



Dyno

Safety Data Sheet

SECTION 1: Product Identification

Product identifier: All Models of Dyno Flooded Batteries

UN # 2794

Battery, Inc.

Company: Dyno Battery Inc.

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EMERGENCY TELEPHONE NUMBER:

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SECTION 2: Hazards identification

Health	Physical	Environmental
Acute Toxicity: Category 4	Explosive Division 1.3	Aquatic Hazard: Chronic 1
Skin Irritation: Category 1A		Aquatic Hazard: Acute 1
Eye Damage: Category 1		
Carcinogenicity: Category 1		
Infertility: Category 1		
STOT(Repeated Exposure) Category 2		

2.2 Label elements

Hazard pictograms



Signal Word: **Danger**

Hazard Statement	Precautionary Statement
H314: Causes severe skin burns and eye damage	Contact with Sulfuric Acid results in rapid destruction of body tissue (Burns).
H318: Causes serious eye damage	Wash hands thoroughly after handling
H360: May damage fertility or the unborn child if ingested or inhaled	In event of eye or skin contact, flush with large volumes of water and get medical attention.
H350: May cause cancer if ingested or inhaled	If prolonged inhalation, leave area and get fresh air
H370: Causes damage to organs (blood, central nervous,system,kidneys through prolonged exposure	Do not induce vomiting in the event of ingestion, give milk with egg whites and get medical attention.
H203: Explosive; fire, blast or projection hazard	Wear protective gloves/clothing/eye protection/face protection
H302: Harmful if swallowed	Avoid releases to the environment
May form explosive gas during charging	Do not eat, drink or smoke when handling (using) this product

SECTION 3. Composition/information on ingredients

3.1 Substances

Ingredients	% by weight	Cas No.
Lead, Lead compounds	50-75	7439-92-1
Electrolyte	20-30	7664-93-9
Antimony	<1	7440-36-0
Separator – Containers (Inert)	<2	N/A
Arsenic	<1	7440-38-2

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:

Contact with Sulfuric Acid results in rapid destruction of body tissue (Burns).

Following inhalation: Inhalation should not exceed 1 MG/M3 TWA, remove to get fresh air, if

breathing is difficult, give oxygen, get medical attention.

Following eye or skin contact: In event of eye or skin contact, flush with large volumes of water. Do not use a hard spray of water on eyes. Remove contaminated clothing immediately. Get medical attention

Following ingestion: Do not induce vomiting in the event of ingestion, give milk with egg whites and get medical attention

SECTION 5: Firefighting measures

5.1 Extinguishing media:

Suitable extinguishing media:

CO₂ ; foam;dry chemical. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.

5.2 & 5.3 Special hazards arising from the substance or mixture Advice for fire-fighters

Recommended self-contained breathing apparatus if batteries are involved in fire due to toxic fumes from burning plastic and acid fumes and vapors. While batteries are being charged, hydrogen gas is generated. After they have been charged, hydrogen gas can be liberated. Avoid open flames, sparks or lighted matches. Acid, a powerful oxidizer, can ignite upon contact with combustibles.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Stop flow if possible. In case material is released or spilled, lime or soda ash may be used to neutralize and or flush

with large volumes of water. Dispose of waste according to local State and Federal Regulations for Acid or Lead Scrap.

6.2 Methods and material for containment and cleaning up

Use NIOSH approved respiratory protection if 1 MG/M³ TWA is exceeded. Also use rubber gloves and splash proof safety goggles. Use rubber boots and acid-proof clothing for major spills.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Unless involved with recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping, which may allow electrolyte leakage. There may be increasing risk of electrical shock from strings of connected batteries. Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components. Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits. Keep banding or stretch wrap to secure items for shipping.

Batteries produce hydrogen gas. 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, arsenic and sulfuric acid. Store batteries in cool, dry, well ventilated area. Do not short circuit battery terminals, or remove vent caps during storage. Protect battery from physical damage. Refrain from eating, drinking and smoking when handling batteries. Thoroughly wash hands, face and arms before eating or smoking. Launder soiled clothing before reuse.

SECTION 8: Exposure controls/personal protection

Preventive industrial medical examinations are to be carried out.

8.1 Control parameters

Ingredients	Osha Pel	ACGIH	US Niosh	Qubec PEV	Ontario OEL	EU OEL
Lead & Lead Compounds	.05	.05	.05	.05	.05	.15
Antimony	.5	.5	.5	.5	.5	.5
Arsenic	.01	.01	.01			
Sulfuric Acid	1	.2	1	1	.2	.05
Copper	1	1	1	1	1	.1
Tin	2	2	2			

8.2 Exposure controls

8.2.1 Appropriate engineering controls:

Store batteries in cool, dry, well ventilated area. Do not short circuit battery terminals, or remove vent caps during storage. Protect battery from physical damage. Keep vent caps on and cover terminals to prevent short circuits. Batteries produce hydrogen gas. Keep away from flames during and immediately after charging.

