

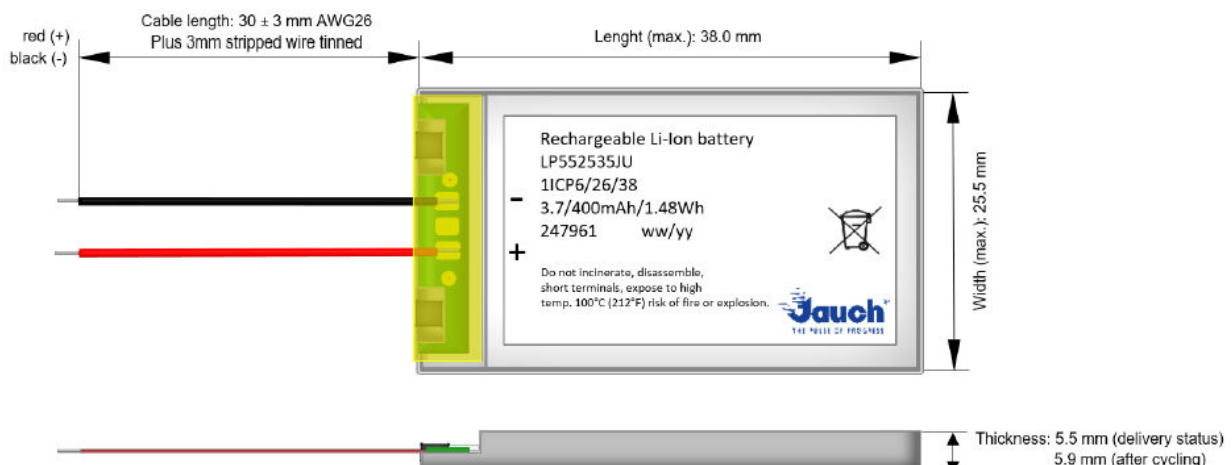
SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Lithium Ion (Polymer) Rechargeable battery
Model: LP552535JU
Nominal Voltage: 3.7V
Capacity: 420mAh
Wh Rating: 1.55Wh
Chemical System: Lithium Graphit - Cobalt – Dioxide
Classification: UN3481
 PI 967
 Section 11
 IMP: ELI

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SPECIFICATIONS		CHARGING CHARACTERISTICS PER BATTERY PACK	
UL1642/UL2054	▪ YES/NO	Charge Voltage	▪ 4.2 ± 0.03 CV
UN 38.3	▪ YES	Standard Current	▪ 0.2 C
IEC62133	▪ YES	Max. Charge Current	▪ 1.0 C
Nominal Voltage	▪ 3.7 V	Operating Temperature	▪ +10°C to +45°C
Typ. Capacity	▪ 420 mAh (0.2C, 3.0V discharge)		
Min. Capacity	▪ 400 mAh (0.2C, 3.0V discharge)		
Weight	▪ Approx. 13 gr.		
PCM PARAMETER PER BATTERY PACK		DISCHARGING CHARACTERISTICS PER BATTERY PACK	
Overcharge Det. Voltage	▪ 4.275 V ± 0.05 V	Cut-off Voltage	▪ 3.0 V
Overcharge Rel. Voltage	▪ 4.075 V ± 0.05 V	Standard Current	▪ 0.2 C
Overdischarge Det. Voltage	▪ 3.000 V ± 0.10 V	Max. Discharge Current	▪ 1.0 C
Overdischarge Rel. Voltage	▪ 3.200 V ± 0.10 V	Operating Temperature	▪ -20°C to +60°C
Max. Continuous Current	▪ 0.8 A - 3.2 A	Storage Temperature	▪ -20°C to +25°C (max. 3 months)
Second Protection	▪ Second IC	Delivery State of Charge	▪ Max. 30%
		Life Expectancy 0.2C/0.2C @25°C	▪ 500 cycles ~ 80% of capacity



SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

The regulations for substances are not applicable, as cells or batteries are articles under the relevant definitions. The chemicals mentioned are contained in a sealed aluminium pouch. Risk of exposure occurs only if the cell / battery is mechanically or electrically abused. Conditions to avoid: cells or batteries may explode when placed in a fire, when exposed to excessive heat, when opened or during inappropriate use. Hazardous substances contained in the article according to UN-GHS (for information purposes only):

