

## 1. Product and company identification

trade name

Battery pack LiHD

Information about the manufacturer / supplier

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## 2. Potential Hazards

The contents of the lithium-ion cells are contained in gas-tight sealed metal housings that are designed to withstand the temperatures and pressures when used and handled as intended. With normal use and intended use in accordance with the manufacturer's instructions, there is no risk of ignition or explosion, nor is there a risk of leaking ingredients.

handling and safety at work

Protect battery packs from moisture

Protect the battery packs from moisture, e.g. rain or splashing water, and do not immerse them in liquids, e.g. water. Contact with liquids can cause damage, which sometimes only leads to heat development, smoke development, ignition or an explosion of the battery pack after hours or days.

Do not expose battery packs to fire or heat

Fire or temperatures exceeding 130°C can cause the battery pack to burn or explode.

Do not use damaged, deformed or modified battery packs

Damaged, deformed or modified battery packs can have changed properties that can lead to fire, explosion, leaking liquids or injuries.

Flammable liquid can escape from defective battery packs

If used incorrectly or if the battery pack is defective, a slightly acidic, flammable liquid can escape. Avoid contact with this liquid. In case of contact with skin, rinse with water. If the liquid gets into your eyes, rinse them with clear water and seek medical help immediately. Leaking battery fluid can cause skin irritation or burns.

Do not open or disassemble battery packs

Opening or disassembling the battery pack can change built-in safety and protective measures or render them inoperable. This can cause the battery pack to heat up, smoke, ignite, or explode.

Charge battery packs only in chargers of the approved battery system

Charge battery packs only in chargers recommended and approved by the manufacturer for the type of battery pack. There is a risk of fire and explosion when charging battery packs on non-recommended chargers. There is also a risk of fire and explosion if third-party batteries are charged on Metabo chargers.

Do not use faulty or defective battery packs

Do not use defective battery packs. Discontinue use of battery packs that exhibit abnormal characteristics such as abnormal heating or poor power output, develop odor or heat, or exhibit discoloration or thermal deformation. There is a risk of fire and explosion if defective or faulty battery packs are used.

Keeping and storing battery packs

Short circuits can be caused by bridging the battery contacts with metal objects such as screws, nails, paper clips, keys or other electrically conductive objects. Short circuits can cause burns or fires. Even discharged battery packs can still cause short circuits, as they still have a residual charge to protect against deep discharge. To avoid an accidental and unintentional short circuit, insulate the battery contacts of battery packs outside the machine with the protective cap included in the scope of delivery or with adhesive tape.

Great force effects and the penetration of objects are to be avoided for battery packs. Battery packs should not be exposed to large external forces such as blows or impacts and the intrusion of foreign objects should be avoided. This may result in leakage, generation of heat, generation of smoke, ignition or explosion.

### 3. Composition / information on ingredients characterization

The battery pack contains rechargeable lithium-ion cells. These contain a positive electrode (cathode), a negative electrode (anode), and an electrolyte consisting of salts and solutions. Contact with these substances is excluded under normal conditions of use.

Chemical substance CAS number

Electrolyte Salt Lithium Hexafluorophosphate 21324-40-3

Electrolyte solvent ethylene carbonate 96-49-1

ethylmethyl 623-53-0

carbonate 616-38-6

diethyl carbonate 114435-02-8

Cathode Li, Ni, Co, Al oxide 177997-13-6

Polyvinylidene fluoride 24937-79-9

Anode Carbon 7782-42-5

Aluminum foil aluminum 7429-90-5

Copper foil copper 7440-50-8

### 4. First aid measures

Description of first aid measures

The product contains an organic electrolyte. If the electrolyte leaks out of the battery pack or catches fire, the following measures must be taken:

inhalation (airway)

Remove casualty to fresh air, use artificial respiration if necessary. If necessary, seek medical help. If smoke develops intensively, leave the room and ventilate sufficiently if possible.

eyes (contact)

Flush eyes with plenty of water for several minutes with eyelids open. Remove contact lenses if possible. Get medical help immediately.

