Ascent Battery Supply, LLC
1325 Walnut Ridge Drive
Hartland, Wisconsin 53029

Safety Data Sheet (SDS) — Lithium Polymer

The information and recommendations below are believed to be accurate at the date of document preparation. Ascent Battery Supply makes no warranty or merchantability or any other warranty, express or implied, with respect to this information and assumes no liability resulting from its use. This SDS provides guidelines for safe use and handling of product. It does not, and cannot, advise all possible situations. All specific uses of this product must be evaluated by the end user to determine if additional safety precautions should be taken.

The following information is provided as a courtesy to Ascent customers.

SECTION 1 - IDENTIFICATION

Product Name	Lithium Polymer Battery		
Common Name(s)	Li-Poly, Li-Polymer		
Synonyms			
DOT Description	Dry Battery		
Chemical Name	Lithiated Cobalt Oxide		
Distributed By	Ascent Battery Supply, LLC	**Emergency Number**	CHEMTREC 1-800-424-9300
Address	1325 Walnut Ridge Drive Hartland, Wisconsin 53029	**International Emergency Number**	CHEMTREC +1 703-741-5970

SECTION 2 – HAZARD(S)

Intact Batteries	No specific health hazard. If battery exhibits signs of leaking avoid contact without proper protection.
Eyes	Severe irritation or chemical burns if contact with internal material
Skin	Severe irritation or chemical burns if contact with internal material
Inhalation	Irritation of respiratory system if exposed to fumes
Ingestion	Harmful if swallowed; internal battery chemicals will cause severe chemical burns to mouth, esophagus and GI system
Acute Effects	Irritation, burns, dizziness, headache

SECTION 3 – COMPOSITION

Ingredients	Content by Weight	CAS No.
Lithium Cobalt Oxide	25-50%	12190-79-3
Carbon	10-30%	7440-11-0
Aluminum (Al)	2-10%	7429-90-5
Cu	5-15%	7440-50-8
Nickel (Ni)	0.5-5%	7440-02-0
Polyvinylidene Fluoride (PVDF)	0-5%	24937-79-9
Aluminum Packing Foil	5-15%	n/a
Organic Solvents	10-20%	n/a

SECTION 4 – FIRST AID MEASURES

Eyes	Rinse immediately with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove contact lenses, if easily possible. Seek medical attention immediately.
Skin	Flush immediately with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before re-use. Seek medical attention immediately
Inhalation	Remove from exposure and move to fresh air immediately. Rinse mouth and nose with water. Do not use mouth-to-mouth resuscitation. If breathing has ceased, apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. Seek medical attention immediately.

Ingestion	Do not induce vomiting. Do not give anything by mouth to an unconscious person. Seek medical attention immediately.

SECTION 5 – FIRE-FIGHTING MEASURES

Extinguishing Media	Class D dry chemical powder, sand is suitable; do not use water.
Hazardous Properties and Combustion Products	Cells or batteries may flame or leak potentially hazardous organic vapors if exposed to excessive heat or fire. 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 back. Possible formation of hydrogen fluoride (HF) and phosphorous oxides during fire. LiPF6 salt contained in the electrolyte releases hydrogen fluoride (HF) in contact with water. During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire.
Extinguishing Methods	Promptly isolate the scene by removing all persons from the vicinity of the incident. No action should be taken involving personal risk without suitable training. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Move containers from fire area if this can be done without risk. Prevent run-off from entering streams or drinking water supply. Do not re-enter scene until thoroughly ventilated.
Firefighter PPE	Firefighters should wear fire-fighting suits with self-contained breathing apparatus

SECTION 6 – ACCIDENTAL RELEASE MEASURES

General Information	See Section 8
Personal Safety Precautions	No action should be taken involving personal risk without suitable training. Review Sections 5 and 7 before proceeding with spill clean-up. Use proper PPE as indicated in Section 8. Ventilate area adequately. If electrolyte leaks or spills, do not touch or walk through the spill material.
Environmental Protection	In the event of battery rupture, capture all released material in a plastic lined container. Dispose of the container in accordance with local laws and regulations. Do not allow leached substances to seep into the earth or waterways.
Cleaning/Collecting	Pack the battery, including all battery materials, as described above. Clean the affected area with water (diluted acetic acid may also be helpful).

