Safety Data Sheet

Revision Date: Dec 23, 2015 **Revision Number: 0**

1.PRODUCT IDENTIFICATION

Product Identifier	Valve Regulated Maintenance Free Lead-Acid Batteries: DJW, DJM, DJ, FT,LCP Series
Other Means Of Identification	Valve Regulated Maintenance Free Lead-Acid Battery, Sealed Lead Acid Battery
Recommended Use	Lead acid battery. Lead Acid (Non-spillable) Battery
Supplier Name and Address	LEOCH INTERNATIONAL TECHNOLOGY LIMITED 5th Floor, Xinbaohui Bldg., Nanhai Blvd. Nanshan, Shenzhen, China. 518054
Emergency phone Number	86-0755-86036060

2. GHS HAZRDS IDENTFICATION

Emergency Overview

NOTE: Under normal conditions of battery use, internal components will not present a health hazard. The following information is provided for battery acid and lead exposure that may occur during battery production or container breakage or under extreme heat conditions such as fire.

In case of rupture:

Corrosive

The product causes burns of eyes, skin and mucous membranes

Appearance: No information available.**Physical State:** Solid. **Odor:** Odorless

- **Classification of the chemical**

Chemical Name	CAS-No	Weight %
Lead	7439-92-1	65～75
Sulfuric acid	7664-93-9	10～20
ABS resin	9003-56-9	～5
Tin	7440-31-5	＜0.5
Calcium	7440-70-2	＜0.1

- **hazard statements**

Code （1）	Prevention precautionary statements （2）	Hazard class （3）	Hazard category （4）	Conditions for use （5）
P305+ P351+ P338	**IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**	Skin corrosion (chapter 3.2)	1A, 1B, 1C	
		Severe eye damage (chapter 3.3)	1	
		Eye irritation (chapter 3.3)	2A, 2B	
P303+ P361+ P353	**IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**	Flammable liquids (chapter 2.6)	1, 2, 3	
		Skin corrosion (chapter 3.2)	1A, 1B, 1C	
P302+P352	**IF ON SKIN: Wash with plenty of water**	Acute toxicity, dermal (chapter 3.1)	1, 2, 3, 4	Leoch may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.
		Skin irritation (chapter 3.2)	2	
		Skin sensitization (chapter 3.4)	1, 1A, 1B	
P332+P313	**If skin irritation occurs: Get medical advice/attention.**	Skin irritation (chapter 3.2)	2, 3	*– may be omitted when P333+P313 appears on the label.*
P333+P313	**If skin irritation or rash occurs: Get medical advice/attention.**	Skin sensitization (chapter 3.4)	1, 1A, 1B	
P304+P340	**IF INHALED: Remove person to fresh air and keep comfortable for breathing.**	Acute toxicity, inhalation (chapter 3.1)	1, 2, 3, 4	
		Skin corrosion (chapter 3.2)	1A, 1B, 1C	
		Respiratory sensitization (chapter 3.4)	1, 1A, 1B	
		Specific target organ toxicity, single exposure;	3	
		respiratory tract irritation (chapter 3.8)		
		Specific target organ toxicity, single exposure;	3	
		narcotic effects (chapter 3.8)		
P301+ P334+P331	**IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.**	Skin corrosion (chapter 3.2)	1A, 1B, 1C	
P301+P312	**IF SWALLOWED: Call a POISON CENTER/doctor/…/if you feel unwell.**	Acute toxicity, oral (chapter 3.1)	4	Leoch specify the appropriate source of emergency medical advice.
P306+ P360	**IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing**	Oxidizing liquids (chapter 2.13)	1	
		Oxidizing solids (chapter 2.14)	1	

	clothes.			

3. HAZARDOUS INGREDIENTS/IDENTIFY INFORMATION

- **Physical Data**

COMPONENTS	DENSITY	MELTING/BOILING (M/B) POINT	SOLUBILITY (H2O)	ODOR	APPEARANCE
Lead	11.34	327.46 °C, 621.43 °F (M)	None	None	Sliver-Gray Metal
Lead Sulfate	6.2	1170 °C, 2138 °F (B)	40 mg/l (15 °C, 59 °F)	None	White crystals or powder
Lead Dioxide	9.4	290 °C, 554 °F (M)	None	None	Dark brown Powder
Sulfuric Acid	~1.3	95°C -115°C , 203°F -240°F (B)	100%	Sharp, penetrating, pungent odor	Clear Colorless Liquid
Fiberglass Separator	--	--	Slight	None	White Fibrous
Case Material: Acrylonitrile Butadine Styrene (ABS)	--	--	None	None	Solid

