



1. Identification of the product and the company

Trade name

Lithium-ion batteries

Product specification

This document is valid for rechargeable Husqvarna branded lithium-ion batteries.

Manufacturer information

Company: Husqvarna AB
Address: Drottninggatan 2
561 82 Huskvarna
Sweden

Contact Details

Phone: +46 36 14 65 00
Internet: www.husqvarnagroup.com

2. Hazards Identification

Lithium-ion batteries have a gas-tight seal and are not hazardous when used and handled in accordance with the manufacturer's specifications.

Handle discharged batteries with care

Even when discharged, batteries represent a risk as they may deliver a very high short-circuit current. Even if they seem to be discharged, lithium-ion batteries need to be treated as carefully as if they were charged.

Avoid impact and physical damage

Impact and penetration may damage the battery. This may cause leakage, heat generation, smoke, fire, and/or explosion.

Keep batteries away from other metal objects

Paperclips, coins, keys, nails, screws or other metal objects can short the terminals. This may cause burns or fire.

Under abusive conditions liquid may be released from the battery

Avoid contact with battery liquids. Rinse with water. Upon contact with eyes, rinse with water and seek medical assistance. Liquid released from the battery may cause irritation and/or chemical burns.

Do not expose a battery to fire or excessive temperature

Exposure to fire or temperature above 130°C may cause fire, explosion, and personal injuries. Do not incinerate batteries except with permitted waste incinerators.

Do not disassemble batteries

Disassembly or modification of the battery may damage the protection circuit. This may cause heat generation, smoke, fire, or explosion.

Do not immerse batteries in liquids like water or beverages

Exposure to liquids may damage the battery. This may cause heat generation, smoke, fire, or explosion.

Use only chargers recommended by the manufacturer

Chargers which are not suited for the battery being recharged may be damaged. This may cause fire.

Use battery only with dedicated electric equipment

Use of electric equipment with other batteries may lead to battery damage. This may cause fire and personal injury.

Do not use damaged or modified batteries

Damaged or modified batteries may exhibit unpredictable risks. This may cause fire, explosion and personal injury.



Do not use defective batteries

Immediately stop using batteries when abnormalities are noticed, such as smell, heat, discoloration, or deformation. Otherwise, the battery may be damaged. This may cause heat generation, smoke, fire, or explosion.

3. Composition of the Ingredients

Lithium-ion batteries contain lithium metal oxide cathodes such as NMC and NCA.

cathode: Li-, Ni-, Co-, Mn- containing oxides (active material),
polyvinylidene fluoride (binder)
carbon (conductive material), additives, aluminium foil

anode: carbon (active material)
silicone, polyvinylidene fluoride (binder), additives, copper foil

electrolyte: organic solvents (non-aqueous liquids), lithium salt, additives

The product does not contain metallic lithium or lithium alloys.

Ingredients shown are major constituents representative of various compositions for lithium-ion cells. Content composition concentrations will vary with battery type/size.

4. First aid and Measures

Skin or eye contact with released substances (electrolyte): Exposure to contents of an open or damaged battery: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Seek medical attention.

Chemical Burns: Chemical burns require appropriate treatment. Seek medical attention.

Respiratory tract: In case of intensive smoke generation or gas release immediately leave the room and move to fresh air. In case of large quantities and irritation of the respiratory tract, seek medical attention. Ensure sufficient ventilation.

Swallowing: Rinse mouth and vicinity with water. Seek immediate medical attention.

Ingestion: Exposure to contents of an open or damaged battery, rinse mouth thoroughly. Seek medical attention if any discomfort occurs.

Symptoms such as skin and eye burns can be both acute and appear with a delay. Seek medical attention.

5. Firefighting measures

Fires from lithium batteries can be fought with water. There is no need for additional or special extinguishing agents. Surrounding fires can be fought with conventional extinguishing agents. The fire of a battery cannot be considered separately from the surrounding fire.

The cooling effect of water effectively prevents surrounding fire from spreading to batteries which have not yet reached the critical ignition ("thermal runaway") temperature.

Reduce fire load by separating large quantities and moving them away from the area of risk.

During a fire, gases may develop which may cause injuries of the respiratory tract.

Solid water stream shall not be used, as it may pose danger of scattering the fire.

6. Accidental Release Measures

When damaged, the battery housing may release electrolyte. Seal batteries in an airtight plastic bag, add dry sand, chalk powder (CaCO₃) or vermiculite. Traces of electrolyte can be absorbed with dry paper towels. Wear protective gloves in order to prevent direct contact with skin and also avoid contact with eyes. Thoroughly rinse contaminated areas with water.

Emergency responders shall use appropriate personal protective equipment, protective gloves, protective clothing, protective mask, respiratory protection.



Place damaged battery in a designated labelled waste container, dispose as hazardous waste. Waste disposal requirements shall be followed.

7. Handling and Storage

Handling and Occupational Safety

Handling: No special protective clothing required for handling individual batteries. 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, disassemble, crush or burn battery. Do not expose battery to extreme heat or fire. Elevated temperatures can result in reduced battery service life. Observe good industrial hygiene practices.

Wash hands thoroughly after handling.

Storage: Always carefully observe warning notices on batteries and in instructions for use. Use only recommended battery types.

