Material Safety Data Sheet
Lithium-Ion Cells and Batteries

Section I – Product and Manufacturer Information

Product Name: Lithium-Ion Cells and Batteries
Manufacturer Name: DYNAMIS Batterien GmbH
Address: Daimler-Straße 10, 78256 Steißlingen, Germany
Telephone number: +49 7738 80244-0

Section II – Hazards Identification

The chemical materials of the battery cell are contained in a hermetically sealed metal or metal-laminated plastic case designed to withstand the temperatures and pressures encountered during normal use. When used as intended, there is no exposure to harmful chemical substances. There are no physical hazards such as ignition, explosion, or chemical hazards during normal use.

However, if exposed to fire, mechanical shock, decomposition, or electrical stress due to misuse, the gas release valve may be activated. Hazardous materials may be released if the battery case is broken. If the battery is excessively overheated (by fire, etc.), irritating or harmful gases may be generated.

Toxicity: Vapor generated from burning batteries can irritate eyes, skin and the respiratory tract.
Hazard: Electrolyte is flammable.
Risk of explosion if batteries are disposed in fire or heated above 100°C / 212°F.
Stacking or mixing batteries may cause external short circuits, heat generation, fire or explosion.

Section III – Composition / Information on Ingredients

Information about the chemical nature of product: [1]

Component	Material	CAS No.	Weight (%)
Positive electrode	Lithium transition metal oxide (Li[M]m[O]n) [2]	12190-79-3 12031-65-1 12057-17-9 182442-95-1 207803-51-8	20~60
Positive electrode's base	Aluminum	7429-90-5	1~10
Negative electrode	Carbon	7782-42-5 7440-44-0	10~30
Negative electrode's base	Copper	7440-50-8	1~15

Electrolyte	Ethyl methyl carbonate Diethyl carbonate Ethylene carbonate Lithium Hexafluorophosphate	623-53-0 105-58-8 96-49-1 21324-40-3	5~25
Outer case	Aluminum, iron, aluminum laminated plastic	7429-90-5 7439-89-6	1~30

[1] *Nicht jedes Produkt enthält alle diese Stoffe.*

[2] *The letter M stands for transition metal and candidates for M are Co, Mn, Ni, and Al. A compound includes one or more of these metals and a product includes one or more of the compounds. The letter m and n indicate the number of atoms.*

Section IV – First Aid Measures

In the event of battery case rupture, fumes, or fire, evacuate personnel from the contaminated area and provide maximum ventilation with air to remove fumes and gases. Medical attention is strongly recommended in such cases.

In case of electrolyte leakage from the battery:

Eye contact :	Immediately flush eyes with plenty of clean water for at least 15 minutes, without rubbing. Get immediate medical attention. Failure to follow proper procedures may result in eye injury.
Skin contact :	Remove contaminated clothing and footwear. Immediately wash contact areas with plenty of soap and water. Failure to do so may result in skin breakdown.
Inhalation :	Remove to fresh air immediately. Get medical attention immediately.
Ingestion:	Do not induce vomiting. Get medical attention immediately.

Section V – Fire Fighting Measures

Fire extinguishing agent:	Dry chemical, carbon dioxide, alcohol-resistant foam or dry sand.
Extinguishing method:	Since vapor from burning batteries can irritate the eyes, nose and throat, extinguish the fire on the windward side. Remove containers from the fire area if it is safe to do so. Respiratory protection is recommended.

Specific protective actions for fire-fighters:

Wear positive pressure self-contained breathing apparatus (SCBA). Firefighter turnout gear provides limited protection.

Special hazards arising from the substance or mixture:

Battery may rupture and release hazardous decomposition products if exposed to fire. Lithium-Ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when exposed to high temperatures (>150°C / >302°F), damage or abuse (e.g. mechanical damage or electrical overcharge); may burn rapidly with flare-ups; may ignite other batteries in close proximity.

Section VI – Accidental Release Measures

In case of electrolyte leakage from the battery:

Small amounts:	Take up with absorbent cloth, treat cloth as flammable.
Larger amounts:	Absorb with earth, sand or other non-combustible material.

Do not touch or walk through spilled material. Leaking batteries and contaminated absorbent material should be placed in metal containers. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Move the battery away from fire. In the event of a major release, protective clothing should be worn.

Section VII – Handling and Storage

Handling:

- When packing batteries, do not allow battery terminals to touch each other or other metals. Be sure to separate the batteries in the packaging box or in a separate plastic bag so that the individual batteries are not mixed together.
- Use strong material for packaging boxes so that they will not be damaged by vibration, shock, dropping, and stacking during transportation.
- Do not short-circuit, deform, dispose of in fire, or disassemble.
- Charge according to the specified conditions.
- Do not mix different types of batteries.
- Do not mix cells and batteries of different age or different usage history in the same assembly.
- Do not solder directly on batteries.
- Insert the battery into electrical equipment correctly. Apply only suitable equipment for charging and discharging.

