
| **Germany - Biological limit values (TRGS 903)** | |
| 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 - Occupational Exposure Limits** | |
| OEL TWA | 10 mg/m³ (inhalable fraction)<br>5 mg/m³ (respirable fraction) |
| **Hungary - Occupational Exposure Limits** | |
| AK (OEL TWA) | 1 mg/m³ (respirable fraction) |
| **Ireland - Occupational Exposure Limits** | |
| OEL TWA | 1 mg/m³ (respirable fraction) |
| OEL STEL | 3 mg/m³ (calculated-respirable dust) |
| **Latvia - Occupational Exposure Limits** | |
| OEL TWA | 2 mg/m³ |
| **Lithuania - Occupational Exposure Limits** | |
| IPRV (OEL TWA) | 5 mg/m³ (inhalable fraction)<br>2 mg/m³ (respirable fraction)<br>1 mg/m³ |

| **Aluminum (7429-90-5)** | |
|---|---|
| **Poland - Occupational Exposure Limits** | |
| NDS (OEL TWA) | 2.5 mg/m³ (non-stabilized-inhalable fraction)<br>1.2 mg/m³ (non-stabilized-respirable fraction) |
| **Portugal - Occupational Exposure Limits** | |
| OEL TWA | 1 mg/m³ (metal-respirable fraction) |
| OEL chemical category | A4 - Not Classifiable as a Human Carcinogen |
| **Romania - Occupational Exposure Limits** | |
| OEL TWA | 3 mg/m³ (dust)<br>1 mg/m³ (fume) |
| OEL STEL | 10 mg/m³ (dust)<br>3 mg/m³ (fume) |
| **Romania - Biological limit values** | |
| BLV | 200 µg/l Parameter: Aluminum - Medium: urine - Sampling time: end of shift |
| **Slovakia - Occupational Exposure Limits** | |
| NPHV (OEL TWA) | 4 mg/m³ (inhalable dust)<br>1.5 mg/m³ (respirable dust) |
| **Slovakia - Biological limit values** | |
| BLV | 60 µg/g creatinine Parameter: Aluminum - Medium: urine - Sampling time: not critical |
| **Spain - Occupational Exposure Limits** | |
| VLA-ED (OEL TWA) | 1 mg/m³ (see UNE EN 481:1995 on workplace atmospheres-respirable fraction) |
| **Sweden - Occupational Exposure Limits** | |
| NGV (OEL TWA) | 5 mg/m³ (total dust)<br>2 mg/m³ (respirable fraction) |
| **United Kingdom - Occupational Exposure Limits** | |
| WEL TWA (OEL TWA) | 10 mg/m³ (inhalable dust)<br>4 mg/m³ (respirable dust) |
| WEL STEL (OEL STEL) | 30 mg/m³ (calculated-inhalable dust)<br>12 mg/m³ (calculated-respirable dust) |
| **Norway - Occupational Exposure Limits** | |
| Grenseverdi (OEL TWA) | 5 mg/m³ (pyrotechnical-powder) |
| Korttidsverdi (OEL STEL) | 10 mg/m³ (pyrotechnical-powder) |
| **Switzerland - Occupational Exposure Limits** | |
| MAK (OEL TWA) | 3 mg/m³ (respirable dust)<br>3 mg/m³ (total dust limit values-respirable fraction)<br>10 mg/m³ (total dust limit values-inhalable fraction) |

| **Aluminum (7429-90-5)** | |
|---|---|
| **Switzerland - BAT** | |
| BAT | 50 µg/g creatinine Parameter: Aluminum - Medium: urine - Sampling time: after several shifts (for long-term exposures) (metal)<br>Parameter: Aluminum - Medium: urine - Sampling time: after several shifts (for long-term exposures) (metal) |
| **USA - ACGIH - Occupational Exposure Limits** | |
| ACGIH OEL TWA | 1 mg/m³ (respirable particulate matter) |
| ACGIH chemical category | Not Classifiable as a Human Carcinogen |

#### 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

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

**Appropriate engineering controls:**
Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

#### 8.2.2.1. Eye and face protection

**Eye protection:**
Safety glasses

#### 8.2.2.2. Skin protection

**Skin and body protection:**
Wear suitable protective clothing

**Hand protection:**
Protective gloves

#### 8.2.2.3. Respiratory protection

**Respiratory protection:**
In case of insufficient ventilation, wear suitable respiratory equipment

#### 8.2.2.4. Thermal hazards

No additional information available

#### 8.2.3. Environmental exposure controls

**Environmental exposure controls:**
Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Solid |
| Colour | : | Not available |
| Appearance | : | Not available |
| Odour | : | Not available |
| Odour threshold | : | Not available |
| Melting point | : | Not available |
| Freezing point | : | Not available |
| Boiling point | : | Not available |
| Flammability | : | Non flammable. |
| Lower explosion limit | : | Not available |
| Upper explosion limit | : | Not available |
| Flash point | : | Not available |
| Auto-ignition temperature | : | Not available |
| Decomposition temperature | : | Not available |
| pH | : | Not available |
| pH solution | : | Not available |
| Viscosity, kinematic | : | Not available |
| 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 available |
| Particle size | : | 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

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 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

| **Ethene, homopolymer (9002-88-4)** | |
|---|---|
| LD50 oral rat | > 8 g/kg (Source: NLM_HSDB) |

| **Phosphate(1-), hexafluoro-, lithium (21324-40-3)** | |
|---|---|
| LD50 oral rat | 50 – 300 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Guideline: EU Method B.1 tris (Acute Oral Toxicity - Acute Toxic Class Method), Guideline: EPA OPPTS 870.1100 (Acute Oral Toxicity) |

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
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

### 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 at a concentration equal to or greater than 0,1 %

#### 11.2.2. Other information

Other information : No information available

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in 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 Test organisms (species): Danio rerio (previous name: Brachydanio rerio) |
| EC50 - Crustacea [1] | > 100 mg/l Test organisms (species): Daphnia magna |

| **Graphite (7782-42-5)** | |
|---|---|
| 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' |

| **Phosphate(1-), hexafluoro-, lithium (21324-40-3)** | |
|---|---|
| EC50 96h - Algae [1] | > 100 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) |
| NOEC chronic fish | 4 mg/l Test organisms (species):  Duration: '21 d' |

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

| **Polymer li-ion battery** |
|---|
| 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

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 at a concentration equal to or greater than 0,1 %.

### 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Contaminated packaging : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Additional information : No additional information available

## SECTION 14: Transport information

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

| ADR | IMDG | IATA | ADN | RID |
|---|---|---|---|---|
| **14.1. UN number or ID number** | | | | |
| UN 3481 | UN 3481 | 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 | LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT | LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT |
| **Transport document description** | | | | |
| UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, 9, (E) | UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, 9 | UN 3481 Lithium ion batteries contained in equipment, 9 | UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, 9 | UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, 9 |
| **14.3. Transport hazard class(es)** | | | | |
| 9 | 9 | 9 | 9 | 9 |
|  |  |  |  |  |
| **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<br>Marine pollutant: No | Dangerous for the environment: No | Dangerous for the environment: No | Dangerous for the environment: No |
| No supplementary information available | | | | |

### 14.6. Special precautions for user

**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, 390
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. |

**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, A213, A220 |
| ERG code (IATA) | : | 12FZ |

**Inland waterway transport**

| | | |
|---|---|---|
| Classification code (ADN) | : | M4 |
| Special provisions (ADN) | : | 188, 230, 310, 348, 360, 376, 377, 387, 390, 670 |
| 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, 360, _376, 377, 387, 390, 670 |
| 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

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

**REACH Candidate List (SVHC)**

Contains no substance(s) listed on the REACH Candidate List

**PIC Regulation (Prior Informed Consent)**

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

**POP Regulation (Persistent Organic Pollutants)**

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

**Ozone Regulation (1005/2009)**

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

**Dual-Use Regulation (428/2009)**

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

**Explosives Precursors Regulation (2019/1148)**

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

**Drug Precursors Regulation (273/2004)**

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

| **Abbreviations and acronyms:** | |
|---|---|
| ADN | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR | Agreement concerning the International Carriage of Dangerous Goods by Road |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| BLV | Biological limit value |
| BOD | Biochemical oxygen demand (BOD) |
| COD | Chemical oxygen demand (COD) |
| DMEL | Derived Minimal Effect level |
| DNEL | Derived-No Effect Level |
| EC-No. | European Community number |
| EC50 | Median effective concentration |
| EN | European Standard |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| LC50 | Median lethal concentration |
| LD50 | Median lethal dose |
| LOAEL | Lowest Observed Adverse Effect Level |
| NOAEC | No-Observed Adverse Effect Concentration |
| NOAEL | No-Observed Adverse Effect Level |
| NOEC | No-Observed Effect Concentration |
| OECD | Organisation for Economic Co-operation and Development |
| OEL | Occupational Exposure Limit |

| **Abbreviations and acronyms:** | |
|---|---|
| PBT | Persistent Bioaccumulative Toxic |
| PNEC | Predicted No-Effect Concentration |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS | Safety Data Sheet |
| STP | Sewage treatment plant |
| ThOD | Theoretical oxygen demand (ThOD) |
| TLM | Median Tolerance Limit |
| VOC | Volatile Organic Compounds |
| CAS-No. | Chemical Abstract Service number |
| N.O.S. | Not Otherwise Specified |
| vPvB | Very Persistent and Very Bioaccumulative |
| ED | Endocrine disrupting properties |

Data sources : LOLI. ECHA reference.
Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.
Other information : No information available.

| **Full text of H- and EUH-statements:** | |
|---|---|
| H301 | Toxic if swallowed. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |

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.

**---------End of Report---------**