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Information Sheet for Batteries

According to REACH regulation EC 1907/2006, Art. 3, Point 3 and to OSHA regulation 29 CFR 1910.1200, batteries are ARTICLES with no intended release. As such they are not covered by REACH regulation Art. 31, Paragraph (1) to generate and supply an SDS or and MSDS.

This Battery Information Sheet is provided as an informational document for the purpose of assisting our customers.

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1. Product and Company Identification

1.1 Product Identification

Product name: Li-ion battery pack (or, Li-ion secondary/rechargeable battery)

Model: All Lithium Ion rechargeable batteries, consisting of cylindrical or prismatic single cells or multi cell battery packs. Battery packs provided with shrink tube enclosure or hardcase housing.

1.2 Usage

All information and instructions concerning usage, handling and maintenance provided in the documentation must be followed.

1.3 Manufacturer's name/ Representative

FEY Elektronik GmbH -> see above

1.4 Emergency No

Phone: +49(0) 160-440-2542

2. Composition/Information of ingredients

2.1 Chemical characteristics

The Li-ion rechargeable battery pack is mounted inside a plastic enclosure or shrink tube. It consists of rechargeable Li-ion batteries and electronic components mounted on FR4 material PWB.

2.2 Dangerous ingredients

Ingredients : Lithium-Ion battery

CAS Number : Not specified

Composition & Information on Ingredients		
Component : Lithium Ion rechargeable battery cell		
Part	Material name	Concentration Range (wt %)
Positive Electrode	Lithium transition metal Oxide ($Li[M]_m[O]_n$)*2	20 ~ 60
Positive Electrodes base	Aluminum	1 ~ 10
Negative Electrode	Carbon	10 ~ 30
Negative Electrode's base	Copper	1 ~ 15
Electrolyte	Organic electrolyte principally involves ester carbonate	5 ~ 25
Outer Case	Aluminum, iron, aluminum laminated plastic	1 ~ 30
Component : Battery pack Enclosure, Wiring, Connector		
Part	Material name	Concentration Range (wt %)
Shrink Tube	PVC, PET*1	< 2 of battery
Housing of battery pack	Polyamide*1, Polycarbonate*1, ABS*1 or a blend of these	0 to 20 (wt %)
Glue or potting	Silicone*1, MS Polymer*1, Epoxy 2k resin*1	> 2 (wt %)

*1 Not all products contains these materials.

*2 The letter M means transition metal and candidates of M are Co, Mn, Ni and Al. One compound includes one or more of these metals and one product includes one or more of the compounds. The letter m and n means the number of atoms.

3. Hazard identification (Most important hazards)

Lithium transition metal Oxide

H302 Harmful if swallowed

H317 May cause sensitisation by skin contact

$LiPF_6$

H261 In contact with water releases flammable gas

H312 Harmful in contact with skin

H302 Harmful if swallowed.

H318 Risk of serious damage to eyes.

EUH014 Reacts violently with water.

Electrolyte

H302 Harmful if swallowed

H225 Highly flammable liquid and vapour

H312 Harmful in contact with skin

H314 Causes severe skin burns and eye damage

H317 May cause sensitization by skin contact

4. First aid measures

Spilled internal battery materials

4.1 Inhalation:
Move victim to fresh air. – If necessary, restore normal breathing through standard first aid measures. Always seek medical attention.

4.2 Skin:
Remove contaminated clothing. Flush skin immediately with plenty of soap and water. If symptoms develop seek medical attention.

4.3 Eye:
Flush eyes with plenty of water for a minimum of 15 minutes occasionally lifting the upper and lower eyelids. Cleaning the eyes without rinsing with water can cause additional eye damage. Always seek medical attention.

4.4 Ingestion:
Do not induce vomiting. If conscious, wash mouth out with water using several glasses of water. Never give anything by mouth to an unconscious person.

Further treatment: All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a Doctor.

5. Fire-Fighting Measures

5.1 Extinguishing Media:
Carbon dioxide (CO^2) or large volumes of water.

5.2 Special exposure hazards and unsuitable extinguishing methods:
Chemical fumes will be released during fire.
Do not use fire extinguishing blankets, sand or graphite powder to extinguish fire.

6. Accidental Release Measures

6.1 Personal Precautions
In case fumes are released, evacuate the affected area. When entering an area where fumes have been released, wear appropriate personal protective equipment and respiration protection. In case the electrolyte comes in contact with skin, flush skin immediately with plenty of water.

6.2 Environmental Precautions
Do not allow contamination of sewage, soil, groundwater, drainage system or bodies of water by electrolyte or other accidental released material.

6.3 Method's for cleaning up
Bind released electrolyte with sand. Put the damaged battery and the contaminated sand into a plastic bag. Dispose of this material in accordance with local laws and regulations.

7. Handling and Storage

7.1 Handling

Restrictions for safe handling:

Do not puncture or break the battery pack. Never short circuit the battery contacts. Do not touch the battery contacts with conductive material(for example metals). Do not expose the battery to heat or direct sunlight. Do not expose the battery to water or a high humidity environment. Do not incinerate the battery. Do not use the battery beyond its lifetime. Do not use the battery if it was exposed to a deep discharge or any other unexpected behaviour. Handle the batteries one by one, store and transport the batteries by themselves; do not expose them to other batteries.