Lithium batteries preferably are to be stored at ambient temperature and in dry places (max. 50 °C). Large temperature fluctuations are to be avoided. (For example, do not store near heat radiators, do not expose to sunlight for sustained periods).

8. Exposure Controls and personal protection measures

Not applicable. Lithium-ion batteries are products, which do not release substances under normal and reasonably foreseeable conditions of use. Therefore, there is normally no need for exposure controls and personal protection.

Consult local authorities and insurers when storing large quantities of lithium-ion batteries.

9. Physical and chemical properties

Compact batteries with (plastic) housing, terminals

- Appearance: Battery
- Physical state: Solid
- Form: Solid
- Colour: Various
- Odour: Odourless.

10. Stability and reactivity measures

The product is stable and non-reactive under normal conditions of use, storage, and transport. No dangerous reaction known under conditions of normal use.

When an upper temperature limit of (e.g. 130°C) is exceeded, batteries may rupture or the pressure relief mechanism may be activated. Exceeding a storage temperature of 60 °C may lead to accelerated ageing and premature loss of function.

Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire.

Do not immerse in seawater or other high conductivity liquids. Irritating and/or toxic fumes and gases may be emitted upon the products decomposition.

11. Toxicological Information

Lithium-ion batteries are products, which do not release substances under normal and reasonably foreseeable conditions of use. In case of damage, ingredients may be released. Low hazard for usual industrial or commercial handling by trained personnel. Any signs of discomfort, due to exposure of contents in a damaged battery, shall be treated as described in section 4.

12. Ecological Information

No ecological impacts expected under normal use conditions.

Lithium-ion batteries do not contain heavy metals (such as lead, cadmium or mercury).

13. Disposal Considerations



In the EU, used batteries must not be disposed of with household waste.

Used batteries shall be returned (free of charge) to the point of sale or to a collection system.

According to the European Battery Directive (2006/66/EC)/Battery Regulation (2023/1542), lithium-ion batteries are marked with the symbol indicating 'separate collection' (crossed-out wheeled bin shown below).



To prevent short circuits and associated heating, lithium batteries must not be stored or transported in bulk form and unprotected. Suitable measures against short circuits include:

- Placing the batteries in original packaging or a bag
- Individual protection of battery contacts (e.g. using insulating tape)
- Embedding in dry sand

14. Transport Information

Commercial transport of lithium-ion batteries is subject to dangerous goods regulations. Transport preparations and transport are exclusively to be carried out by appropriately trained personnel and/or the process has to be accompanied by experts with suitable knowledge or qualified companies.

Transport regulations:

Lithium batteries are subject to the following dangerous goods regulations and exemptions based on the respective valid revision:

Class 9

UN 3480: LITHIUM ION BATTERIES

UN 3481: LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT,
(i.e. inserted in battery operated product) or

LITHIUM ION BATTERIES PACKED WITH EQUIPMENT
(i.e. packed together with battery operated product)

ADR, RID

Special provisions: 188, 230, 310, 376, 377, 636

Packing instructions: P903, P908, P909, LP903, LP904

Tunnel category E

IMDG Code

Special provisions: 188, 230, 310, 348, 360, 376, 377

Packing instructions: P903, P908, P909, LP903, LP904

EmS: F-A, S-I

Stowage category A

ICAO, IATA-DGR

Special provisions: A88, A99, A154, A164, A181, A182, A183, A185, A201

Packing instructions: 965, 966, 967

All transport modes

Test methods and requirements:

In accordance with the dangerous goods regulations for lithium batteries, each new type of cell or battery must have passed all tests listed in the UN Manual of Tests and Criteria, Part III, Section 38.3.

These requirements also apply to used batteries. Used batteries that are intact and undamaged can usually be transported under the regulations for unused batteries]



Defective or damaged batteries are subject to more stringent regulations. These regulations may prohibit the transport completely. A general ban applies to air transport (IATA DGR - special provision A154).

For transport of used - but not damaged - batteries please refer to the respective special transport provisions above.

Waste batteries and batteries which are sent for recycling or disposal are prohibited from air transport (IATA Special provision A 183).

Exemptions need to be approved in advance by the competent authority of the country of origin and the respective country of the airline.

15. Regulatory Information

Regardless of shape, volume, weight and application, batteries in the EU are subject to the respective national implementation of the European Battery Directive (2006/66/EC)/Battery Regulation (1542). It includes but is not limited to regulations regarding placing on the market, collection, treatment and recycling of batteries.

Transport regulations are according to IATA, ADR, IMDG, RID. Refer to section 14.

16. Other Information

This information provides assistance for compliance with legal requirements, but does not replace them. It is based on our present knowledge.

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

The information does not represent any warranties. Distributors and users of the product must take their own responsibility to observe applicable laws and regulations.

17. Legal Remark

European Community

These batteries are no "substances" or "preparations" according to Regulation 1907/2006 EC. Instead, they have to be regarded as "articles", no substances are intended to be released during handling. Therefore, there is no obligation to supply a MSDS according to Regulation (EC) 1907/2006, Article 31.

United States of America

Material Safety Data Sheets (MSDS) are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article". OSHA has defined "article" as a manufactured item other than a fluid or particle;

- which is formed to a specific shape or design during manufacture;
- which has end use function(s) dependent in whole or in part upon its shape or design during end use; and
- which under normal conditions of use does not release more than very small quantities, e.g. minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to humans.

As batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard.