



Hacker Motor GmbH  
Schinderstrassl 32  
Tel.: 0049 (0) 871-953628-0  
Fax.:0049 (0) 871-953628-29  
D-84030 Ergolding  
Ref-Nr.: GRP20180226001

# Material Safety Data Sheet

Product Name	Li- ion Polymer Battery
Model	Li- ion Polymer Battery
Nominal Voltage	Universal
Typical Capacity	Universal
Chemical System:	LiFePO4+6C



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## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Li- ion Polymer Battery  
Product code: Prismatic type cell for LiCO<sub>2</sub> series  
Company name: Hacker Motor GmbH  
Address: Schinderstr. 32, 84030 Ergolding  
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## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	Concentration/Concentration range	CAS Number	Molecular formula
Lithium iron phosphate	27.5~42.5%	15365-14-7	LiFePO <sub>4</sub>
PVDF	1.4-2.0%	24937-79-9	(CH <sub>2</sub> -CF <sub>2</sub> ) <sub>n</sub>
Graphite	14-22%	7782-42-5	C
Ethylencarbonat (EC)	3.712%	7429-90-5	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>
Ethylmethylcarbonat (EMC)	2.784%	7440-50-8	C <sub>4</sub> H <sub>8</sub> O <sub>3</sub>
Dimethylcarbonat (DMC)	7.425%	7439-89-6	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>
Propylencarbonat (PC)	1.670%	90989-93-8	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>
Vinylencarbonat (VC)	0.185%	7440-02-0	C <sub>3</sub> H <sub>2</sub> O <sub>3</sub>
Lithiumhexafluorphosphat	2.785%	21324-40-3	LiPF <sub>6</sub>
Polypropylene	2.0%-4.2%	9003-07-0	(C <sub>3</sub> H <sub>6</sub> ) <sub>n</sub>
Copper	18%-30%	7440-50-8	Cu
Aluminium	5%-10%	7429-90-5	Al
Nickel	0.2%	7440-02-0	Ni
Carbon Black	1.5%-2.3%	1333-86-4	C

## 3. HAZARDS IDENTIFICATION

**Hazard description:** Not applicable.

**Information pertaining to particular dangers for man and environment:**

A sealed polymer battery is not hazardous in normal use on principle.



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The product has not to be labeled due to the calculation procedure of international guideline.

The materials contained in this product may only represent below hazard if the integrity of the battery is compromised; physically or electrically abused.

Harmful in contact with skin.

Causes burns.

Limited evidence of a carcinogenic effect.

May cause sensitisation by inhalation and skin contact.

Reacts violently with water, liberating extremely flammable gases.

Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

#### 4.FIRST AID MEASURES

##### **General information:**

If exposure to internal materials within battery due to damaged outer casing, the following actions are recommended.

##### **After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

**After skin contact:** Immediately wash with water and soap and rinse thoroughly.

**After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.

#### 5.FIRE FIGHTING MEASURES

**Hazardous Combustion Products:** When burned, hazardous products of combustion including fumes of carbon monoxide, carbon dioxide, and fluorine can occur.

**Extinguishing Media:** Water, carbon dioxide gas, chemical power fire extinguishing medium and fire foam..

**Basic Fighting Procedures:** Wear NIOSH/MSHA approved positive pressure self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

**Unusual Fire&Explosion Hazards:** This material does not represent an unusual fire or explosion hazard.

#### 6.ACCIDENTAL RELEASE MEASURES

**Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.

##### **Measures for environmental protection:**

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/ surface or ground water.

##### **Measures for cleaning/collecting:**

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.



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Do not flush with water or aqueous cleansing agents

**Additional information:** See Section 7 for information on safe handling.

## 7. HANDLING AND STORAGE

### a. Handling:

Technical measures

Prevention of user exposure: Not necessary under normal use.

Prevention of fire and explosion: Not necessary under normal use.

Precaution for local exhaust, and prevention of coarse particulate: Not necessary under normal use.

Precaution for safe handling: Do not damage or remove the external tube.

Specific safe handling advice: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water or seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or fling. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. In the case of charging, use only dedicated charger or charge according to the conditions specified by our company.

