

**Lithium-Ions Battery Pack**  
**Safety Data Sheet according to 1907/2006/EG, Article 31**  
**(REACH)**



Date of Issue: 15.01.2010  
 Version 6.0

Date of Review: 01.06.2018  
 Replace Version 5.0

4.2	Skin contact:	<b>Immediately remove contaminated clothing. Wash skin with water and soap and rinse thoroughly. Consult a doctor if skin irritation persists.</b>
4.3	Eye contact:	<b>Rinse the open eye thoroughly with running water for at least 15 minutes. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling persists, transport to the nearest medical facility for additional treatment.</b>
4.4	Ingestion:	<b>Do not induce vomiting. Supply fresh air. Call for medical help immediately.</b>
4.5	Inhalation:	<b>Supply fresh air; consult doctor in case of complaints. In case of unconsciousness place patient stably in side position for transportation.</b>

**Section 5: Fire Fighting Measures**

5.1	Suitable extinguishing media:	<b>Fire extinguisher class D, CO<sub>2</sub>, powder or water spray.</b>
5.2	Unsuitable extinguishing media:	<b>Water with full jet.</b>
5.3	Special exposure hazards arising from the substance or preparation itself, its combustion products or from resulting gases:	<b>Hydrogen fluoride (HF). In case of fire, toxic pyrolysis products can be released. Bursting batteries can be forcibly projected from a fire.</b>
5.4	Special protective equipment for firefighters:	<b>Fire fighting measures, rescue works and clearance works with impact of the smouldering fire fumes or fire gases should only be carried out with suitable respiratory protective equipment.</b>

**Section 6: Accidental Release Measures**

6.1	Person-related safety precautions:	<b>Use personal protective clothing. Avoid skin contact. Keep away from ignition sources.</b>
6.2	Measures for environmental protection:	<b>Do not allow to enter sewers / surface or ground water.</b>
6.3	Measures for cleaning/absorption:	<b>Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.</b>

**Section 7: Handling and Storage**

7.1	Handling:	<b>Follow Manufactures recommendations regarding maximum recommended currents and operating temperature range. Use for charge and discharge only the recommended equipment. Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire. Do not open or disassemble batteries. Do not throw batteries into fire. No special measures necessary if handled and stored appropriately.</b>
7.2	Storage:	<b>Store in well ventilated cool areas. Avoid overheating, e.g. through incident solar radiation. Protect from air humidity and water. Do not short-circuit. Storage temperature below 60° C.</b>
7.3	Storage conditions:	<b>Keep away from flammable, oxidizing or acidic materials.</b>

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**Section 8: Exposure Controls and Personal Protection**

- 8.1 Additional information about design of technical facilities: **No further data; see item 7.**
- 8.2 Ingredients with limit values that require monitoring at the workplace:  
**WEL: not applicable**
- 8.3 Personal protective equipment:
- |                                           |                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Respiratory protection:                   | <b>Not required if used according to specifications. In case of fire fumes use respiratory protection with A2B2-filters or self-contained respiratory protective device.</b>                                                                                                                                                                                                                                  |
| Protection of hands:                      | <b>In the event of leakage: Wear protective gloves (chemical resistant), e.g. nitrile rubber or butyl rubber. The protective gloves to be used must comply with the specifications of EC directive 89/656/EEC and the resultant standard EN 374. Penetration time of glove material: the exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.</b> |
| Eye protection:                           | <b>Tightly sealed goggles.</b>                                                                                                                                                                                                                                                                                                                                                                                |
| Others:                                   | <b>---</b>                                                                                                                                                                                                                                                                                                                                                                                                    |
| General protective and hygienic measures: | <b>Keep away from foodstuffs, beverages and feed. Use skin protective cream. Do not eat, drink, smoke or take snuff while working. Wash hands before eating, drinking, smoking and using the toilet.</b>                                                                                                                                                                                                      |

**Section 9: Physical and Chemical Properties**

**Compact battery pack with plastic shell. The product neither contains metallic lithium nor lithium alloys.**

**Section 10: Stability and Reactivity**

- 10.1 Conditions to be avoided: **At temperatures over 70° C risk of bursting and withdrawal of electrolyte liquid exists. When cell is exposed to an external short-circuit, it will cause heat generation and ignition. Do not allow conductive material to touch the battery terminals.**
- 10.2 Dangerous reactions: **Reactions of the electrolyte and the electrodes with water and humidity possible.**
- 10.3 Dangerous decomposition products: **None if handled and stored appropriately. In case of fire toxic fumes can be released.**

**Section 11: Toxicological Information**

Acute toxicity: **No risk if handled reasonable. In case of damages or improper use irritant or sensitizing ingredients may get released.**

**Section 12: Ecological Information**

- 12.1 General notes: **Ecological dates are not available. Do not allow product or ingredients to reach ground water, water course or sewage system. No negative ecologic effects are expected, if the product is used and disposed regularly.**

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**Section 13: Disposal Considerations**

Product: According to official regulations. Batteries have to be collected separately from other wastes. Avoid short-circuits during collecting or string. If damages occur, batteries have to be packed solitary in a plastic bag.