- **Chemical Information**

COMPONENTS	Approx % by Wt.	CAS Number	Air Exposure Limits (μg/m3)			LD50 ORAL(mg/kg)
			ACGIH TLV	OSHA	NIOSH	500
Inorganic Lead/Lead Compounds	65%-75%	7439-92-1	150	50	10	500
Tin	<0.5%	7440-31-5	2000	2000	--	--
Calcium	<0.1%	7440-70-2	--	--	--	--
Dilute Sulfuric Acid	10%~20%	7664-93-9	1000	1000	1000	2.14
Fiberglass Separator	~ 5%	--	--	--	--	--
Case Material: Acrylonitrile Butadine Styrene (ABS) or Polypropylene(PP)	~5%	9003-56-9 9003-0 7-0	--	--	--	--

4. FIRST AID MEASURES

- **Routes of Entry:**

Battery is considered as sealed non-spillable one. Under normal operating conditions, the materials sealed inside should not be hazardous to people's health. Only when these materials exposed during production or under case broken condition or being extremely heated (fired), they may be hazardous to people's health.

Sulfuric Acid: Harmful by all routes of entry.

Lead Compounds: Hazardous Exposure can occur only when product is heated, oxidized, or otherwise processed or damaged to create dust, vapor or fume.

General Advice	First aid is upon rupture of sealed battery.
Eye Contact	Sulfuric Acid: Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. consult physician.
Skin Contact	Sulfuric Acid: Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
	Lead: Wash immediately with soap and water.
Inhalation	Sulfuric Acid: Move to fresh air. Call a physician or Poison Control Center immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Ingestion	Sulfuric Acid: Immediate medical attention is required. Call a physician or Poison Control Center immediately. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Remove from exposure, lie down.
	Lead Compounds: May cause abdominal pain, nausea, vomiting, diarrhea, and severe cramping. Acute ingestion should betreated by a physician.
Notes to Physician	Treat symptomatically.
Protection of First-aid	Use personal protective equipment. Avoid contact with skin, eyes and clothing.

5. FIRE FIGHTING MEASURES

Flammable Properties	Not flammable.
Flash Point	Not determined.
Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Uniform Fire Code	Corrosive: Acid-Liquid
Hazardous Combustion Products	Hazardous metal fumes and oxides.
Explosion Data Sensitivity to Mechanical Impact	No.
Sensitivity to Static Discharge	No.
Specific Hazards Arising from the Chemical	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPAHealth Hazard 3 **Flammability 0 Stability 2 Physical and Chemical Hazards**

6. PRECAUTIONS FOR SAFE HANDLING AND USE

Personal Precautions Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not get in eyes, on skin, or on clothing.

Environmental Precautions Refer to protective measures listed in Sections 7 and 8.

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up In case of rupture: Use personal protective equipment. Dam up. Soak up with inert absorbent material. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly.

Other Information Refer to protective measures listed in Sections 7 and 8.

7. HANDLING AND STORAGE

Precautions to be Taken in Handling and Storage	Keep away from flames during and immediately after charging. Combustion or overcharging may create or liberate toxic and hazardous gases and liquids including hydrogen, sulfuric acid mist, sulfur dioxide, sulfur trioxide, stibine, arsine and sulfuric acid. Store batteries in cool, dry, well-ventilated area. Do not short circuit battery terminals, or remove vent caps during storage or recharging. Protect battery from physical damage.
Other Precautions	GOOD PERSONAL HYGIENE AND WORK PRACTICES ARE MANDATORY. Refrain from eating, drinking or smoking in work areas. Thoroughly wash hands, face, neck, and arms before eating, drinking or smoking. Launder soiled clothing before reuse. Emptied batteries contain hazardous sulfuric acid residue.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- **Exposure Guidelines**

Chemical Name	CAS Number	ACGIH TLV	OSHA PEL	NIOSH IDLH
Lead	7439-92-1	TWA:0.05 mg/m3	TWA: 50 µg/m3 Action Level: 30 µg/m3 Poison, See 29 CFR 1910.1025	IDLH: 100 mg/m3 TWA: 0.050 mg/m3
Sulfuric acid	7664-93-9	TWA:0.2mg/m3 thoracic fraction	TWA: 1 mg/m3 (vacated) TWA: 1 mg/m3	IDLH: 15 mg/m3 TWA: 1 mg/m3
Tin	7440-31-5	TWA:2 mg/m3	TWA: 2 mg/m3 Sn except oxides (vacated) TWA: 2 mg/m3	IDLH: 100 mg/m3 TWA: 2 mg/m3

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value.