8.2.2 Personal protective equipment:

Eye / Face protection:

. Refrain from eating, drinking and smoking when handling batteries. Thoroughly wash hands, face and arms before eating or smoking. Launder soiled clothing before reuse. Use NIOSH approved respiratory protection if 1 MG/M3 TWA is exceeded. Also use rubber gloves and splash proof safety goggles. Use rubber boots and acid-proof clothing for major spills.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

	Value
pH	
Melting point/ freezing point	Lead 620 F Electrolyte -85 F Fully Charged - 32F Discharged
Initial boiling point/boiling range	Electrolyte 204 F
Flash point	(Hydrogen Gas) Below Room Temperature
Evaporation rate	<1
Flammability (solid, gas)	Gas (Hydrogen)
Upper/lower flammability or explosive limits	Hydrogen in air Lower 3 to 4% Explosion Higher 75%
Vapour pressure	10 (mm Hg)
Vapour density	>1
Relative density	1.1 To 1.3 specific gravity
Solubility(ies)	Lead 0% Sulfuric Acid 100%
Partition coefficient: n-octanol/water	N/A
Auto-ignition temperature	N/A
Decomposition temperature	N/A

Viscosity	N/A
Viscosity, dynamic	N/A
Viscosity, cinematic	N/A
Oxidising properties	N/A
Appearance	Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.

SECTION 10: Stability and reactivity

Stability	Product is stable under normal conditions at ambient temperature
Conditions to avoid	Prolonged overcharge at high current. Sources of ignition.
Incompatible Materials	Electrolyte: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.
Lead Compounds	Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents. Temperatures above the melting point may produce toxic fumes.

SECTION 11: Toxicological information

Toxicokinetics, metabolism and distribution

11.1 Information on toxicological effects

Routes of Entry:

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. The presence of nascent hydrogen may generate highly toxic arsine gas.

Inhalation:

Sulfuric acid: Breathing vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of dust/fumes may irritate respiratory tract & Lungs.

Ingestion:

Sulfuric acid: May cause severe irritation of mouth, throat, esophagus and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea & severe cramping. A physician must treat this.

Skin:

Sulfuric acid: Severe irritation, burns & ulceration

Lead Compounds: Not absorbed through skin

Arsenic compounds: Contact may cause dermatitis and skin hyperpigmentation.

Eye:

Sulfuric acid: Severe irritation, burns, cornea damage & blindness.

Lead Compounds: May cause eye irritation.

Effects of Overexposure – Acute:

Sulfuric acid: Severe skin irritation, damaged to cornea, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure – Chronic:

Sulfuric acid: Inflammation of nose, throat & bronchial tubes. Possible erosion of tooth enamel.

Lead Compounds: Anemia; damage to blood-forming tissues; neuropathy (particularly of motor nerves); kidney damage; reproductive changes (males and females). Heavy exposure may result in central nervous system damage.

Carcinogenicity:

Sulfuric acid: The international agency for research on cancer classified *strong inorganic acid mist containing sulfuric acid* as a Category I carcinogen. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Acid mist is not generated under normal use; however, misuse, such as overcharging, may result in generation of sulfuric acid mist.

Lead Compounds: Lead is listed by IARC as a Group 2A – likely in animals at extreme doses. Per the guidance found in proof of carcinogenicity in humans is lacking at present.

Arsenic: Arsenic is listed by IARC as a Group 1 – carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A.

Medical Conditions Generally aggravated by Exposure: Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

Acute Toxicity: Inhalation LD 50: Electrolyte.	LC50 rat: 375 mg/m ³ , LC50: guinea pig: 510 mg/m ³
Elemental Lead:	Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
Elemental Arsenic:	No Data
Oral LD 50: Electrolyte.	Rat: 2140 mg/Kg
Elemental Lead:	Acute Toxicity Estimate = 500 mg/Kg body weight (based on lead bullion)
Elemental Arsenic:	LD50 mouse: 145 mg/Kg
Elemental Antimony:	LD50 rat: 100mg/Kg

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8. Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the work site. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

SECTION 12: Ecological information

12.1 Toxicity:

Aquatic	Sulfuric Acid: 24-hr LC ₅₀ (Freshwater fish): 82mg/L Lead: 48-hr LC ₅₀ (aquatic invertebrates): <1mg/L
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12.2 Persistence and degradability

Biodegradation:

Lead is very persistent in soil & sediments.

No data on environmental degradation.

