

SAFETY DATA SHEET

Lead Acid Battery (Gel Electrolyte) - TUBULAR RE | OPzV

SECTION 1: IDENTIFICATION

Product/Chemical Name: Lead Acid Battery (Gel electrolyte)	Chemical Family/Classification: Battery OPzV type
Other Product Names: Lead acid (gel) battery	Usage: Telecom systems / Monitoring and control systems at power plants and energy stations / Signaling systems at railway stations, airports and seaports / Emergency lighting systems / Data processing systems / Uninterruptible power supply systems (UPS) / RE Systems (solar, wind and hydro-electric) / Automation systems / Military Applications
Manufacturer/Supplier's Name and Address: Discover Energy Corp. 880-999 West Broadway Vancouver, BC, V5Z 1K5, Canada	Emergency Telephone Number: US: INFOTRAC 1.800.535.5053

SECTION 2: HAZARD IDENTIFICATION

Hazard Statements	Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin.
Precautionary Statements	Keep out of reach of children. Keep containers tightly closed. Avoid heat, sparks, and open flame while charging batteries. Avoid contact with internal acid / gel.
Emergency Overview	May form explosive air/gas mixture during charging. Contact with internal components may cause irritation of severe burns. Irritating to eyes, respiratory system, and skin. Prolonged inhalation or ingestion may result in serious damage to health. Pregnant women exposed to internal components may experience reproductive/developmental effects.
Potential Health Effects	Eyes Direct contact of internal electrolyte gel with eyes may cause severe burns or blindness.
	Skin Direct contact of internal electrolyte gel with the skin may cause skin irritation or damaging burns.
	Ingestion Swallowing this product may cause severe burns to the esophagus and digestive tract and harmful or fatal lead poisoning. Lead ingestion may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, and pain in the arms, legs and joints.
	Inhalation Respiratory tract irritation and possible long term effects.

Acute Health Hazards	Repeated or prolonged contact may cause mild skin irritation.
Chronic Health Hazards	Lead poisoning if persons are exposed to internal components of the batteries. Lead absorption may cause nausea, vomiting, weight loss, abdominal spasms, fatigue, and pain in the arms, legs and joints. Other effects may include central nervous system damage, kidney dysfunction, and potential reproductive effects. Chronic inhalation of sulfuric acid mist may increase the risk of lung cancer.
Medical Conditions Generally Aggravated By Exposure	Respiratory and skin diseases may predispose one to acute and chronic effects of sulfuric acid and/or lead. Children and pregnant women must be protected from lead exposure. Persons with kidney disease may be at increased risk of kidney failure.
Additional Information	No health effects are expected related to normal use of this product as sold.

SIGNAL WORD: DANGER



Hazard statement:	Environmental statement:
<ul style="list-style-type: none"> Severe skin burns and eye damage Serious eye damage May damage fertility or the unborn child if ingested or inhaled May cause cancer if ingested or inhaled Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure May form explosive air/gas mixture during charging Extremely flammable gas (hydrogen) Explosive, fire, blast or projection hazard 	<ul style="list-style-type: none"> Wash thoroughly after handling Do not eat, drink or smoke when using this product Wear protective gloves and clothing, as well as eye and face protection Avoid breathing dust, fume, gas, mist, vapor or spray Outdoors use only or in a well ventilated area Causes skin and respiratory system, as well as serious eye damage Contact with internal components may cause irritation or severe burns Avoid contact with internal acid

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENTS (chemical/common names)	CAS NUMBER:	% by WEIGHT:
Lead	7439-92-1	53 -74%
Lead Oxide	1309-60-0	
Antimony	7440-36-0	<0.001%
Calcium	7440-70-2	<1%
Arsenic	7440-38-2	<1%
Tin	7440-31-5	<1%
Acrylonitrile Butadiene Styrene (ABS)	9003-56-9	5-15%
Other	-	
Electrolyte (Sulfuric Acid)	7664-93-9	20-30%
Silicon dioxide	7631-86-9	1-2%

SECTION 4: FIRST AID MEASURES

Eye Contact	Flush eyes with large amounts of water for at least 15 minutes. Seek immediate medical attention if eyes have been exposed directly to acid gel.
Skin Contact	Flush affected area(s) with large amounts of water using deluge emergency shower, if available, shower for at least 15 minutes. Remove contaminated clothing. If symptoms persist, seek medical attention.
Ingestion	If swallowed, give large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death.
Inhalation	If breathing difficulties develop, remove person to fresh air. If symptoms persist, seek medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Suitable/unsuitable extinguishing media	Dry chemical, carbon dioxide, water, foam. Do not use water on live electrical circuits.
Special fire fighting procedures & protective equipment	Use appropriate media for surrounding fire. Do not use carbon dioxide directly on cells. Avoid breathing vapours. Use full protective equipment (bunker gear) and self-contained breathing apparatus.
Unusual fire and explosion hazards	Batteries evolve flammable hydrogen gas during charging and may increase fire risk in poorly ventilated areas near sparks excessive heat or open flames.
Specific hazards in case of fire	Thermal shock may cause battery case to crack open. Containers may explode when heated.
Additional Information	Firefighting water runoff and dilution water may be toxic and corrosive. May cause adverse environmental impacts.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions	Avoid Contact with Skin. Neutralize any spilled electrolyte with neutralizing agents, such as soda ash, sodium bicarbonate, or very dilute sodium hydroxide solutions.
Environmental precautions	Prevent spilled material from entering sewers and waterways.
Spill containment & cleanup Methods/materials	Add neutralizer/absorbent to spill area. Sweep or shovel spilled material and absorbent and place in approved container. Dispose of any non-recyclable materials in accordance with local, state, provincial or federal regulations.
Additional Information	Lead acid batteries and their plastic cases are recyclable. Contact a Discover representative for recycling info.