Skin (contact and burns)

In case of contact with electrolyte, remove contaminated clothing, wash skin with plenty of soap and water, or take a shower. Burns should be treated appropriately. Medical help should be sought.

Ingestion : First wash out mouth with plenty of water and then drink plenty of water. Do not induce vomiting. Get medical help immediately.

## 5. Firefighting

Lithium-ion battery fires can generally be fought with water. No special extinguishing agents are required. Fires in the vicinity of the battery packs can be fought with conventional extinguishing agents. A battery pack fire cannot be considered separately from the surrounding fire.

The cooling effect of water prevents a fire from spreading to battery cells that have not yet reached the critical temperature for ignition ("thermal runaway").

Reduce fire load by separating larger quantities and transporting them out of the danger area.

## 6. Accidental Release Measures

Personal protective equipment adapted to the situation must be used (suitable protective gloves, protective clothing, face protection, respiratory protection).

If the battery case is damaged, electrolyte can escape. Battery packs must be placed airtight in a non-flammable container filled with dry sand, powdered chalk (CaCO<sub>3</sub>) or vermiculite. In this way, leaking chemicals are absorbed.

When storing damaged Li-ion batteries, it should be noted that a thermal reaction can still take place days later. Therefore store in a safe place (e.g. in a metal box with a sand bed without combustible materials in the area).

Traces of electrolyte can be soaked up with dry household paper. Avoid direct skin contact by wearing suitable protective gloves. It should be rinsed with plenty of water.

## 7. Handling and Storage

### handling

No special protective equipment is required for handling Li-ion batteries. The warnings on the battery housing and the safety instructions in the operating instructions must be observed. Only use the recommended original Li-ion batteries and chargers.

### storage

Li-ion batteries should preferably be stored at room temperature and in a dry place. Large temperature fluctuations outside the recommended temperature range of 0 - 30°C should be avoided. Observe the information on storage and transport in the operating instructions.

Larger quantities of Li-ion batteries should be stored in consultation with local authorities, fire brigades and insurers.

#### 8. Exposure controls / personal protective equipment

Lithium-ion batteries are products (articles) from which no substances are released under normal and reasonably foreseeable conditions of use. Accordingly, no measures and no personal protective equipment are required for normal and intended use.

#### 9. Physical and chemical properties

Compact battery pack with plastic casing and connection contacts.

#### 10. Stability and Reactivity

If the upper temperature limit of 130°C is exceeded, there is a risk of the battery pack bursting.

Above approx. 100°C, overpressure valves in the cells can respond.

The permissible charging temperature is between 0 °C and 50 °C. Exceeding a storage temperature of 60°C can lead to accelerated aging and premature loss of function.

#### 11. Toxicological information

With proper handling and compliance with the generally applicable hygiene and safety regulations, no damage to health has been reported to date.

#### 12. Environmental Information

If handled properly, no negative consequences for the environment are to be expected.

#### 13. Disposal considerations

The symbol of the crossed-out wheeled bin reminds you that battery packs in the European Economic Area (EEA) may not be disposed of with household waste, but must be collected separately.

When disposing of used battery packs, discharge them in the application if possible and return them free of charge to a specialist dealer or a point of sale or a corresponding public one handed over to the collection point. Observe the regulations for environmentally friendly disposal applicable in your region.

To prevent short circuits and the associated heating, lithium-ion batteries must never be stored or transported unprotected in bulk. The battery must be returned secured against short-circuiting.

Suitable measures against short circuits are e.g. e.g.:

- Place the battery packs in their original packaging or in a plastic bag
- Cover poles and contacts with protective caps or tape with insulating tape. –  
Embedding in dry sand

#### 14. Transportation Information

The commercial transport of lithium-ion batteries is subject to dangerous goods legislation. The transport preparations and transport must only be carried out by appropriately trained persons or the process must be accompanied by appropriate experts or qualified companies.

