1. Name of the product and company

1.1. Product identifier:

Lithium-ion batteries

Designation	Article no.	Wh
BATTERY B50 LI	113559	45
BATTERY B100 LI	113698	90
BATTERY B150 LI	113280	144
BATTERY B200 LI	113524	180
CORDLESS SHEARS GS 7.2 LI	113371	14.4
BATTERY B300 LI	127390	270
BATTERY B50 LI 18V	113893	45
BATTERY B75 LI 18V	113894	72
BATTERY B100 LI 18V	113895	90
BATTERY B125 LI 18V	113896	108
BATTERY B800 LI	114017	288

Designation	Article no.	Wh
BATTERY LI-ION ROBO 5S1P M	442632	45
BATTERY LI-ION ROBO 7S2P	442633	126
BATTERY LI-ION ROBO 5S1P	495433	39.2
BATTERY LI-ION Instart ALKO Pro 170	457853	15.7
BATTERY LI-ION B+S Instart	495221	21.6
BATTERY INVENTUS M-48V60-TRX 48V/60AH	493828	3,100
BATTERY LITHIUM E-RIDER	419163	2,203
BATTERY LI-ION ROBO 5S1P MOLICEL 18V/2.5AH	495606	45
BATTERY LI-ION ROBO 7S2P MOLICEL 25.2V/5AH	495607	126
BATTERY LI-ION ROBOLINHO 82.88WH	441347	82.88
BATTERY LI-ION ROBOLINHO 40.5WH	442175	40.5

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture:

Not applicable.

1.3. Details of the supplier providing the safety data sheet:

Address of the manufacturer/supplier:

Name	AL-KO Geräte GmbH
Address	Ichenhauser Str. 14 D-89359 Kötz
Phone	+49 8221 3551 0
E-mail	info@al-ko.com
Website	https://al-ko.com/

2. Possible dangers

2.1. Classification of the substance or mixture:
Classification according to Directive 67/548/EEC or 1999/45/EC
The mixture is not classified as dangerous within the meaning of Directive 1999/45/EC.
Not applicable

Classification according to Regulation (EC) No. 1272/2008 [CLP]
The mixture is not classified as dangerous within the meaning of Regulation (EC) No. 1272/2008.

2.2. Marking elements
Note on labeling
There is no danger if the handling and storage measures are followed.

2.3. Other dangers:
Lithium-ion batteries are gas-tight and harmless as long as the manufacturer's instructions are followed during use and handling.

For rechargeable batteries, never use chargers that are not suitable for the battery type.

Do not short-circuit. Do not damage mechanically (puncture, deform, disassemble, etc.). Do not heat or burn above the permitted temperature. Keep batteries away from small children. Always store batteries in a dry and cool place.

Lithium-ion batteries are safe to use when handled properly under the parameters specified by the manufacturer. Incorrect handling or circumstances that lead to improper operation can lead to leaks of battery contents and decomposition products and, as a result, to severe reactions that endanger health and the environment.

In principle, contact with leaked battery components can pose a risk to health and the environment. Sufficient body and respiratory protection is therefore required when in contact with conspicuous batteries (leakage of ingredients, deformation, discoloration, dents, etc.). Lithium-ion batteries, for example, can react very violently when combined with fire. Battery components with considerable energy can be emitted.

Handling and operational safety:

Handle discharged batteries carefully
Batteries still represent a source of danger as they may deliver a very high short-circuit current. Even if assumed to be discharged, lithium ion batteries may - as other batteries - never totally discharge.

Avoid impact to the battery
Impact and penetration may damage the battery. This may cause the battery to leak, generate heat, smoke, catch fire, or explode.

Keep batteries away from other metal objects
like paperclips, coins, keys, nails, screws or other small metal objects that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or a fire.

Under abusive conditions, liquid may be ejected from the battery
Avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.

Do not expose a battery to fire or excessive temperature
Exposure to fire or temperature above 130 °C may cause explosion.

Do not disassemble the battery
Disassembly or modification of the battery may damage the protection circuit. This may cause the battery to generate heat, smoke, catch fire, or explode.

Do not immerse the battery in liquid such as water, beverages, or other fluids
Exposure to liquid may damage the battery. As a result, the battery may generate heat, smoke, catch fire, or explode.

Recharge batteries only with the charger specified by the manufacturer
A charger that is suitable for one type of batteries may create a risk of fire when used with another battery.

Use batteries only with specifically designated tools
Use of any other tools may create a risk of injury and fire.

Do not use a battery that is damaged or modified
Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, explosion or risk of injury.

