

Product Safety Datasheet

Li-ion Batteries 18650

01. Identification of the substance/mixture and of the company/undertaking

Product identifier

Trade Name: Suprabeam Li-ion 18650

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

Article category: AC3 Electrical batteries and accumulators

Application of the substance / the preparation: Rechargeable Lithium Ion battery

Details of the supplier of the safety datasheet

Manufacturer/Supplier

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02. Hazards identification

Classification of the substance or mixture

This product is an article which contains a chemical substance. Safety information is given for exposure to the article when sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture, the following hazards exist:

CAS# 7429-90-5

Classification according to GHS

Specific target organ toxicity - repeated exposure (1) (Lung)

Hazardous to the aquatic environment, long-term hazard (4)

Label elements

Hazard pictograms(s):



Signal word: Danger

Hazard statement(s)

H372 Causes damage to organs through prolonged or repeated exposure (Lung)

H413 May cause long lasting harmful effects to aquatic life

Precautionary statement(s)

Prevention

P260 Do not breathe dust
P264 Wash skin and clothing thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P273 Avoid release to the environment

Response

P314 Get medical attention if feeling unwell

Storage

None

Disposal

P501 Dispose of contents to local/regional/international regulations

CAS# 7440-50-8

Classification according to GHS

Specific target organ toxicity - single exposure; Respiratory tract irritation (3)
Specific target organ toxicity - repeated exposure (1) (Liver)
Hazardous to the aquatic environment, long-term hazard (3)

Label elements

Hazard pictograms(s):



Signal word: Danger

Hazard statement(s)

H335 May cause respiratory irritation
H372 Causes damage to organs through prolonged or repeated exposure (liver)
H412 Harmful to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P260 Do not breathe dust
P264 Wash skin and clothing thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P271 Use only outdoors or in a well-ventilated area
P273 Avoid release to the environment

Response

P304 + P340 If inhaled: Move person to fresh air and keep comfortable for breathing
P312 Call a POISON CENTER or doctor if feeling unwell

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed

Disposal

P501 Dispose of contents to local/regional/international regulations

CAS# 7440-02-0

Classification according to GHS

Sensitization, respiratory (1, 1A, 1B)
Sensitization, skin (1, 1A, 1B)
Carcinogenicity (2)

Specific target organ toxicity - repeated exposure (1) (Respiratory system)

Hazardous to the aquatic environment, long-term hazard (4)

Label elements

Hazard pictograms(s):



Signal word: Danger

Hazard statement(s)

H317 May cause an allergic skin reaction

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

H351 Suspected of causing cancer

H372 Causes damage to organs through prolonged or repeated exposure (Respiratory system)

H413 May cause long lasting harmful to aquatic life

Precautionary statement(s)

Prevention

P201 Obtain special instructions before use

P202 Do not handle until safety precautions have been read and understood

P260 Do not breathe dust

P264 Wash skin and clothing thoroughly after handling

P284 [In case of inadequate ventilation] wear respiratory protection

P270 Do not eat, drink or smoke when using this product

P272 Contaminated work clothing should not be allowed out of the workplace

P273 Avoid release to the environment

P280 Wear protective gloves, protective clothing, eye protection, face protection

Response

P304 + P340 If inhaled: Move person to fresh air and keep comfortable for breathing

P342 + P311 If experiencing respiratory symptoms, call a POISON CENTER or doctor

P302 + P352 Following skin contact, wash with copious amounts of water

P333 + P313 If skin irritation or rash occurs, seek medical attention

P321 Specific treatment

P362 + P364 Take off contaminated clothing and wash it before reuse

P308 + P313 If exposed, seek medical attention

P308 + P311 If exposed, call a POISON CENTER or doctor

P314 Get medical attention if feeling unwell

Storage

P405 Store locked up

Disposal

P501 Dispose of contents to local/regional/international regulations.