Composition	Molecular formula	CAS No.	Weight (%)
Lithium Cobalt Oxide	LiCoO ₂	12190-79-3	30-35%
Carbon	C	1333-86-4	20-25%
Electrolyte	LiPF ₆	21324-40-3	1-2%
PVDF	(CH ₂ -CF ₂) _n	24937-79-9	1-2%
Acetylene Black	C	1333-86-4	0.5-1%
SBR	(C ₈ H ₈ .C ₄ H ₆) _x	9003-55-8	0.2-0.8%
EC	C ₃ H ₃ O ₄	96-49-1	5-10%
DMC	C ₃ H ₆ O ₃	616-38-6	5-10%
Aluminum	Al	7429-90-5	10-15%
Copper	Cu	7440-50-8	2-5%
Dissepiment	/	/	2-5%
Others	/	/	2-5%

The UN GHS labelling information is not provided in this section as batteries are articles and therefore are exempted from the UN GHS labelling requirements. Other labelling requirements apply for batteries according to EU Directive 2006/66/EC

SECTION 3: HAZARDS IDENTIFICATION

Batteries are articles and therefore exempted from the UN-GHS classification requirements.

There are no GHS labelling requirements for articles. Other labelling requirements apply for batteries according to the EU Directive 2006/66 for batteries.

Nevertheless, the following warning must be observed: keep out of reach of children.

The chemicals mentioned in Section III are contained in a sealed pouch. Risk of exposure occurs only if the cell / battery is mechanically or electrically abused. Swallowing of a battery can lead to chemical burns, perforation of soft tissues and death. Severe burns can occur within 2 hours of ingestion. In case of ingestion, seek medical attention immediately.

SECTION 4: FIRST AID MEASURES

None unless internal material exposure.

Skin contact:

Contents of an opened battery can cause irritation, wash immediately with soap and water. Remove contaminated clothing. If irritation persists, get medical help.

Eye contact:

Contents of an opened battery can cause severe irritation, IMMEDIATELY FLUSH THOROUGHLY WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION.

Ingestion:

CALL MEDICAL PRACTITIONER IMMEDIATELY

Inhalation:

Do not inhale leaked material. PROVIDE IMMEDIATELY FRESH AIR, IF IRRITATION PERSISTS, GET MEDICAL HELP.

SECTION 5: FIRE-FIGHTING MEASURES

Fire and Explosion hazard:

The battery can leak and/or spout vaporized or decomposed and combustible electrolyte fumes in case of exposure above 100°C resulting from inappropriate use or the environment. Cells or batteries may flame or leak potentially hazardous organic vapors if exposed to excessive heat or fire. Fire, excessive heat, or over voltage conditions may produce hazardous decomposition products. Damaged or opened cells or batteries can result in rapid heating and the release of flammable vapors. Vapors may be heavier than air and may travel along the ground or be moved by ventilation to an ignition source and flash backfire, excessive heat, or over voltage conditions may produce hazardous decomposition products. During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire

Extinguishing Media:

Suitable CO₂ or dry chemical extinguishers Dry chemical or Foam extinguishers. Special Fire Fighting Procedure: WEAR NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT. Unusual Fire and Explosion Hazards: NONE SPECIFIED BY MANUFACTURER. As with any fire, wear self-contained breathing apparatus to avoid inhalation of hazardous decomposition products

SECTION 6: ACCIDENTAL RELEASE MEASURES

General

Chemical contents are sealed in an aluminium pouch. But if the battery is mechanically or electrically abused, contents may leak out. In such case, take action as showing below.

The preferred response is to leave the area and allow the batteries to cool and the vapours to dissipate.

Personal precautions

Avoid skin and eye contact or inhalation of vapours. Temporary inhalation of odor and attaching of electrolyte to skin does not cause serious health hazard. Be sure the ventilation and washing out of electrolyte quickly.

Environmental precautions

Collect all released material in a plastic lined metal container and remove spilled liquid with absorbent. Doing this, protect your skin and eyes with gloves and protection glasses. Avoid direct contact with internal components. Specific environmental precaution is not necessary

SECTION 7: HANDLING AND STORAGE

When used correctly, Lithium-Ion (Polymer) Batteries provide a safe and dependable source of power. However, if they are misused or abused, leakage, venting, or in extreme cases explosion and/or fire may result.

Make sure to observe amongst others, following warnings.