Do not use abnormal batteries
Immediately stop using the battery if there are noticeable abnormalities, such as smell, heat, discoloration, or deformity. The battery may be defective and could generate heat, smoke, catch fire, or explode with continued use.

Excessively high charging voltages and overcharge must be avoided at all costs. They cannot only lead directly to critical situations, but also have a negative effect on the battery’s life.

3. Composition / information on ingredients

Characterizations
The battery pack contains cells with lithium metal oxide cathode.

Important note

The battery may not be opened, heated up to temperatures above 120°C or burned, as exposure to its contents can be dangerous under certain conditions. The product contains neither metallic lithium nor lithium alloys.

Composition:	Lithium metal oxide in the form of LiMO2 (M=Co, Ni, Mn, Al), blends of the metals are possible
Cathode:	Lithium metal phosphate in the form of LiMPO4 (M=Fe, Y, Co, Mn)
	Lithium manganese spinel in the form of LiMn2O4
	Polyvinylidene fluoride (binder)
	Graphite (conductive material)
Anode:	Carbon (active material)
	Polyvinylidene fluoride (binder)
Electrolyte:	Organic solvents (non aqueous liquids)
	Lithium salt

The product does not contain metallic lithium or lithium alloys.

4. First aid measures

4.1. Description of first aid measures:
General information:

The following first aid measures are only required if exposed to internal battery components after damage to the outer casing. Lithium cells and batteries do not pose a risk if handled and stored correctly.

After Skin or eye contact:
If such contact occurs, the affected areas should be rinsed thoroughly with water for at least 15 minutes. In the event of eye contact, you should always contact a doctor and rinse thoroughly with water.

At Burns:
If burns are caused, they must be treated accordingly. It is also strongly recommended that you contact a doctor.

After inhalation:
If there is intense smoke or gas release, leave the room immediately. In case of larger quantities and irritation of the respiratory tract, consult a doctor. If possible, ensure adequate ventilation.

At the Swallow:
Rinse mouth and surrounding area with water. Get medical help immediately.

4.2. Most important acute and delayed symptoms and effects:
In case of electrolyte leakage:
Depending on the concentration, aqueous solution causes irritation or burns to the eyes, skin and mucous membranes.

4.3. Indications for immediate medical attention or special treatment:
Treat symptomatically.

5. Firefighting measures

Fires in lithium-ion batteries can generally be fought with water. A differentiation between different lithium battery systems is generally not possible and not necessary at the time of the fire.

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

As with any fire, the resulting fire gases can cause health problems if inhaled. Sufficient ventilation must therefore be ensured.

5.1. Extinguishing agent:

Cold water and dry chemical in large quantities.
Special powder for metal fires or dry sand if only a few cells are affected.

5.2. Special hazards arising from the substance or mixture
In the event of a fire, the following smoke gases can occur, among others:
Carbon monoxide and carbon dioxide
Wear self-contained breathing apparatus and chemical protection suit.

5.3. Advice for firefighting:
If possible, remove cell(s) from the danger area. At temperatures above 125°C, cell(s) may explode.
The cells are not combustible, but the organic materials they contain may burn if the cells are exposed to fire.

6. Accidental release measures

If the battery housing is damaged, electrolyte may leak. Batteries should be sealed in an airtight plastic bag and dry sand, chalk powder (CaCO3) or vermiculite should be added. Traces of electrolyte can be absorbed with dry household paper. Direct skin contact should be avoided by wearing protective gloves. It should be rinsed with plenty of water.

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

6.1. Personal precautions, protective equipment and emergency procedures:
Use personal protective clothing.
Avoid contact with skin, eyes and clothes.
Avoid breathing smoke and gases.

6.2. Environmental protection measures:
Do not allow to enter drains/surface water/groundwater.

6.3. Methods and material for containment and cleaning:
Collect mechanically and dispose of.

6.4. Reference to other sections:
Information on disposal, see section 13.

7. Handling and storage

In any case, the warning notices on batteries and the operating instructions for devices and other applications must be carefully observed. Use only recommended battery types.

Lithium-ion batteries should preferably be stored at room temperature and in a dry place (max. 40°C); large temperature fluctuations should be avoided. (e.g. do not store near heaters, do not permanently expose to solar radiation).

When storing larger quantities of lithium-ion batteries, consultation with the local authorities should be made take place.

7.1. Precautions for safe handling:
Advice for safe handling:
Avoid short-circuiting the cell. Avoid mechanical damage to cells. Do not open or disassemble.
Follow the instructions.

Information about fire and explosion protection:
Keep away from open flames, hot surfaces and sources of ignition.