Other hazards

This product is safe with normal use. Exposure to the ingredients contained within and/or their combustion products could be harmful. Risk of exposure occurs only if the battery is mechanically, thermally, or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact, and skin contact. The battery should not be opened or burned.

Electrolyte and lithium metal are flammable. In case of electrolyte leakage, remove the battery from fire immediately.

Risk of explosion by fire if batteries are disposed in fire or heated above 100°C

Stacking or jumbling batteries may cause external short circuits, leakage, heat generation, fire or explosion.

It may cause heat generation or electrolyte leakage if battery terminals contact with other metals.
Vapour generated from burning batteries may irritate eyes, skin and throat.

03. Composition / Information on Ingredients

Chemical characterization: Mixture

Chemical Composition	CAS No.	EC#	Weight (%)
Aluminium	7429-90-5	231-072-3	2-10
Copper	7440-50-8	231-159-6	5-10
Nickel	7440-02-0	231-111-4	0.5-5
Cobaltate, lithium	12190-79-3	235-362-0	25-50
Graphite	7782-42-5	231-955-3	20-30
Organic Solvents (proprietary)	-	-	10-20
Polyvinylidene fluoride resin	24937-79-9	604-458-6	0-5

04. First Aid Measures

Description of first aid measures

General information

No special measures required

Following eye contact

Immediately flush the contaminated eye(s) with copious amounts of water for several minutes while holding the eyelids open. If irritation or pain persists, seek medical attention.

Following skin contact

Immediately remove contaminated clothing and shoes, and flush skin thoroughly with soap or mild detergent and copious amounts of water. Wash clothing and shoes before reuse. If irritation or pain persists, seek medical attention.

Following inhalation

Move victim immediately to fresh air. If breathing is difficult, give artificial respiration and seek medical attention.

Following ingestion

If the exposed individual is unconscious or rapidly losing consciousness, do not give anything by mouth. If the exposed individual is conscious, wash out mouth with water. In all cases, do not induce vomiting. Seek medical attention quickly.

Personal protective equipment for first-aid responders

No further relevant information provided.

Most important symptoms/effects, acute and delayed

No further relevant information provided.

Indication of immediate medical attention and special treatment needed

No further relevant information provided.

05. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media

Use extinguishing agent suitable for the local conditions and the surrounding environment, such as dry powder, CO₂ or foam.

For large fires, use water jet. Move containers from fire area if it can be done without risk.

Unsuitable extinguishing media

Water jet.

Special hazards arising from the substance or mixture

The interaction of water or water vapour with electrolyte may result in the generation of hydrogen and hydrogen fluoride (HF) gas.

Contact with battery electrolyte may be irritating to the skin, eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Fumes may cause dizziness or suffocation.

Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperatures (>150°C / 302°F), when damaged or abused (e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect, or may ignite other batteries in close proximity.

Specific protective actions for fire fighters

Large lithium battery fires should only be extinguished by properly equipped fire fighters with training specific to lithium ion battery fires.

Protective equipment: Wear self-contained breathing apparatus (SCBA) and protective clothing when fighting chemical fires.

06. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Restrict access to contaminated area until completion of clean-up. Ensure adequate ventilation.

Remove ignition sources and evacuate the area. Sweep up using a method that does not generate dust. Collect as much of the product as possible, placing it into a suitable disposal container.

Environmental precautions

Do not let product enter drainage system, surface and/or ground-water and soil. Do not flush down sewers, ditches or waterways. Consult federal, state, or local authorities for disposal procedures.

Methods and materials for containment and cleaning up

Stop the spill if safe to do so. Contain the spilled liquid with dry sand or approved spill absorber. Clean up spills immediately.

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

07. Handling and Storage

Precautions for safe handling

Do not expose to water, seawater or strong oxidizing agents. Do not apply strong mechanical forces, nor throw it. Do not try to modify, disassemble or deform the batteries. The positive and negative poles should never be connected with a conductive material.

