INFORMATION FOR THE SAFE HANDLING OF LITHIUM-ION BATTERIES

1. IDENTIFICATION OF PRODUCT AND COMPANY

Product Name: Li-Ion Rechargeable Battery

Model: 122238

Rating: 18V, 5.0Ah, 90Wh

Manufacturer: SPRiNTUS GmbH
Reizenwiesen 1,
73642 Welzheim, Germany
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2. HAZARDS IDENTIFICATION

The rechargeable lithium-ion batteries described in this Product Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer and if their integrity is maintained.

Do not short circuit, puncture, incinerate, crush, immerse in water, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion.

Under normal conditions of use, the active materials and liquid electrolyte contained in the cells and batteries are not exposed to the outside, provided the battery integrity is maintained and seals remain intact.

Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

3. COMPOSITION AND INFORMATION ON THE MAIN INGREDIENTS

CAS No.:	Component Chemical Name & Common Names:	Concentration [%]
12190-79-3	Lithium Cobalt Oxide ($LiCoO_2$)	15 - 40
7782-42-5	Graphite ($C_{24}X_{12}$)	10 - 30
21324-40-3	Phosphate(1-),hexafluoro-, lithium ($LiPF_6$)	10 - 30
7440-50-8	Copper (Cu)	7 - 13
7429-90-5	Aluminum (Al)	5 - 10
7440-02-0	Nickel (Ni)	1 - 5

4. FIRST AID MEASURES

Inhalation: Remove from exposure and move to fresh air immediately. Use oxygen if available.

Eye contact: Flush eyes with plenty of water for least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin contact: Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

Ingestion: Give at least 2 glasses of milk or water. Induce vomiting unless patients are unconscious. Call a physician.

5. FIREFIGHTING MEASURES

Fires from lithium batteries can basically be fought with water. There is no need for additional or special extinguishing agents. Surrounding fires can be fought with conventional extinguishing agents. The fire of a battery cannot be considered separately from the surrounding fire.

The cooling effect of water effectively prevents surrounding fire from spreading to batteries which have not yet reached the critical ignition ("thermal runaway") temperature.

Reduce fire load by separating large quantities and moving them away from the area of risk.
During a fire, gases may develop which may cause injuries of the respiratory tract. Take care of sufficient respiratory protection.

6. MEASURES TO BE TAKEN IN CASE OF ACCIDENTAL RELEASE

Personal precautions, protective equipment and emergency procedures:
If the battery is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area and allow the vapors to dissipate, avoid skin and eyes contact or inhale of vapors. Remove spilled liquid with absorbent and incinerated. If leakage of the battery happens, liquid could be absorbed by using sand, earth or other inert substance and contaminated areas should be ventilated meantime.

Environment precaution:

Do not allow products to reach sewage system or any water source.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up:
If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose of according to the local law and rules, avoid leached substances to get into the earth, canalization or waters.

7. HANDLING AND STORAGE

Handling:

The battery should not be opened, destroyed or incinerated, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.
Do not short circuit terminals, or overcharge the battery, forced over-discharge, throw to fire.
Do not crush or puncture the battery or immerse in liquids.

Storage:

Avoid mechanical or electrical abuse. Storage preferably cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided.
Do not place the battery near heating equipment, nor expose it to direct sunlight for long periods.

Other Precautions:

The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering controls and work practices:

Under conditions of normal use, batteries do not emit hazardous or regulated substances.
No engineering controls are required for handling batteries that have not been damaged.

Personal protective equipment:

Personal protective equipment should include chemical resistant gloves and safety glasses.
In the event of a fire, SCBA should be worn along with thermally protective outer garments.

9. PHYSICAL AND CHEMICAL PROPERTIES

Compact batteries with (plastic) housing, terminals

10. STABILITY AND REACTIVITY

Stability

The product is stable under conditions described Section 7

Conditions to Avoid

Heat above 70°C or incinerate. Deform, Mutilate, Crush, Disassemble,
Overcharge, Short circuit, Expose over a long period to humid conditions.

Incompatible Materials

Oxidizing agents, acid, and base.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide, lithium oxide fumes.

11. TOXICOLOGICAL INFORMATION

In normal condition, contact with the battery is non-toxic.

12. ECOLOGICAL INFORMATION

Lithium-ion batteries do not contain heavy metals (such as lead, cadmium or mercury).

13. DISPOSAL CONSIDERATIONS

Do not dispose in fire or submerge in water.

Battery disposal regulations vary on national, state/provincial and local bases.

Disposal must be conducted in accordance with the applicable laws and regulations.

These batteries contain recyclable materials, and recycling is encouraged over disposal.

14. TRANSPORT INFORMATION

Label for conveyance:	Lithium Battery Label
UN Number	UN 3480 or UN 3481
Transport hazard class(es):	9
Packing group:	N/A
Marine pollutant:	No
UN Proper shipping name:	Lithium-ion Batteries Lithium-ion Batteries packed with equipment Lithium-ion Batteries contained in equipments
ICAO/IATA:	Can be shipped by air in accordance with international Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA) DGR 66th Packing Instructions Section IB of 965 or Section II of 966～967 appropriately.
IMDG CODE:	International Maritime Dangerous Goods Code under Special Provsion 188 IMDG CODE (Amdt 42-24).
ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road under Special Provision 188.
RID:	Regulations concerning the International Carriage of Dangerous Goods by Rail under Special Provision 188.

The dangerous goods regulations require that each battery design be subject to tests contained in Section 38.3 of the UN Manual of Tests and Criteria prior to being offered for transport.

15. REGULATORY INFORMATION

Regardless of shape, volume, weight and application, batteries in the EU are subject to the respective national implementation of the European Battery Directive (2006/66/EC). It includes but is not limited to regulations regarding placing on the market, collection, treatment and recycling of batteries. Transport regulations are according to IATA, ADR, IMDG, RID. Refer to section 14.

16. OTHER INFORMATION

The information given above is provided in good faith based on existing knowledge and does not constitute an assurance of safety under all conditions. It is the user's responsibility to observe all laws and regulations applicable for storage, use, maintenance, or disposal of the product. If there are any queries, the supplier should be consulted. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.