

Ref. No: LT C-PSDS-VI-APS BE

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PRODUCT SAFETY DATA SHEET

This PSDS document refers to batteries as a consumer product. Under the Global Harmonized System the batteries are considered “articles” and are exempted from SDS classification criteria from and the GHS labelling. The following document is supplied as a feedback to requests concerning battery use, regulatory compliance and safety of use.

1. PRODUCTS AND COMPANY IDENTIFICATION

Product name: Coin Lithium		
IEC Designation	Lithium content (g)	Voltage
CR1025	0.008	3V
CR1216	0.008	
CR1220	0.01	
CR1616	0.02	
CR1620	0.02	
CR1632	0.04	
CR2012	0.02	
CR2016	0.03	
CR2025	0.05	
CR2032	0.07	
CR2354	0.17	
CR2430	0.09	
CR2450	0.18	

Advanced Power Solutions

Nieuwe Gentsesteenweg 21
1702 Groot-Bijgaarden
Belgium

2. HAZARDS IDENTIFICATION

Most Important Hazardous

Adverse Human Health

Effects:

When the leaked liquid adheres to the skin, it may cause the damage of the skin. When it is gotten in eye, it may cause the damage of eye such as losing sight.

Physical And Chemical

Hazard:

There is the risk of explosion if batteries are disposed in fire, heated above 100 degree C. Stacking or jumbling batteries may cause external short circuits, heat generation and explosion.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name: Lithium Battery

Component	Content (%)	CAS No.
<Positive electrode> Manganese dioxide	12 - 50	1313-13-9
<Negative electrode> Lithium metal	0.5 - 6	7439-93-2
<Electrolyte> 1,2-dimethoxyethane	1.5 - 3.5	1110-71-4
Lithium Perchlorate	0.2 - 0.7	09/03/7791
Organic electrolyte	2.5 - 7	-
<Others> Steel	30 - 85	7439-89-6, 7440-47-3
Polypropylene	0.5 - 10	9003-07-0

4. FIRST AID MEASURES (IF LEAKED SOLUTION WILL CONTACT)

Skin Contact:

Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.

Eye Contact:

Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Get immediate medical treatment. If appropriate procedures are not taken, this may cause eye injury.

Inhalation:

Remove to fresh air immediately. Get medical treatment immediately.

5. FIRE FIGHTING MEASURES

Extinguishing Media:

Alcohol-resistant foam and dry sand are effective.

Specific Fire-Fighting Methods:

Be sure on the windward to extinguish the fire, since vapor from burning batteries may make eyes, nose and throat irritate. Wear the respiratory protection equipment in some cases.

6. ACCIDENTAL RELEASE MEASURES (IN CASE OF ELECTROLYTE LEAKAGE FROM THE BATTERY)

<u>Health Considerations and Protective Equipment:</u>	Wear proper protective equipment.
<u>Environmental Precautions:</u>	Prevent spills from entering sewers, watercourses.
<u>Spill Clean-Up Procedures:</u>	Collect material to minimize dust generation; use wet mop, damp sponge. Place collected material into a suitable container for disposal.

7. HANDLING AND STORAGE

Handling

<u>Precaution:</u>	When packing the batteries, do not allow battery terminals to contact each other, or contact with electrically conductive materials. Be sure to pack batteries by providing partitions in packaging boxes, or in separate plastic bags to avoid they are mixed together. Use strong material for packaging boxes to avoid damage by vibration, impact, dropping and stacking during transportation. Do not recharge batteries. Do not deform batteries. Do not mix different types of batteries. Do not solder directly onto batteries.
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Storage

<u>Storage Condition:</u>	Do not let water penetrate into packaging boxes during their storage and transportation. Do not store the batteries in the high temperature exceeding 35 degree C, under direct sunlight or near heat source. Also avoid high humidity. Be sure not to expose the batteries to condensation, water drop or not to store them under frozen condition
<u>Safe Packaging Materials:</u>	Carton boxes, Wooden boxes

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION (IN CASE OF ELECTROLYTE LEAKAGE FROM THE BATTERY)