Information about fire and explosion protection

Batteries may explode or cause burns if disassembled, crushed or exposed to fire or high temperatures. Do not short-circuit or install with incorrect polarity. Remove metallic accessories and jewellery when handling live batteries.

Conditions for storage, including any incompatibilities

Store in a cool, dry, well-ventilated place.

Information about storage in one common storage facility

Keep away from heat, avoiding direct exposure to sunlight for prolonged times. The recommended storage temperature is -40°C-25°C, not to exceed 75°C. Keep out of reach of children.

Further information about storage conditions

The batteries should be stored at 30% of their charging capacity. Do not store in places with static electricity. Protect from direct sunlight and heat.

Specific use

Use only for intended use

08. Exposure controls/personal protection

Control parameters

CAS No.	ACGIH	NIOSH	OSHA
7429-90-5	TLV-TWA 10mg/m ³ TLV-TWA 5mg/m ³	REL-TWA 2mg/m ³ REL-TWA 5mg/m ³ REL-TWA 10mg/m ³	PEL-TWA 5mg/m ³ PEL-TWA 15mg/m ³
7440-50-8	TLV-TWA 0.2mg/m ³ TLV-TWA 1mg/m ³	REL-TWA 1mg/m ³ REL-TWA 0.1mg/m ³	PEL-TWA 0.1mg/m ³ PEL-TWA 1mg/m ³
7440-02-0	TLV-TWA 1.5mg/m ³	REL-TWA 0.015mg/m ³	PEL-TWA 1mg/m ³
12190-79-3	N/A	N/A	N/A
7782-42-5	TLV-TWA 2mg/m ³	REL-TWA 2.5mg/m ³	PEL-TWA 15mppcf PEL-TWA 10mppcf
24937-79-9	N/A	N/A	N/A

Appropriate engineering controls

The usual precautionary measures for handling chemicals should be followed.

Keep away from food and beverages.

Wash hands before breaks and at the end of work.

Personal Protective Equipment

Respiratory protection

Not necessary under normal conditions. In the event of leakage, wear chemical protective clothing, including self-contained breathing apparatus.

Eye/face protection

Not necessary under normal conditions. Wear safety glasses or eye protection combined with respiratory protection if handling an open or leaking battery.

Skin and Body Protection

Not necessary under normal conditions. Working environment required, wear suitable protective clothing to minimize contact with skin. The type of protective equipment must be according to the concentration and the content of certain hazardous substances in the workplace.

09. Physical and chemical properties

Information on basic physical and chemical properties

Colour	Yellow
Form	Cylindrical
Odour	Odourless
Odour threshold	Not applicable
pH	Not applicable
Melting point/freezing point	Not applicable
Initial boiling point and boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Explosion Limits (vol% in air)	Not applicable
Vapour pressure, kPa at 20°C	Not applicable
Vapour density	Not applicable
Density/Relative density (water = 1)	Not applicable
Solubility in water	Insoluble
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	Not applicable
Other information	
Voltage	3.7V
Electric capacity	2200mAh
Electric Energy	8.14Wh

10. Stability and Reactivity

Reactivity

Not reactive when used as intended

Chemical stability

Stable

Possibility of hazardous reactions

No hazardous reactions known

Conditions to avoid

Flames, sparks, and other sources of ignition, incompatible materials

Incompatible materials

Oxidizing agents, acid, base.