##### Classification and transport regulations

Lithium batteries are subject to the following dangerous goods regulations and exceptions to them as amended:

- UN 3480: Lithium Ion Batteries
- UN 3481: Lithium ion batteries in equipment  
(i.e. plugged into the battery-powered product) or lithium-ion batteries packed with equipment

The currently valid regulations for the various modes of transport apply to the transport:

- Road transport in Europe: ADR
  - Carriage by rail in Europe: RID
  - Transport by inland waterways in Europe: ADN
  - International air carriage: ICAO-TI / IATADGR - International maritime carriage: IMDG Code
- ADR, RID: Special provision: SV188, SV230, SV376, SV377, SV636 (b)

Packing Instruction: P903, P908, P909

Transport category II, tunnel category E

IMDG Code: Special Provisions: SV188, SV230, SV 376, SV377, SV636b

Packing Instruction: P903, P908, P909

EmS: F-A, S-I

Stowage Category A

ICAO, IATA-DGR. Special regulations: A88, A99, A154, A164, A183

Part IA, IB or II

Packing Instruction: PI965, PI966, PI967

For other countries, the relevant transport regulations for road, rail and inland waterway transport are available from the responsible authorities.

All modes of transport

Defective or damaged battery packs are subject to stricter regulations, which go as far as a complete ban on transport. The transport ban applies to air transport (IATA special provision A154).

For the transport of used; but undamaged battery packs, reference must also be made to the corresponding special regulations.

Waste batteries and battery packs shipped for recycling or disposal are prohibited in air transport (IATA Special Provision A 183).

Exceptions must be approved in advance by the competent national authority of the country of departure and the country of the air carrier.

Transportation by private individuals

Private individuals are exempt from the transport regulations in the legal area of the ADR.

However, the following criteria must be met:

- The goods are intended for personal or domestic use or for leisure or sport.
- The goods are packed for retail sale. - The load is adequately secured.

Taking it on the plane as hand luggage or checked luggage must be agreed with the chosen airline.

Different regulations apply.

Transport by traders

In the legal area of the ADR for lithium-ion batteries with a

Energy content of more than 100 Wh the exemption regulations according to 1.1.3.6 ADR ("1000-point regulation"). Up to a battery weight of 333 kg, the transport does not have to be labeled, i.e. no orange-colored warning signs are required on the vehicle and only a 2 kg ABC powder fire extinguisher must be carried.

In the legal area of the ADR there are far-reaching exemptions for taking along for use (at the customer's premises), the so-called craftsman regulation. Recommended are:

- Safe and stable packaging (original packaging).
- Marking according to ADR (original packaging).
- The load is adequately secured.
- Instruction of the employees who carry out the transport.

There are no further requirements for lithium-ion batteries with a maximum energy content of 100 Wh. Nevertheless, the following are recommended:

- Safe and stable packaging (original packaging). - The load is adequately secured.

Supply trips are not exempt.

#### 15. Legislation

Transport regulations according to IATA, ADR, IMDG, RID.

#### 16. Other information

The information provides assistance for compliance with legal requirements, but does not replace them. They are based on the current state of knowledge.

The above information has been compiled to the best of our knowledge and belief.

They do not represent any guarantee of properties. Applicable laws and regulations are to be observed by the distributors, transporters, disposal companies and users of the product on their own responsibility.

#### Legal Notice

EU: Lithium-ion batteries are neither "substances" nor "preparations" within the meaning of Regulation (EC) No. 1907/2006 of the European Parliament (REACH). Instead, they are to be regarded as "articles". The intentional release of substances during use is not intended. There is therefore no obligation to provide a safety data sheet in accordance with Regulation (EC) No. 1907/2006, Article 31.

USA: The preparation of safety data sheets (SDS) is a sub-requirement of the hazard Communication Standard 29 CFR, Section 1910.1200 of the Occupational Safety and Health Administration (OSHA). This standard does not apply to "Articles". OSHA defines "article" as a manufactured product that is not liquid or granular;

(i) which is given a specific form or shape during manufacture;

(ii) which has one or more functions which are wholly or partly dependent on its form or shape in end use; and

(iii) releasing no more than very small amounts under normal conditions of use,

e.g. traces of hazardous chemicals, and which does not pose any objective hazard or health risk to employees.

As all of our battery packs are defined as "Articles" these are exempt from the requirements of the Hazard Communication Standard.