SECTION 7 – HANDLING AND STORAGE

Precautions to be Taken when Handling and Storing	Batteries are designed to be recharged. However, improperly charging a cell or battery may cause the cell or battery to flame. Use only approved chargers and procedures. Never disassemble a battery or bypass any safety device. Should a battery unintentionally be crushed, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid inhalation of any vapors that may be emitted.
Other Precautions	Do not store batteries above 60 °C or below -32°C. Store batteries in a cool (below 21°C (70°F)), dry area that is subject to little temperature change. Elevated temperatures can result in reduced battery service life. Battery exposure to temperatures in excess of 130°C will result in the battery venting flammable liquid and gases. Do not store batteries in a manner that allows terminals to short circuit.

SECTION 8 – EXPOSURE/PERSONAL PROTECTION

Relevant Exposure Limits			
CAS No.	**ACGIH (mg/m^3)**	**NIOSH (mg/m^3)**	**OSHA (mg/m^3)**
7440-11-0 – Carbon	None listed	None listed	PEL-TWA 15
7440-50-8 – Cu	TLV-TWA 1 (dust)	REL-TWA 1 (dust)	PEL-TWA 1 (dust)
7429-90-5- Al	TLV-TWA 15 (dust)	REL-TWA 10 (dust)	PEL-TWA 10 (dust)

PPE: Facilities	Facilities storing or utilizing this product should be equipped with an eyewash station and safety shower
PPE: Eyes	Under normal use, no protection is required. Safety glasses and face shield should be used in the event of leakage or battery case rupture.
PPE: Clothing	Under normal use, no special clothing is required. Gloves, boots, apron or other protective clothing should be used in the event of leakage or battery case rupture.
PPE: Respiration	Under normal conditions, no special gear is required. Use appropriate respirator if excessive airborne dust or mist concentrations are present.

SECTION 9 – PHYSICAL/CHEMICAL PROPERTIES

Appearance	Geometric	**Boiling Point**	n/a	**Vapor Density**	n/a
Physical State	Solid	**Melting Point**	n/a	**Relative Density**	n/a
Odor	odorless	**Vapor Pressure**	n/a	**Solubility in Water**	Insoluble

SECTION 10 – STABILITY & REACTIVITY

Chemical Stability	Stable under normal conditions
Hazardous Reaction Conditions	External short circuit, crushing, high temperature, open flames, incompatible material contact, direct sunlight, and high humidity may case heat generation and ignition or fire.
Material Incompatibility	Not compatible with conductive materials, water, seawater, strong oxidizers, and acids
Hazardous Decomposition Products	Corrosive/Irritant Hydrogen fluoride (HF) is produced in case of reaction of lithium hexafluorophosphate (LiPF6) with water. Combustible vapors and formation of Hydrogen fluoride (HF) and phosphorous oxides if ignited.
Hazardous Polymerization	n/a

SECTION 11 – TOXICOLOGICAL INFORMATION

Relevant Toxicological Limits

CAS No.	RETCS
7440-11-0 – Graphite	MD9659600
7440-50-8 – Cu	GL5325000; GL7440000; GL7590000
7429-90-5 – Al	BD0330000; BD1020000

Acute Toxicity	
$LiPF_6$	LD50: >1702 g/kg - ingestion

SECTION 12 – ECOLOGICAL INFORMATION

Discarded batteries may be harmful to the environment.

SECTION 13 - DISPOSAL

To prevent short circuit, batteries should be completely discharged prior to disposal, terminals taped and/or capped. When completely discharged it is not considered hazardous. This product does not contain any materials listed by the United States EPA as requiring specific waste disposal requirements. These are exempted from the hazardous waste disposal standards under Universal Waste Regulations. Disposal of large quantities of Lithium Ion batteries or cells may be subject to Local, State or Federal / Provincial regulations. Consult your Local, State and Federal / Provincial regulations regarding disposal of these batteries. Do not incinerate.

SECTION 14 – TRANSPORT

This product complies with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods regulations, and applicable U.S. DOT regulations for the safe transport of Li-Ion Battery.
This product has been tested under the provisions of the UN Manual of Tests and Criteria, Part III, sub-section 38.3 and is classified as a non-dangerous good.

Lithium ion cell/battery = UN3480 with Section II of PI965
Lithium ion cell/battery packed with equipment = UN3481 with Section II of PI966
Lithium ion cell/battery contained in equipment = UN3481 with Section II of PI967
Content in Watt-hour (Wh) AND Lithium ion cell = less than 20Wh per cell
Lithium ion battery = less than 100Wh per battery

Land transport: DOT Code of Federal Regulations (USA)
Sea transport: IMDG according to Special Provision 188
Air transport: ICAO-TI and IATA-DGR Li-Ion Battery according to NEW PACKING INSTRUCTION 965-967 of IATA DGR 2014, 55th Edition of transportation.

SECTION 15 – REGULATORY INFORMATION

No additional

SECTION 16 - OTHER

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