Engineering Measures:	Make available in the work area and storage place emergency shower and eyes wash
Occupational Exposure Limits (OELs):	Not specified in ACGIH and OSHA
<u>Protective Equipment</u>	
Respiratory Protection:	Self-Contained Breathing Apparatus for organic gases
Hand Protection:	Safety gloves.
Eye Protection:	Safety glasses with side shields must be worn when handling this product
Skin and Body Protection:	To prevent any contact, wear impervious clothing such as boots or whole body suits as appropriate

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Style Appearance:	Coin shape
Colour:	Silver
Odour:	Odourless~Characteristic odour
pH:	Not Applicable
Specific temperatures /Temperature range at which changes in physical state occur:	Not Applicable
Flash Point:	Not Applicable
Explosion Properties:	No Data
Specific Gravity (g/cm ³):	No Data
Solubility:	Not Applicable
Voltage:	3 Volts

10. STABILITY AND REACTIVITY (PHYSICAL HAZARD)

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. In addition, the various usage conditions such as discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Oral(rat) LD50 > 2000mg/kg
(estimated)

Local Effects: No information as a battery

In case of the worn out battery was disposed in land, the battery case may be corroded, and leak electrolyte. But, we have no ecological information. Mercury (Hg), Cadmium (Cd) and Lead (Pb) are not used in cell

12. DISPOSAL CONSIDERATIONS

When the battery is worn out, dispose of it under the ordinance of each local government or the law issued by relating government

13. TRANSPORT INFORMATION

During the transportation of a large amount of batteries by ship, trailer or railway, do not leave them in the places of high temperatures and do not allow them to be exposed to condensation.

During the transportation do not allow packages to be dropped or damaged.

Proper shipping name:	Lithium metal batteries
Un Number, Un Class	UN3090, Class9 (for the Air transport by PI968 Section IA or IB) Exemption (for the Marine transport and the Air transport by Section II of PI 968, 969 or 970)

Even though the cells are classified as lithium metal batteries (UN3090 or UN3091), they are not subject to some requirements of Dangerous Goods Regulations.

Please refer to the following reference information about concrete ways of transportation. Actual content of packaging label and shipping documents varies by shipping companies. Make sure to confirm in advance with your shipping company.

	Reference	Reference Packing Instruction (PI)/ Special provision (SP)	Note
Air transport	IATA DGR	PI 968 SectionIA	Cells, Cargo Aircraft only; Net quantity per package Max. 35kg
		PI 968 SectionIB	Cells, Cargo Aircraft only; net quantity per package Max. 2.5kg
		PI 968 SectionII	Cells, Cargo Aircraft only, not more than one package in any single consignment; net quantity per package Max. 2.5kg
		PI 969 SectionII	Cells packed with equipment
		PI 970 SectionII	Cells contained in equipment, button cell batteries
Marine transport	IMDG Code	SP 188	

14. REGULATORY INFORMATIONS

- IATA Dangerous Goods Regulations 63rd Edition (2022)
- IMO International Maritime Dangerous Goods 2020 Edition
- EU Battery Directive (2006/66/EC, version 2018)
<http://data.europa.eu/eli/dir/2006/66/2018-07-04>
- Regulation (EC) No, 1907/2006 on the Registration, Evaluation, Authorization of Chemicals (REACH) (current version 1/5/2022)
<http://data.europa.eu/eli/reg/2006/1907/2022-05-01>
- UN Recommendations on the Transportation of Dangerous Goods, Model Regulations
- UN Recommendations on the Transportation of Dangerous Goods, Manual of Tests and Criteria
- State of California Regulations - Best management practices for Perchlorate Materials
<http://dtsc.ca.gov/dtsc-laws-regulations/title22/>
- Act on Preventing Environmental Pollution of Mercury (Japan)

15. OTHER INFORMATION

It is necessary for the customer to take appropriate measures depending on the actual situation such as the individual handling, based on this information.

In California only, packages that contain CR lithium coin cells and the Owners/ Operating Instructions of products that contain CR lithium coin cells must include the following statement: "Perchlorate Material special handling may apply. See:

<http://www.dtsc.ca.gov/hazardouswaste/perchlorate>.