12.3 Bioaccumulative potential

Bioaccumulation of lead occurs in aquatic & terrestrial animals & plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds rather than elemental lead.

12.4 Mobility in soil

Mobility of elemental lead between ecological compartments is slow.

12.6 Other adverse effects:

The substance has no known global warming potential.

The substance has no ozone depleting potential.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product / Packaging disposal:

Disposal Action

Lead-acid batteries are 100% recyclable. Return scrap batteries to distributor, manufacturer or lead smelter for recycling.. For neutralized spills, add soda ash or bicarbonate soda until spill is neutralized place residue in acid-resistant containers with sorbent material and dispose of in accordance with local, state and federal regulations. Spent lead acid batteries are not regulated as hazardous waste when the requirements of 40 CR=FR Section 266.8 are met. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity) and D008 (lead). Following local, State/Provincial and Federal/National regulations applicable to end – of – life characteristics will be the responsibility of the end user.

SECTION 14: Transport information

	Land transport US (DOT)	Sea transport (IMDG)	Air transport (IATA)
14.1 UN No.	2794	2794	2794
14.2 UN Proper shipping name	Batteries, wet, filled with acid	Batteries, wet, filled with acid	Batteries, wet, filled with acid
14.3 Transport hazard class(es)	8	8	8
Hazard label(s)	Corrosive	Corrosive	Corrosive
14.4 Packing group	III	N/A	N/A
14.5 Environmental hazards		IMDG Code packing Instruction P801	IATA Packing Instruction 870 (IATA DGR 56 th Edition)

14.6 Special precautions for user

Additional information

All transport carriers Land transport (ADR/RID)

49 CFR 173.159€ Specifies that when transported by highway or rail, electric storage batteries containing electrolyte or corrosive battery fluid are not subject to any other requirements of the is subchapter, if all of the following are met:

1. No other hazardous materials may be transported in the same vehicle.
2. The batteries must be loaded or braced so as to prevent damage and short circuits in transit.

3. Any other material loaded in the same vehicle must be blocked, braced, or otherwise secured to prevent contact with or damage to the batteries, and;
4. The transport vehicle may not carry material shipped by any person other than the shipper of the batteries.

If any of the above-referenced requirements are not met, the batteries must be shipped as fully-regulated Class 8 Corrosive hazardous materials.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Supplier Notification;

This product contains toxic chemicals that may be reportable under EPCRA Section 313 Toxic Chemical release inventory (Form R) Requirements. For a manufacturing facility under SIC codes 20 thru 39, the following information is provided to enable you to complete the required reports;

Ingredients	% by weight	Cas No. ®
Lead, Lead compounds	50-75	7439-92-1
Electrolyte	20-30	7664-93-9
Antimony	<1	7440-36-0
Separator – Containers (Inert)	<2	N/A
Arsenic	<1	7440-38-2

EPCRA Section 313

The reporting of lead and sulfuric acid (and their releases) in lead-acid batteries used in cars, trucks, cranes, forklifts, locomotives and aircraft for the purposes of WPCRA Section 313 is not required. Lead-acid batteries used for these purposes are exempt for Section 313 reporting per the “Motor Vehicle Exemption.” See [page B-22 of the *U.S. EPA Guidance Document for Lead and Lead Compound Reporting under EPCRA Section 313* for additional information of this exemption.

15.1.2 International regulations

Distribution into the EU to follow applicable directives to the use, import/Export of the product as-sold.

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2)

15.2 State Regulations

California;

Proposition 65 Warning: Battery Posts, Terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm. Wash hands after handling.

EPCRA Sections	Thresholds – Sulfuric Acid	Thresholds – Lead
302 – Emergency Planning Notification	TPQ \geq 1,000 L.B.S.	
304 – Emergency Release Notification	RQ \geq 1,000 L.B.S.	
311 – MSDS Reporting +	TPQ \geq 500 L.B.S.	\geq 10,000 L.B.S.
312 – Chemical Inventory Reporting (i.e)Tier II) +	TPQ \geq 500 L.B.S.	\geq 10,000 L.B.S.

+ The lead used in lead –acid batteries does not qualify for any OSHA or EPCRA exemptions. Lead is **not** an EHS, and the following table outlines the applicable EPCRA Sections and their respective thresholds for lead

SECTION 16: Other information



Disclaimer

The information in this document is based upon data that is considered true & accurate. Dyno Battery makes no warranty, express or implied. This information is offered solely for the user's consideration and assumes no responsibility for injury to user or to 3rd person and assumes no liability for its use. The information above provides guidelines for safe handling of this product whereby it is the responsibility of the user to determine whether any of this data or information is in accordance with applicable federal, state or local laws.