7.2. Conditions for safe storage, including any incompatibilities:
Requirements for storage rooms and containers:
Store only in the original container in a cool, well-ventilated place.
Recommended storage temperature: < 40 °C

7.3. Specific end uses
No data available.

8. Exposure controls/personal protection

Lithium-ion batteries are products from which no substances are released under normal and reasonably foreseeable conditions of use.

8.1. Parameters to monitor:
Additional information on limit values
There is no release of substances during normal loading and unloading.

8.2. Limitation and monitoring of exposure:
Protective and hygiene measures:
In case of electrolyte leakage:
Ensure adequate ventilation and/or extraction in the work areas. Use personal protective clothing. Avoid contact with skin, eyes and clothes. Avoid breathing smoke and gases.
Remove all sources of ignition.

Eye/face protection:
In case of electrolyte leakage:
Tightly fitting safety glasses (EN 166).

Hand protection:
In case of electrolyte leakage:
Rubber gloves

Respiratory protection:
In case of electrolyte leakage:
Wear a respiratory mask (EN 149).

9. physical and chemical properties

The lithium-ion battery is a compact battery pack with a plastic casing

9.1. Information on basic physical and chemical properties:

Physical state:	Firmly
Color:	Different
Odor:	Odorless

9.2. Other Information:

No data available.

10. Stability and Reactivity

If an upper temperature limit is exceeded, there is a risk of the batteries bursting.

When charging a rechargeable system, the upper voltage limit must always be observed. If the limits are exceeded, the battery may burst or even explode.

If a storage temperature of 40°C is exceeded, accelerated aging and premature loss of function can occur.

10.1. Reactivity:
No data available.

10.2. Chemical stability:
No data available.

10.3. Possibility of dangerous reactions:
Reactions of the electrolyte and the electrodes with water and moisture are possible.

10.4. Conditions to avoid:
Keep away from open flames, hot surfaces and sources of ignition. Do not puncture, crush or burn. Avoid temperatures above 60°C.

10.5. Incompatible materials:
No substances worth mentioning.

10.6. Dangerous decomposition products:
No data available.

More information:
No decomposition if stored and used as intended.

11. Toxicological information

If handled correctly and the generally applicable hygiene regulations are observed, no damage to health has been reported.

11.1. Information on toxicological effects:
Acute toxicity:
Based on the available data, the classification criteria are not met.

Irritating and corrosive effects:
Based on the available data, the classification criteria are not met. In the event of an electrolyte leak: Aqueous solution, depending on concentration, causes irritation or burns to eyes, skin and mucous membranes.

Sensitizing effects:
Based on the available data, the classification criteria are not met. In case of electrolyte leakage: Sensitization possible through skin contact.

Specific target organ toxicity - single exposure:
Based on the available data, the classification criteria are not met.

Serious effects after repeated or prolonged exposure:
Based on the available data, the classification criteria are not met.

Carcinogenic, mutagenic and reproductive toxic effects:
Based on the available data, the classification criteria are not met.

Danger of aspiration:
Based on the available data, the classification criteria are not met.

Other observations:
When handled correctly and when the generally applicable hygiene regulations are observed, no damage to health has been reported.

12. Environmental information

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

12.1. Toxicity:
No data available.

12.2. Persistence and degradability:
No data available.

12.3. Bioaccumulation potential:
No data available.

12.4. Mobility in the ground:
No data available.

12.5. Results of the PBT and vPvB assessment:
No data available.

12.6. Other harmful effects:
No data available.

More information:
When used as intended, no environmental impacts are known or expected. Do not discharge into surface water or drains.

13. Note on disposal

Lithium-ion batteries are marked with the crossed-out garbage can symbol. The symbol reminds end users that batteries must not be disposed of with household waste but must be collected separately. Used batteries can be returned (free of charge) to the point of sale, recycling center or to a disposal system (industrial, commercial). To prevent short circuits and the resulting overheating, lithium-ion batteries must never be stored or transported unprotected in bulk. Appropriate measures against short circuits are e.g.:

- Inserting the batteries in their original packaging or in a plastic bag,
- masking the poles,
- Embed in dry sand

13.1. Waste treatment methods:
Waste key product:
160605 waste not listed elsewhere in the inventory; Batteries and accumulators; other batteries and accumulators

Disposal of uncleaned packaging and recommended cleaning agents:
Disposal according to official regulations.