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits.

NIOSH IDLH: Immediately Dangerous to Life or Health.

Other Exposure Guidelines	Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir. , 1992).
Engineering Measures	Showers Eyewash stations Ventilation systems

Personal Protective Equipment Eye/Face Protection Skin and Body Protection Respiratory Protection	 Tightly fitting safety goggles. Wear protective gloves/clothing. No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	No information available	**Odor**	Odorless.
Odor Threshold	No information available	**Physical State**	Solid
pH	No information available		
Flash Point	No information available.	**Auto-ignition Temperature**	No information available
Decomposition Temperature	No information available	**Boiling Point/Range**	No information available
Melting Point/Range	No information available		
Flammability Limits in Air	No information available	**Explosion Limits**	No information available
Water Solubility	Immiscible in water	**Solubility**	No information available
Evaporation Rate	No information available	**Vapor Pressure**	No data available
Vapor Density	No data available	**Partition Coefficient: noctanol/water**	

10. REACTIVITY DATA

Stability	Stable under recommended storage conditions.
Incompatible Products	Incompatible with strong acids and bases. Incompatible with oxidizing agents.
Conditions to Avoid	Exposure to air or moisture over prolonged periods.
Hazardous Decomposition Products	Thermal decomposition can lead to release of toxic/corrosive gases and vapors
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

GENERAL: The primary routes of exposure to lead are ingestion or inhalation of dust and fumes.

ACUTE:
INGESTION/INHALATION: Exposure to lead and its compounds may cause headache, nausea, vomiting, abdominal spasms, fatigue, sleepdisturbances, weight loss, anemia, and pain in the legs, arms and joints. Kidney damage, as well as anemia, can occur from acuteexposure.

CHRONIC:
INHALATION/INGESTION: Prolonged exposure to lead and its compounds may produce many of the symptoms of short-term exposure and may alsocause central nervous system damage, gastrointestinal disturbances, anemia, and wrist drop. Symptoms of central nervous systemdamage includefatigue, headaches, tremors, hypertension, hallucinations, convulsions and delirium. Kidney

dysfunction and possible injury hasalso been associatedwith chronic lead poisoning. Chronic over-exposure to lead has been implicated as a causative agent for the impairment of male andfemalereproductive capacity, but there is, at present, no substantiation of the implication. Pregnant women should be protected fromexcessive exposure.Lead can cross the placental barrier and unborn children may suffer neurological damage or developmental problems due toexcessive lead exposure inpregnant women.

- **Acute Toxicity**

Product Information Product does not present an acute toxicity hazard based on known or supplied information.

Irritation Causes severe irritation and or burns

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	= 2140 mg/kg (Rat)	-	= 510 mg/m3(Rat) 2 h

- **Chronic Toxicity**

Chronic Toxicity	Lead compounds may be absorbed by ingestion, by inhalation and through the skin. Lead may damage kidney function, the blood forming system and the reproductive system. Avoid repeated exposure.

- **Carcinogenicity:**The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Lead	A3	Group 2A	Reasonably Anticipated	X
Sulfuric acid	A2	Group 1	Known	X
ABS resin		Group 3		

ACGIH: (American Conference of Governmental Industrial Hygienists)
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
OSHA: (Occupational Safety & Health Administration)
X - Present

Reproductive Toxicity	Product is or contains a chemical which is a known or suspected reproductive hazard.
Developmental Toxicity	Contains ingredients that have suspected developmental hazards. Inorganic lead compounds can cause developmental damage.
Target Organ Effects	None known.

12. ECOLOGICAL INFORMATION

- **Ecotoxicity**

The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Lead		LC50: 0.44 mg/L (96 h semi-static) Cyprinuscarpio LC50: 1.17 mg/L (96 h flow-through) Oncorhynchusmykiss LC50: 1.32 mg/L (96 h static) Oncorhynchusmykiss		EC50: 600 µg/L (48 h) water flea
Sulfuric acid		LC50: > 500 mg/L (96 h static) Brachydaniorerio		EC50: 29 mg/L (24 h) Daphnia magna

13. DISPOSAL CONSIDERATIONS

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 (when in the dissolved phase) is bioaccumulated by plants and animals, both aquatic and terrestrial.