SECTION 7: HANDLING & STORAGE

Precautions for safe handling/storage	<ul style="list-style-type: none"> Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components. Do not handle near heat, sparks, or open flames. Protect containers from physical damage to avoid leaks and spills. Place cardboard between layers of stacked batteries to avoid damage and short circuits. Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire. Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water.
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SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls/system design	Store and handle in well-ventilated areas. If mechanical ventilation is used, components must be acid resistant
Ventilation	General dilution ventilation is acceptable.
Respiratory protection	Not required for normal condition use. See special firefighting procedures (Section 5)
Eye protection	Wear protective glasses with side shields or goggles.
Skin protection	Wear chemical resistant gloves as a standard procedure to prevent skin contact.
Work Practices	Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing when filling or handling batteries.
Other protective clothing or equipment	Chemically-impervious apron and face shield recommended when adding water or electrolyte to batteries. Wash Hands after handling.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical shape and color as supplied	
Specific gravity	1.240 – 1.300 pH<2
Solubility in water (20°C)	Gel electrolyte is not soluble
Appearance and Odor	
Battery	ABS, solid; may be contained within an outer casing and metal terminals
Lead	Gray, metallic, solid; brown/grey oxide
Electrolyte	GEL No apparent odor.

SECTION 10: STABILITY & REACTIVITY

Stability	Stable under normal temperature conditions.
Incompatibility (Materials to avoid)	Sparks, open flames, keep battery away from strong oxidizers
Hazardous decomposition	Temperatures above the melting point are likely to produce toxic acid fumes, vapor or contact with strong acid or base or the presence of nascent hydrogen may generate highly toxic gas
Hazardous polymerization	Will not occur. Product is stable under conditions described in Section 7
Conditions to avoid	Sparks and other sources of ignition. Prolonged overheating. Deformation Crushing Piercing Disassemble

SECTION 11: TOXICOLOGICAL INFORMATION

Signs and Symptoms	None, unless battery ruptures. In the event of exposure to internal contents, acid fumes may be very irritating to the eyes and skin
Inhalation	Lung irritant
Skin Contact	Skin irritant
Eye Contact	Eye irritant
Ingestion	Poisoning if swallowed. Tissue damage to throat and gastro/respiratory tract if swallowed
Medical Conditions Generally Aggravated by exposure	In the event of exposure to internal contents, moderate to severe irritation, burning and dryness of the skin may occur.

SECTION 12: ECOLOGICAL INFORMATION

In most surface water and groundwater, lead forms compounds with anions such as hydroxides, carbonates, sulfates, and phosphates, and precipitates out of the water column. Lead may occur as sorbed ions or surface coatings on sediment mineral particles or may be carried in colloidal particles in surface water. Most lead is strongly retained in soil, resulting in little mobility. Lead may be immobilized by ion exchange with hydrous oxides or clays or by chelation with humic or fulvic acids in the soil. Lead (dissolved phase) is bioaccumulated by plants and animals, both aquatic and terrestrial.

SECTION 13: DISPOSAL CONSIDERATIONS

Battery Electrolyte (Acid)	Do not dispose as household waste. Follow local and National regulations to dispose. Return for recycling. Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as a hazardous waste. DO NOT FLUSH LEAD-CONTAMINATED ACID INTO SEWER.
Batteries	Send to lead smelter for reclamation following applicable regulations.

SECTION 14: TRANSPORT INFORMATION

Per DOT, ADR/RID, IATA, ICAO and IMDG rules and regulations, DISCOVER's OPzV Lead Acid batteries are exempt from hazardous classifications as a result of successful completion of the following tests: 1) vibration tests; 2) pressure differential tests; 3) case rupturing tests (no free liquids). The batteries must be shipped in a condition that would protect from short circuits, and be securely packaged so as to withstand conditions normal to transportation

UN No:	"NOT RESTRICTED" Exempted from the requirements because batteries have passed the Vibration and Pressure Differential performance tests for Non-spillable designation.
Proper Shipping Name:	
Class:	
Packing Group:	
Label:	

SECTION 15: REGULATORY INFORMATION

TSCA (Toxic Substance Control Act) Registry							
Ingredients listed in the TSCA Registry are:							
	Lead						
	Lead Oxide						
	Lead Sulfate						
	Sulfuric Acid						
SARA TITLE III (Superfund Amendments and Reauthorization Act)							
The contents of this product are toxic chemicals that are subject to the reporting requirements of section 302 and 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40CFR 355 and 372).							
CERCLA (Comprehensive Response Compensation, and Liability Act)							
Chemicals present in the product which could require reporting under the statute:							
	<table border="1"> <thead> <tr> <th>Chemical</th> <th>CAS#</th> </tr> </thead> <tbody> <tr> <td>Lead</td> <td>7439-92-1</td> </tr> <tr> <td>Sulfuric Acid</td> <td>7664-93-9</td> </tr> </tbody> </table>	Chemical	CAS#	Lead	7439-92-1	Sulfuric Acid	7664-93-9
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SECTION 16: OTHER INFORMATION

MSDS Preparation Information:	Date Issued: June 1st, 2015. Supersedes all previous versions.
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