

Lithium-Ion-Battery Recommendations

Leister Technologies AG | Supply Chain Management

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1. Purpose

General recommendations and information for the safe handling of lithium-ion-batteries, hereinafter referred to as "Li-Ion-batteries", which are used in Leister devices.

Assistance in determining national and international requirements for the storage, handling, and transportation of Li-ion-batteries.

2. Scope

Subsidiaries, storage facilities and distributors that dealing with Leister Li-Ion-batteries.

3. Applicable Documents

- UN 3480 Lithium-ion batteries
- UN 3481 Lithium-ion batteries in equipment
- UN 3481 Lithium-ion batteries packed with equipment
- Safety Data Sheets and Test Report UN 38.3

4. Safety Principles for Leister Li-Ion-batteries

4.1 Every company is responsible for its own security

- Due to the design, components, and energy capacity of a Li-Ion-battery may give rise to potential hazards such as fire or smoke development.
- Li-Ion-batteries fall under the category of “dangerous goods” and are thus governed by UN recommendations regarding their transportation.
- Adherence to pertinent regulations and best practices is crucial to safeguarding the well-being of employees, protecting facilities, and mitigating environmental risks associated with Li-Ion-batteries.

4.2 Clarify and fulfill requirements locally

- National and international laws, standards, and guidelines govern various aspects of Li-Ion-batteries, including storage, handling, disposal, and transportation.



The nature of the requirements depends on the **Nominal energy (Wh), the number and the type of transport** of the Li-Ion-batteries.

- Requirements must be clarified locally and addressed with appropriate measures.

4.3 Do not transport used or defect batteries

- Leister considers a used battery to be damaged due to possible hidden defects.
- The transportation of damaged batteries is subject to special regulations worldwide and requires a permit. Leister therefore does not accept returns of used or defective batteries.

5. Checklist

This checklist serves as a guide for identifying and understanding the legal requirements associated with the storage, handling, disposal, and transportation of Li-Ion-batteries.

Many countries have an advanced disposal fee. Check what local charges you will incur per Li-Ion-battery and make sure that you report the quantities sold to the relevant authorities/companies in accordance with the regulations.

Regularly review these requirements and adjust your policies, procedures, and training accordingly to ensure compliance and safety.

5.1 Safety data sheets (Test Report UN38.3)

- Ensure you obtain the most recent safety data sheets for all Li-Ion-batteries utilized within your business.
- Review the safety data sheets for information regarding storage, handling, disposal, and transportation procedures.

5.2 Storage

- Consult your safety officer to determine the temperature, ventilation, and fire hazard requirements for storing Li-Ion-batteries.
- Verify that storage areas are properly labeled and equipped in compliance with relevant regulations.
- Discuss conditions and restrictions with your building insurance company for further guidance.

5.3 Waste disposal

- Research the proper disposal procedures for Li-Ion-batteries in accordance with relevant regulations.
- Many countries have an early recycling system. Check what local charges you will incur per Li-Ion-battery sold and ensure that you report the quantities to the relevant authorities/companies in accordance with the regulations.
- Implement a suitable disposal system and ensure that employees receive proper training on its utilization.

5.4 Transportation

- Verify the regulations governing the transportation of Li-Ion-batteries, including packaging and labeling requirements.
- Check the transportation options for hazardous goods class 9 (UN 3481 and UN 3480) with your logistics partners. Clarify in advance how high the dangerous goods surcharges are per shipment.
- Provide employees with training on the safe transportation of Li-Ion-batteries and ensure that approved transportation methods are utilized.

6. Recommendations for Storing Li-Ion-batteries

Consider the following “best practice” points when storing Li-Ion-batteries.

Safe storage necessitates meticulous planning and adherence to safety guidelines to mitigate risks and prevent potential hazards.

6.1 Temperature control

- Store Li-Ion-batteries at optimal temperatures.
- Typically, the recommended storage temperature falls between 15 °C and 25 °C.
- Extreme heat or cold can adversely affect battery performance and lifespan.

6.2 Battery charge status

- Store the batteries at a moderate charge capacity, typically between 30% and 50%.
- Fully charged or fully discharged batteries are more prone to damage and safety issues.

6.3 Separation

- Store batteries in a manner preventing them from touching or short-circuiting each other.
- Utilize insulated storage racks or containers for safe storage.

6.4 Ventilation

- Ensure adequate ventilation in the storage area to minimize the dispersion of harmful gases in case of a problem.

6.5 Fire protection

- Li-Ion-batteries can ignite if damaged or overheated.
- Keep suitable fire extinguishing agents and equipment nearby the storage site.

6.6 Do not remove labeling

- Maintain the labeling on each battery, providing information about type, capacity, and potential hazards.

6.7 Employee training

- Provide comprehensive training to all employees involved in Li-Ion-battery storage, covering safe handling, avoidance of short circuits, and prevention of mechanical damage.

6.8 Inspection and monitoring

- Conduct regular inspections of stored batteries to promptly identify potential problems, damage, or issues.

6.9 Emergency measures and training

- Develop preplanned emergency measures for battery-related incidents such as fire or leakage.
- Ensure all employees are familiar with proper reactions during such events.
- Provide suitable protective equipment to prevent injuries.

7. Versions History and Release

Document Owner	Bruno von Wyl
Version	1.0
Creation Date	12.04.24
File Name	LT_LithiumIonBattery_Recommendations_GL_en.pdf
Classification	For internal use.

Version history

Description	Asset	Date	Reviser

Release

Vice President Supply Chain Management	Location	Date	Signature
Stefan Vogler	Kägiswil	12.04.24	