Hazardous decomposition products

Carbon monoxide, carbon dioxide, lithium oxide fumes

11. Toxicological Information

Acute Toxicity

CAS No	LC50/LD50
7429-90-5	No data available
7440-50-8	No data available
7440-02-0	LD50 Rat (oral): $\geq 5000\text{mg/kg}$
12190-79-3	No data available
7782-42-5	No data available
24937-79-9	No data available

Skin corrosion/irritation No data available

Serious eyes damage/irritation No data available

Respiratory or Skin sensitization No data available

Germ Cell mutagenicity No data available

Carcinogenicity No data available

Reproductive toxicity No data available

Specific target organ toxicity-Single exposure No data available

Specific target organ toxicity-Repeated exposure No data available

Aspiration hazard No data available

Information on the likely routes of exposure No data available

Eye No data available

Skin No data available

Ingestion No data available

Inhalation No data available

12. Ecological Information

Ecological Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative Potential

No data available

Mobility in Soil

No data available

Other adverse effects

Batteries and cells released into the environment will slowly degrade and may release toxic or harmful substances. Batteries should be disposed or recycled according to local regulations.

13. Disposal Consideration

Disposal Methods

Recommendation

Consult local, state or national regulations to ensure proper disposal.

Uncleaned packaging

Recommendation

Disposal must be made according to official regulations.

14. Transport Information

UN Number	
IATA	UN3481
IMDG	UN3481
UN Proper shipping name	
IATA	Lithium ion batteries contained in equipment
IMDG	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT

Transport hazard class(es)	
IATA	9
IMDG	9
Packing group	
IATA	N/A
IMDG	N/A
Packing sign	
IATA	N/A
IMDG	N/A
Environmental hazards	
Marine pollutant	No
Special precautions for user	Not applicable

Transport information

The Lithium-ion Battery (18650) has passed the test UN38.3, according to the report ID:12292277221D.
According to the Packing Instruction 967, section II of IATA DGR 57th Edition for transportation.
According to the special provision 188 of IMDG (37-14). The products are not considered as dangerous goods.

Note: Batteries weight in the package <5kg (by air, batteries installed in equipment).

Transport Fashion: By air, By sea.

15. Regulatory Information

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

CAS NO.	TSCA	IECSC	DSL/NDSL	EINECS/ELINCS/NLP
7429-90-5	Listed	Listed	Listed DSL	Listed
7440-50-8	Listed	Listed	Listed DSL	Listed
7440-02-0	Listed	Listed	Listed DSL	Listed
12190-79-3	Listed	Listed	Listed DSL	Listed
7782-42-5	Listed	Listed	Listed DSL	Listed
24937-79-9	Listed	Listed	Listed DSL	Listed

16. Other Information

Date of preparation

January 22, 2016

Notice to reader

To the best of our knowledge, the information contained in the SDS is provided in good faith and is believed to be accurate at the date of preparation. However, Steiner A/S or any of its subsidiaries assumes any liability whatsoever for the consequences of the use of this information since it may be applied under conditions beyond Steiner's control or knowledge.

Final determination of suitability of any material is the sole responsibility of the user. All material may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Other Information:

CAS (Chemical Abstracts Service)

EC (European Commission)

ACGIH (American Conference of Governmental Industrial Hygienists)

NIOSH (US National Institute for Occupational Safety and Health)

OSHA (US Occupational Safety and Health)

TLV (Threshold Limit Value)

TWA (Time Weighted Average)

STEL (Short Term Exposure Limit)

PEL (Permissible Exposure Level)

REL (Recommended Exposure Limit)

PC-STEL (Permissible concentration-time weighted average)

PC-TWA (Permissible concentration-short time exposure limit)

LC50 (Lethal concentration, 50 percent kill)

LD50 (Lethal dose, 50 percent kill)

IARC (International Agency for Research on Cancer)

EC50 (Median effective concentration)

BCF (Bioconcentration Factor)

NOEC (No observed effect concentration)

NTP (US National Toxicology Program)

RTECS (Registry of Toxic Effects of Chemical Substances)

IATA (International Air Transportation Association)

IMDG (International Maritime Dangerous Goods)

TDG (Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations)

TOC (Total Organic Carbon)

TSCA (Toxic Substances Control Act of USA)

DSL (the Domestic Substances List of Canada)

NDSL (the Non-domestic Substances List of Canada)