Storage:

- The batteries should be stored at room temperature, charged to approximately 30-50% of capacity. Do not allow water to enter the packaging boxes during storage and transportation.
- Do not store the battery in places of high temperature or in direct sunlight.
- Avoid places with high humidity. Do not expose the battery to condensation, rain or freezing.
- Do not short or install with incorrect polarity.

Section VIII – Exposure Controls / Personal Protection

Acceptable concentration:	Not specified for lithium batteries.
Equipment:	Nothing special.

No protective equipment is required for normal battery handling.

Protective equipment (in case of electrolyte leakage from battery):

Respiratory Protection:	No respiratory protection for most conditions.
Hand Protection:	Safety gloves.
Eye protection:	Wear safety goggles or eye protection combined with respiratory protection.
Skin and Body Protection:	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.

Section IX – Physical and Chemical Properties

Physical state:	Solid	
Appearance (shape):	Cylindrical or Prismatic or Pouch (laminated)	
Chemical Properties:	see Section III	
Use properties:	Secondary (rechargeable) power supply	
Temperature:	Storage, continuous	max. +35 °C
	Storage, occasional	-20 °C to +50 °C
	Discharge, cont.	max. +60 °C
	Discharge, occ.	-20 °C to +60 °C
	Charge, cont./occ.	0 °C to +45 °C

Section X – Stability and Reactivity

Since batteries utilize a chemical reaction they are actually considered a chemical product. As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, if the various usage conditions such as discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

Stability:	Normally stable unless a strong shock is applied or heated strongly
Possibility of hazardous reactions:	Damage to the container may cause leakage of contents. Contents may leak or ignite due to temperature rise.
Conditions to avoid:	Crushing or deformation, use and storage at 80 degree C or higher or at high humidity. Usage at a voltage or a current outside the rating and external short circuit.
Incompatible materials:	Conductive material such as water or metal pieces. Oxidizing agent such as bleach.
Hazardous decomposition products:	Irritating or harmful gases are released if a leakage or fire occurs.

Section XI – Toxicological Information

Swallowing can lead to chemical burns, perforation of soft tissue and death. Severe burns can occur within 2 hours of ingestion. Seek medical attention immediately.

Section XII – Ecological information

There is no environmental impact during normal use.

If the used battery is disposed of improperly, the battery case may corrode and leak electrolyte. However, there is no information on the environmental impact. Mercury (Hg), Cadmium (Cd) and Lead (Pb) are not used in the cell.

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

Section XIII – Disposal Considerations

Batteries are to be regarded as hazardous waste. Do not dispose of with regular waste.
Consult state, local or national regulations to ensure proper disposal or recycling.

Section XIV – Transportation Information

When transporting large quantities of batteries by ship, trailer or rail, do not expose them to high temperatures or condensation. Do not allow packages to be dropped or damaged during transportation.

Proper shipping name: Lithium-Ion Batteries, UN No. 3480
Hazard Class 9
IATA DGR 66th Edition (2025), Packing Instruction 965 – 967

Air Transport:	Small Li Ion Batteries (< 20Wh or packs <100 Wh) w/ UN3480/IATA ICAO Packing Instr. 965 Sec.II Large Cells and Packs: Considered Class 9, PI 965 Sec.I Furthermore new restrictions apply since April 1, 2016, which forbid transport of Lithium batteries on passenger aircraft at all and strengthen limits even for small numbers and cells on cargo aircraft.
Sea Transport:	Sealed Lithium Batteries - Not restricted, when requirements of IMDG Dangerous Goods Regulations are met (UN3480).
Land Transport:	Sealed Lithium Batteries - Not restricted, when requirements of IMDG Dangerous Goods Regulations are met (UN3480).

Classified as lithium batteries packed with equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 966 is applied.

Classified as lithium batteries installed in equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 967 is applied.

Section XV – Regulatory Information

International Civil Aviation Organization (ICAO) – Technical Instructions (2023-2025 Ed.)

International Air Transport Association (IATA) – Dangerous Goods Regulations (66th Ed., 2025)

International Maritime Dangerous Goods (IMDG) AMdt Code 42-24 (Ed. 2025-2026)

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2025-2027).

US Hazardous Materials regulations 49 CFR (Code of Federal Reg.), Sec. 173-185

Section XVI – Other Information

The above information is based on the data known to us and is believed to be correct at the time of publication. Since this information may be used under conditions beyond our control and which may not be known to us, and since data provided subsequent to the data given herein may result in changes in the information, we assume no responsibility for the results of its use. This information is provided on the condition that the person receiving it makes their own decision as to the suitability of the material for their particular purpose.