Admit to an approved disposal system. Use only approved containers for the collection. EWC: 16 06 05 (other batteries an accumulators).

**Section 14: Transport Information**

The batteries fulfils the requirements to part III, sub-section 38.3 of the UN Manual of Tests and Criteria.

Applies to Lithium-Ion Battery Pack contained in equipment:

<b>Class 9</b>	<b>UN 3481</b>
14.1 Transport by road (ADR/RID/GGVSE):	<p>The product complies with the requirements of special provision 188 of the ADR / RID and is exempt from compliance with the other provisions of ADR / RID.</p> <p>Handle with care. Danger of ignition if the shipping item is damaged. If the package is damaged: Check and repack if necessary.</p> <p>Labeling of packages obligatory if the volume limits of SV 188 are exceeded.</p>
14.2 Transport by ship (IMDG-Code):	<p>The product complies with the requirements of special provision 188 of the IMDG Code and is exempted from the application of the remaining provisions of the IMDG Code, subject to compliance with the described quantity limits.</p> <p>Labeling of packages obligatory if the volume limits of SV 188 are exceeded.</p>
14.3 Air transport (ICAO/IATA):	<p>Limit per package: PAX A/C = 5 kg; CAO = 5 kg</p> <p>Labeling of packages obligatory if more than 2 batteries per package resp. more than 2 packages are shipped.</p>
Proper Shipping Name:	<b>LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT</b>
Entry in AWB:	<b>LITHIUM ION BATTERIES in compliance with Section II of PI 967.</b>



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**Applies to Lithium-Ion Battery - single packed und shipped:**

- |                                            |                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Classe 9</b>                            | <b>UN 3480</b>                                                                                                                                                                                                                                                                                                                                                                               |
| 14.1 Transport by road<br>(ADR/RID/GGVSE): | <p>The product complies with the requirements of special provision 188 of the ADR / RID and is exempt from compliance with the other provisions of ADR / RID.</p> <p>Handle with care. Danger of ignition if the shipping item is damaged. If the package is damaged: Check and repack if necessary.</p> <p>Labeling of packages obligatory if the volume limits of SV 188 are exceeded.</p> |
| 14.2 Transport by ship<br>(IMDG-Code):     | <p>The product complies with the requirements of special provision 188 of the IMDG Code and is exempted from the application of the remaining provisions of the IMDG Code, subject to compliance with the described quantity limits.</p> <p>Labeling of packages obligatory if the volume limits of SV 188 are exceeded.</p>                                                                 |
| 14.3 Air transport (ICAO/IATA):            | <p>Proper Shipping Name: <b>LITHIUM ION BATTERIES</b></p> <p>Section II <b>not more than 1 package: max. 2 batteries per package</b></p> <p><b>PAX: forbidden</b></p> <p><b>CAO: max. 1 package, max. 2 batteries</b></p>                                                                                                                                                                    |



**Entry in AWB: LITHIUM ION BATTERIES in compliance with Section II of PI 965**

- |                   |                                                                                                                                                    |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Section IB</b> | <p><b>if more than 2 batteries or more than one package</b></p> <p><b>PAX: forbidden</b></p> <p><b>CAO: max. net weight per package: 10 kg</b></p> |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|



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**Section 15: Regulatory Information**

15.1 Safety, health and environmental regulation / legislation specific for the substance or mixture:

**2002/96/EC – Directive 2002/96/EC of the European Parliament and of the Council "waste electrical and electronic equipment (WEEE)"**

**2002/95/EC – Directive 2002/95/EC of the European Parliament and of the Council „Restriction of Hazardous Substances (ROHS)"**

**2006/66/EC - Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators repealing 91/157/EEC**

Classification according to German Betriebssicherheitsverordnung (BetrSichV): ---  
Further regulations, restrictions and prohibitions:

Substances of very high concern, according REACH, Article 57: **None.**

15.2 Chemical Safety Assessment: **Not applicable**

**Section 16: Other Information**

**Data do not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product and is based on the present level of our knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. The delivery specifications are contained in the corresponding product sheet.**

**A vertical bar (|) in the left margin indicates an amendment from the previous version.**