### b. Storage

Technical measures

Storage conditions (suitable, to be avoid): Avoid direct sunlight, high temperature, high humidity. Store In cool place (temperature:-20~35 degree C, humidity: 45~85%).

Lithium content per Cell 18g, Lithium content Battery Per Battery 54g

Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids.

Packing material (recommended, not suitable): Insulative and tearproof materials are recommended.

## 8. EXPOSURE CONTROLS/PERSON PROTECTION

Engineering controls: Investigate engineering techniques to reduce exposures use with adequate ventilation a recommended personal protective equipment.

Eye/Face protection: Use good industrial practice to avoid eye contact, process of this product releases vapors or fumes which may cause eye irritation. Where eye contact may be likely wear chemical goggles and have eye flushing equipment available.

Skin protection: Minimize skin contamination by following good industrial hygiene practices Wearing protective gloves is recommended Wash hands and contaminated skin thoroughly after handling.

Respiratory protection: Avoid breathing dust and processing vapors When adequate ventilation is not available wear a NIOSH/MSHA respirator approved for protection against inorganic dusts.

Special clothing: Robber gloves.

Other: Quick-drench eye wash and safety shower.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### General information

Form: Prismatic

Color: Silver

Odor: Without



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Change in condition	
Melting Point/Melting Range:	Not available
Boiling Point/Boiling Range:	Not available
Flash Point:	Not available
Flammability(solid, gaseous):	Not available
Ignition temperature:	Not available
Auto igniting:	Not available
Danger of explosion:	Not available
Explosion limits:	
Lower:	Not available
Upper:	Not available
Oxidizing properties:	Not available
Vapor pressure:	Not available
Density:	(Contd. on page 5)
Relative density	Not available (Contd. of page 4)
Vapour density	Not available
Evaporation rate	Not available
Solubility in/Miscibility with	
Water:	Not available
pH-value:	Not available
Viscosity:	
Dynamic:	Not available

## 10. STABILITY AND REACTIVITY

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Materials to be avoided:**

**Dangerous reactions** Not available

**Dangerous products of decomposition:** No dangerous decomposition products known.

## 11. ECOLOGICAL INFORMATION

Eco toxicological information: No information available.

Chemical fate information: No data are available.

Environmental effects: No data are available.

## 12. TOXICOLOGICAL PROPERTIES

**Signs and Symptoms:** None unless cell ruptures.

**Route of Entry:** If electrolyte released-Anticipated routes of entry, eye, skin contact and inhalation.

**Route of Acute Exposure:** Electrolyte vapour is irritating to the pulmonary tract.

**Effect of chronic Exposure:** Electrolyte vapour in large volumes may cause suffocation and pulmonary oedema.



**Irritancy:** Yes

### 13. DISPOSAL CONSIDERATIONS

Recommended methods for safe and environmentally preferred disposal:

**Product (waste from residues)**

Do not throw out a used cell. Recycle it through the recycling company.

**Contaminated packaging**

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a cell contaminates, dispose as industrial wastes subject to special control.

### 14. TRANSPORT INFORMATION

United Nations:                      UN No.:                      3480/3481

Classificationcode:                      M4

Individual Lithium-polymer cells and battery packs with respectively not more than 20Wh (Cell) and 100Wh (Battery) of watt-hours are not restricted for transport.

**Special packaging information**

Cells and batteries must be packed in inner packaging that completely encloses the cell or battery. Cells and batteries must be protected to avoid short circuits.

Each package must be capable of withstanding a 1.2 m drop test in any orientation without:

1. Damage to cells or batteries contained within the packaging;
2. Shifting of the contents allowing battery to battery contact; and
3. Release of contents.

**Special shipping information:**

This battery has been tested to Section 38.3 of 'UN Manual of Tests and Criteria'. The amount of Lithium contained in these batteries is below the limits set by the DOT in Section 49CFR173 and IATA.

These must be shipped with the following label:



X: relevant UN-Number

XX: Phone-Number for more

### 15. REGULATORY INFORMATION