14. Transport information

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

Transport regulations:
Lithium-ion batteries are subject to the following dangerous goods regulations and exceptions thereto - in the respective valid version:

14.1. UN number:	UN 3480 or UN 3481
14.2. UN proper shipping name:	LITHIUM ION BATTERIES LITHIUM ION BATTERIES IN EQUIPMENT, or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT
14.3. Transport hazard class:	9
14.4. Packaging group:	no
14.5. Danger label:	9A

≤ 100Wh

UN 3480:	LITHIUM ION BATTERIES
UN 3481:	LITHIUM ION BATTERIES IN EQUIPMENT, or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT

>100Wh

class 9
Danger label 9A

ADR, RID, ADN:
Special regulations: SV188, SV230, SV310, SV348, SV360, SV376, SV377, SV387, SV390, SV636
Packaging instructions: P903, P908, P909, P910, P911, LP903, LP904, LP905, LP906
Classification code: M4
Limited Quantity (LQ): 0
Exempt Quantities (EQ): 0
Promotion category: 2
Tunnel restriction code: (E)

IATA:
Special regulation: A48, A88, A99, A154, A164, A181, A183, A185, A201. A213, A220, A331, A334, A802
Limited Quantity (LQ): prohibited
Exempt Quantities (EQ): 0

IMDG Code:
Special regulation: SV188, SV230, SV310, SV348, SV360, SV376, SV377, SV384, SV387, SV390
Packaging instructions: P903, P908, P909, P910, P911, LP903, LP904, LP905, LP906
Limited Quantity (LQ): 0
Exempt Quantities (EQ): 0
EmS: FA, SI
Congestion category A, SW19

14.6. Environmental hazards:
ENVIRONMENTALLY HAZARDOUS: no

14.7. Special precautions for the user:
No special actions required.

14.8. Transport in bulk in accordance with Annex II of MARPOL and the IBC Code:
Transport takes place exclusively in approved and suitable packaging.

Test and inspection regulations
According to the dangerous goods regulations for lithium-ion batteries, any new type of cell or battery type must have passed all tests listed in the UN Manual of Tests and Criteria, Part III, Section 38.3. This is particularly true if several cells or batteries are connected to new batteries (battery packs or battery aggregates).

Used batteries are also subject to these regulations. If used batteries are intact and undamaged, the regulations for new batteries can usually be applied. Defective or damaged batteries are subject to stricter regulations, including a complete transport ban. The transport ban applies to air transport (ICAO TI, IATA DGR - special provision A154).

However, for the transport of used - but not damaged - batteries, please refer to the relevant special regulations (636) and packaging instructions (P903a and P903b / ADR).

Waste batteries and batteries that are sent for recycling or disposal are prohibited in air transport (IATA special provision A 183).

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

15. Legislation

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

Additional information:
Note: This product is an article (article) and therefore the creation of a safety data sheet (SDS) is not legally required. This SDS, created on a voluntary basis, contains information on safe handling and use and environmental protection.

15.2. Chemical safety assessment:
Chemical safety assessments for substances in this mixture have not been carried out.

In Germany, the law on the placing on the market, taking back and environmentally friendly disposal of batteries and accumulators (Battery Act – BattG) of June 25, 2009 applies.

This law serves to implement Directive 2006/66/EC (Battery Directive).

16. Other Information

Changes:
Changes in Section: 9

Abbreviations and acronyms:
ADR = Agreement concerning the International Carriage of Dangerous Goods by Road
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relative to transport international des marchandises dangereuses par voie de navigation interior
IMDG = International Maritime Code for Dangerous Goods
IATA/ICAO = International Air Transport Association / International Civil Aviation Organization
MARPOL = International Convention for the Prevention of Pollution from Ships
DOT = Department of Transportation
TDG = Transport of Dangerous Goods

GHS = Globally Harmonized System of Classification and Labeling of Chemicals
REACH = Registration, Evaluation, Authorization and Restriction of Chemicals
CAS = Chemical Abstract Service
EN = European standard
ISO = International Organization for Standardization
DIN = German industry standard
PBT = Persistent Bioaccumulative and Toxic
vPvB = Very Persistent and very Bio-accumulative

LD = lethal dose
LC = Lethal concentration EC = Effect concentration
IC = Median immobilization concentration or median inhibitory concentration

More information:
The information in positions 4 to 8 and 10 to 12 is partly not related to the use and proper application of the product (see instructions for use/technical information), but rather to the release of larger quantities in the event of accidents and irregularities. The information solely describes the safety requirements of the product(s) and is based on our current state of knowledge. They do not represent any guarantee of properties of the product(s) described within the meaning of the statutory warranty regulations. (na - not applicable, nb - not specified)

The information provides assistance in complying with legal requirements, but does not replace them.

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

They do not constitute a guarantee of properties. The distributors and users of the product are responsible for observing applicable laws and regulations.