7.2 Storage

Store batteries in cool, dry environment (optimal conditions are above 5°C and below 30°C). Store in a dust free environment, away from ignition sources and strong oxidizers. Keep away from heat sources or open flames. Do not store the battery near any kind of food. Store only in ventilated areas. Continuous storage at temperatures above 70°C may cause leakage and electrolyte release from the battery.

Short circuit may cause fire; release of electrolyte or leakage of the battery can cause personal harm. Store the batteries in the original packing only and ensure batteries are not jumbled. Strictly follow all recommendations in the manual especially those for usage, max. charge / discharge currents, max. charge voltage and min. and max. usage temperatures.

Applying mechanical force may lead to deformation and damage of the battery. There is the risk of fire and serious damage to eyes, skin, and lungs.

8. Exposure Controls/Personal Protection

8.1 Exposure limit values

Lithium transition metal Oxide	:	0,1mg/m³
Elektrolyte	:	N/A
$LiPF_6$	:	N/A

8.2 Personal protective Equipment (PPE)

Respiratory

Approved respirators should be used when fire or electrolyte leakage occur



Hand Protection

Wear gloves in case of electrolyte leakage



Eye Protection

Wear protective glasses when handling this product



Skin and Body Protection

Wear clothing that totally covers the skin and body in case of electrolyte leakage of the battery.



9. Physical and Chemical Properties

Appearance	:	Plastic housing or shrink tube enclosure
Colour	:	multiple
Odor	:	odorless
PH-value	:	not applicable
Boiling point	:	not applicable
Flashpoint point	:	not applicable

10. Stability and Reactivity

Stability:
The product is stable under the conditions named in point 7.

Conditions to avoid:
Heating above 70°C, damage, mechanical deformation, shock, pressure, penetration, disassembly, short circuit, high humidity, rain or salt water.

Hazardous decomposition products:
carbon monoxide CO
carbon dioxide CO^2

11. Toxicological Information

Acute toxicity	:	Oral (rat) LD50 > 2g/kg (estimated)
Inhalation	:	Lung irritation
Others	:	Eye and skin irritation

In the event of exposure, skin irritation, asthma, allergic reaction, respiratory disorders and lung injury may occur.

12. Ecological Data

Ecotoxicity:
None expected with recommended use and disposal

Bioaccumulation:
None expected with recommended use and disposal

Other ecological impacts:
None expected with recommended use and disposal

13. Disposal Considerations

The battery has to be electrically isolated before disposal. Disposal must be done following local regulations.

14. Transport Information

Always use a label outside of the package, showing that the content is a Lithium battery. When transporting a large quantity of Li-Ion batteries, avoid high temperatures or high humidity, even for short periods of time.

The packing material must prevent damage, short circuit or displacement of the battery packs even if the batteries are dropped from a height of 1.2m on each corner/orientation of the package.

UN transportation regulation	:	UN 3480
Shipping name	:	Lithium Ion batteries (PI 965)
UN-Class	:	Class 9

When contained in or shipped with Equipment

UN Transport Regulation	:	UN 3481
Shipping name	:	Lithium ion batteries packed with equipment (PI 966)
or Shipping name	:	Lithium ion batteries contained in equipment (PI 967)
UN-Class	:	Class 9

Other and additional restrictions may apply (for example, maximum container weight, number of batteries, max Li-equivalent on pallets and special shipment papers) depending on the shipment type (IATA, ICAO, ADR, IMDG…) Special approved packing might be needed. It is the shipper's responsibility to ensure the most current and valid regulations and transportation restrictions are used for the shipment.

15. Regulatory Information

Signs : Harmful



Health Hazard



Corrosive



Flammable



H-Phrases:

H225	Highly flammable liquid and vapour.
EUH014	Reacts violently with water.
H261	In contact with water releases flammable gas.
H312	Harmful in contact with skin.
H301	Harmful if swallowed.
H318	Causes serious eye damage.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.

P-Statements:

P402	Store in a dry place.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/fumes/gas/mist/vapours/spray.
P262	Do not get in eyes, on skin, or on clothing.
P305	IF IN EYES:
+P351	Rinse cautiously with water for several minutes.
+P338	Remove contact lenses if present and easy to do. Continue rinsing.
+P313	Get medical advice/attention.
P280	Wear suitable protective clothing
P314	Get Medical advice/attention if you feel unwell.
P273	Avoid release to environment.

16. Further Information

The data and information presented herein is based on the knowledge and experience available to us at this time and is intended to describe our product with respect to possible occupational health and safety concerns. We do not take any responsibility for wrong or missing information. All information is relevant just to our product and may be incomplete when our product is used in conjunction with other products. The user of this product has sole responsibility for determining the suitability of the product for any use and manner of use intended, and the regulations applicable to such use in relevant jurisdiction.
This PSDS is updated on a periodic basic in accordance with applicable health and safety standards.

Fey Elektronik GmbH does not take any responsibility for damages, loses of any kind, either direct or indirect, neither they occur causal or occasionally out of the usage of the herein given information.

Glossary:
ABS : Acrylonitrile Butadienestyrene Copolymer
PVC: Poly Vinyl Chloride
PET: Polyethylene terephthalate