Handling:

- Do not insert batteries in reverse. Observe the polarity markings on battery and equipment
- Do not short-circuit batteries
- Do not overcharge batteries
- Do not force discharge batteries
- Do not mix batteries
- Do not overheat batteries by exposure to high temperatures and direct sunlight.
- Do not weld or solder directly to batteries
- Do not dismantle batteries
- Do not deform batteries
- Do not dispose of batteries in fire
- A battery with a damaged pouch should not be exposed to water
- Do not allow children to replace batteries without adult supervision
- Keep batteries out of the reach of children. In case of ingestion of a cell or battery, the person involved should seek medical assistance promptly
- Equipment intended for use by children should have battery compartments which are tamper-proof
- Do not encapsulate and/or modify batteries
- Exhausted batteries should be immediately removed from equipment and disposed of.
- When discarding batteries with solder tags, insulate the tags by wrapping them with tape, foil, etc.

Storage:

- Store unused batteries in their original packaging and keep them away from metal objects which may short circuit them.
- Storing unpackaged cells together could result in cell shorting and heat build-up
- Store and display batteries in their original packaging in well ventilated, dry and cool conditions
- Avoid storing or display batteries in direct sun or in places where they get exposed to rain
- The normal storage of Lithium-ion Polymer Battery Pack is made at temperature between +10°C and +25°C, never exceeding +30°C In this way the maximum shelf-life (i.e. max. retention of cell performances after storage periods) of Lithium-ion Polymer Battery Pack is achieved
- Storage temperatures above room temperature will increase the rate of self-discharge, reducing the available capacity of the cell. Humidity above 95% R.H. and below 40% R.H. should also be avoided for sustained periods, as these extremes are detrimental to batteries
- Storing the cells at low temperature is also suggested, but attention must be paid when transferring the cells to warmer environments, because of the possibility of having water condensing on to the cells (risk of short circuits)
- Do not stack battery cartons on top of each other exceeding a specified height. The height is clearly dependent on the strength of the packaging. As for general rule this height should not exceed 1.5 m for cardboard packages or 3 m for wooden cases. The above recommendations are equally valid for storage conditions during prolonged transit. Thus, batteries should be stored away from ship engines and not left for long periods in unventilated metal box cars (containers) during summer.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection (specify type): Not necessary under conditions of normal use

Ventilation: Not necessary under conditions of normal use

Protective gloves: Not necessary under conditions of normal use

Eye protection: Not necessary under conditions of normal use

Other protective clothing or equipment: Not necessary under conditions of normal use

In the event, however, electrolyte should be released by mechanical or electrical abuse, use:

Respiratory protection: Mask (with a filter preferably)

Hand protection: Synthetic rubber gloves

Eye protection: Goggles or glasses

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

The chemicals mentioned in Section II are contained in a sealed pouch. Under conditions of normal use, the chemicals will not be released.

Appearance: single cell in aluminium pouch

Nominal voltage: Single cell: 3.7 volts

SECTION 10: STABILITY AND REACTIVITY

Since batteries utilize a chemical reaction, they are actually considered a chemical product. As such, battery performance will deteriorate over time even if stored for a long period of time without being used.

However, lithium batteries are contained in a sealed pouch and are sealed to avoid any chemical release under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

The chemicals mentioned in Section 2 are contained in a sealed pouch. Risk of exposure occurs only if the battery is mechanically or electrically abused or if it is ingested.

Risk of exposure occurs only if the battery is mechanically or electrically abused or if it is ingested.

Swallowing of a battery can lead to chemical burns, perforation of soft tissues and death.

Severe burns can occur within 2 hours of ingestion. In case of ingestion, seek medical attention immediately.

Numerical measures of toxicity No further information available.

Interactive effects No further information available.

The chemicals mentioned in Section 2 are contained in a sealed battery pouch. Under conditions of normal use, the chemicals will not be released.

Toxicity

Aquatic toxicity: Based on classification of ingredients, the classification criteria are not met.

Persistence and degradability

Not biodegradable.

Bioaccumulative potential

No further information available.

Mobility in soil

No further information available.

Other adverse effects

No further information available.

SECTION 12: ECOLOGICAL INFORMATION

The chemicals mentioned in Section 2 are contained in a sealed pouch. Under conditions of normal use, the chemicals will not be released. It does not pose a physical or health risk to users.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste disposal method:

a) Be sure to comply with your federal, state and local regulation disposal of used batteries. Dispose in accordance with appropriate national and international regulations, below some references.