Waste Disposal Methods	This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). Should not be released into the environment.
Contaminated Packaging	Do not re-use empty containers.
US EPA Waste Number	D002 D008

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Lead - 7439-92-1	(hazardous constituent - no waste number)	Included in waste streams: F035, F037, F038, F039, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062, K064, K065, K066, K069, K086, K100, K176	= 5.0 mg/L regulatory level	

California Hazardous Waste Codes 792

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California EHW	California Carc	California Hazardous Waste	California Waste - Part 2
Lead			Toxic	TCLP (for CA

				Toxicity): 5.0 mg/L
Sulfuric acid			Toxic Corrosive	
Calcium	Ignitable Reactive			

14. TRANSPORT INFORMATION

- Proper Shipping Name

Not regulated as hazardous material

- **North America Ground and Air Shipment**

Our non-spillable lead acid batteries are under the U.S. Department of Transportation's (DOT) hazardous materialsregulations but are excepted from these regulations since they meet all of the following requirements found at 49 CFR173.159(d) – NMFC # 60680 Class 65.

•When offered for transport, the batteries are protected against short circuits and securely packaged as required by 49 CFR 173.159(d) (1);
•The batteries and outer packaging are marked with the words NONSPILLABLE BATTERY as required by 49 CFR 173.159(d) (2);

The batteries comply with the vibration and pressure differential tests found in 49 CFR 173.159(d) (3) and "crack test" foundat 49 CFR 173.159(d) (4).

- **International Shipments**

Our non-spillable lead acid batteries also are ***excepted***from the international hazardous materials (also known as "dangerous goods") regulations since they comply with the following requirements:

•The vibration and pressure differential tests found in Packing Instruction 806 and Special Provision A67 of the**International Air Transport Association (IATA) Dangerous Goods Regulations**;

The vibration and pressure differential tests found in Packing Instruction 806 and Special Provision A67 of the**International Civil Aviation Organization (ICAO)** Technical Instructions for the Safe Transport of Dangerous Goods by Air;

•The vibration, pressure differential, and "crack" tests found in Special Provision 238.1 and 238.2 of the**International Maritime Dangerous Goods (IMDG) Code.**

Note:		Exempt from hazardous materials regulations per 49CFR173.159(d).
DOT	**Description**	NOT REGULATED NON-SPILLABLE BATTERY
TDG	**Description**	Not regulated NON-SPILLABLE BATTERY
MEX	**Description**	Not regulated NON-SPILLABLE BATTERY
ICAO Description		Not regulated NON-SPILLABLE BATTERY
IATA	**Description**	Not regulated NON-SPILLABLE BATTERY
IMDG/IMO Description		Not regulated NON-SPILLABLE BATTERY

15. REGULATORY INFORMATION

International Inventories	
TSCA **DSL**	Complies Not determined
U.S. Federal Regulations	

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA).This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Lead	7439-92-1	65～75	0.1
Sulfuric acid	7664-93-9	10～20	1.0

SARA 311/312 Hazard Categories Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Lead		X	X	
Sulfuric acid	1000 lb			X

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Lead	7439-92-1	65～75				

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Lead	10 lb	
Sulfuric acid	1000 lb	1000 lb

U.S. State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Lead	7439-92-1	Carcinogen Developmental Female Reproductive Male Reproductive
Sulfuric acid	7664-93-9	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Lead	X	X	X	X	X
Tin	X	X	X		
Calcium	X	X	X		
Sulfuric acid	X	X	X	X	X

International Regulations

Mexico - Grade Minimum risk, Grade 0

Chemical Name	Carcinogen Status	Exposure Limits
Lead	A3	Mexico: TWA= 0.15 mg/m3
Tin		Mexico: TWA 2 mg/m3 Mexico: STEL 4 mg/m3
Sulfuric acid	A2	Mexico: TWA 1 mg/m3

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
D2A Very toxic materials E Corrosive material

Chemical Name	NPRI
Lead	X
Sulfuric acid	X

16. OTHER INFORMATION

Prepared By 5th Floor, Xinbaohui Bldg., Nanhai Blvd.
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Contact at LEOCH battery@leoch.com

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Revision Note

General Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet