

Material Safety Data Sheet (MSDS)

1. SECTION - PRODUCT AND MANUFACTURER

Product Name: LITHIUM- POLYMER Battery

System: Rechargeable Lithium-ion Polymer Battery

Manufacturer: **DYNAMIS Batterien GmbH**

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2. SECTION - COMPOSITION INFORMATION ON COMPONENTS

<u>Components</u>	<u>Approximate Percent of Total Weight</u>
Aluminum	2 - 10%
Aluminum Packaging Foil	5 - 15%
Carbon (Various Forms)	10 - 30%
Copper	5 - 15%
Lithium Cobalt Oxide	20 - 40%
Lithium Salts	1 - 5%
Nickel	0.5 - 5%
Organic Carbonate	10 - 25%
Polymer	3 - 10%

The materials contained in the battery may only become a hazard if the battery or the cell is disintegrated or if the battery is physically or electrically abused.

3. SECTION - PHYSICAL AND CHEMICAL PROPERTIES

N/A.

4. SECTION □ - EMERGENCY AND FIRST AID INFORMATION

In case of contacting the materials from a damaged or ruptured cell or battery:

- 1) Eye contact: Washing immediately with plenty of water and soap or for at least 15 minutes.
Get medical attention.
- 2) Skin Contact: Washing immediately with water and soap.
- 3) Inhalation of Vented Gas: Remove to fresh air. Get medical attention.
- 4) Ingestion: Get medical attention immediately.

5. SECTION - FIRE AND EXPLOSION DATA

Extinguishing Media: Dry chemicals, water.

Fire-Fighting Procedures: Use self-contained breathing apparatus and protective clothing.

Unusual Fire and Explosion Hazards: Toxic gases (HF, PF₆) will be formed if cells or battery are involved in a fire. Cells or battery may flame or leak potentially hazardous organic vapors if exposed to excessive heat, fire or over-voltage conditions. Damaged or opened cells or batteries may result in rapid heat and the release of flammable vapors.

6. SECTION - STORAGE AND HANDLING/ USE

- 1) Do not store batteries in a manner that allows terminals to short circuit.
- 2) Do not place batteries near heating sources, nor exposed to direct sunlight for long periods.
Elevated temperatures can result in reduced battery service life.
- 3) Charging Battery
Use only approved chargers and procedures. Improperly charging a cell or battery may cause the cell or battery to flame or damage.
- 4) Battery Disassembly
Never disassemble a battery.
Should a battery unintentionally be crushed, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid inhalation of any vapors that may be emitted.
- 5) Battery Short Circuit
Do not short-circuit a battery. A short circuit can result in over-heating of the terminals and provide an ignition source.
More than a momentary short circuit will generally reduce the cell or battery service life and can lead to ignition of surrounding materials or materials within the cell or battery if the seal integrity is damaged.

Extended short-circuiting creates high temperature in the cell and at the terminals. Physical contact to high temperatures can cause skin burns. In addition, extended short-circuit may cause the cell or battery to flame.
Avoid reversing cell polarity within a battery assembly. Reversing cell polarity may cause the cell or battery to flame or to emit gases.
- 6) Mixed Batteries and Types
Avoid to use old and new cells or cells of different sizes; different chemistry or types in the same battery assembly.

7. SECTION - DISPOSAL PROCEDURES

DYNAMIS LITHIUM-ION Polymer cells and batteries contain no toxic metals, only naturally occurring trace elements. It is advisable to consult with local authorities as disposal regulations may vary dependent on location.

8. SECTION – TRANSPORTATION

The batteries are considered to be non-dangerous by the INTERNATIONAL CIVIL AVIATION ORGANISATION (ICAO) and the INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) because they meet all the requirements of special provision A45 as described by both organization. The batteries are considered to be non-dangerous by the INTERNATIONAL MARITIME DANGEROUS GOODS regulation (IMDG) because they meet the requirement of UN 3090

9. SECTION IX - OTHER INFORMATION

The information contained herein is based on the data available to us and believed to be correct. However, DYNAMIS makes no warranty, expressed or implied. Users should consider the data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.