European Community: according to Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE), Annex II, batteries have to be removed from any separately collected WEEE. The removed batteries have to be treated according to the Battery directive 2006/66/EC.

US: Lithium batteries are neither specifically listed nor exempted from the Federal Environmental Protection Agency (US EPA) hazardous waste regulations.

Use a professional disposal firm for disposal of mass quantities of undischarged lithium batteries.

b) Open cells should be treated as hazardous waste

DO NOT INCINERATE or subject battery cells to temperatures in excess of 212°F (100°C). Such treatment can cause cell rupture

SECTION 14: TRANSPORT INFORMATION

Dangerous Goods Classification Class 9 lithium batteries

UN-No. UN 3480, UN3481

Proper Shipping Name: Lithium Ion Batteries (including Lithium Polymer Batteries)

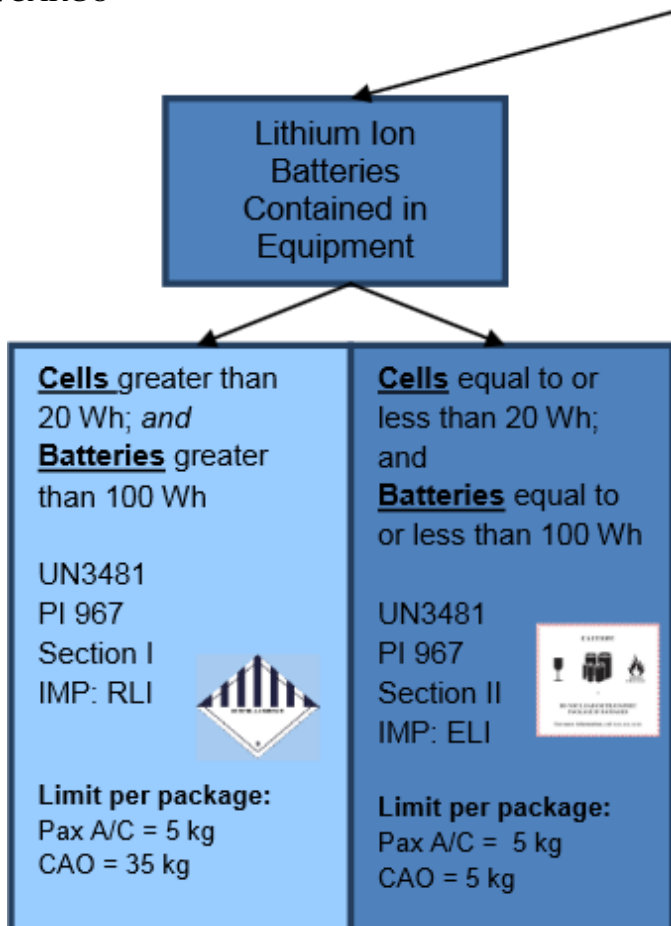
Lithium-Ion Cells and Batteries are subject to the following transport rules:

Method	Technical Guidelines
Air	ICATO/IATA 62 nd Ed. 2021
Road and Rail Europe	ADR / RID 2021
Sea	IMDG Code 2021 (Amdmt.40-20)
USA	DOT 49 CFR

Please use the transportation information for reference. Exact packaging, shipping documentation and labelling requirements vary depending on energy content of cell/battery, quantity, method of shipping, airline or forwarder. Make sure to confirm concrete actions in advance with your shipping company. Batteries mentioned under Section I fulfil the conditions pursuant to the requirements for partly regulated transportation. UN Manual of Tests and Criteria Part III Subsection 38.3.

Battery cartons should be handled with care. Rough handling may result in batteries being shorted or damaged. This may cause leakage, explosion or fire.

AIR/CARGO



SECTION 15: REGULATORY INFORMATION

- UN (United Nations): Recommendations on the Transportation of Dangerous Goods Model Regulations, Seventh revised edition, New York and Geneva 2019
- ICAO (International Civil Aviation Organization): Technical Instructions for the safety transport of dangerous goods by air 2020-2021
- IATA (International Air Transport Organization): Dangerous Goods Regulations 62nd Edition; Effective January 1st, 2021
- ADR / RID 2021 • IMO (International Maritime Organization): International Maritime Dangerous Goods (IMDG) Code 2021 Edition (Amendment 40/20)
- EU Battery Directive 2006/66/EC and Amendments

SECTION 16: OTHER INFORMATION

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.