Ascent Battery Supply, LLC
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Material Safety Data Sheet — Lead Acid, SLI - X2 Power

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

Distributed By	Ascent Battery Supply, LLC	**Emergency Number**	INFOTRAC (800) 535-5053
Address	Ascent Battery Supply 925 Walnut Ridge Drive Hartland, Wisconsin 53029	**Overseas Emergency Number**	INFOTRAC (352) 323-3500 (Collect)
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SECTION 1 – IDENTITY

Product Name	X2 Power
Common Synonyms	Lead Acid, Electrical Storage Battery, SLI – Automotive, Marine
DOT Description	Battery, wet, non-spillable (electric storage)
Chemical Name	Lithium Ion; Secondary Battery

SECTION 2 – HAZARDOUS INGREDIENTS

Chemical Name	CAS No.	Percentage %
Lead	7439-92-1	50
Lead Oxide	1309-60-0	20
Electrolyte (Sulfuric Acid) 1.400 sg	7664-93-9	17

SECTION 3 – PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling Point	110°C (230°F) (Electrolyte)	**Melting Point**	327°C (621°F) (Lead)
Vapor Pressure	NA	**Vapor Density**	NA
Specific Gravity	NA	**Percent Volatile By Volume**	NA
Solubility in Water	100% (Electrolyte)	**Reactivity in Water**	NA
Appearance and Odor	Electrolyte is a clear liquid with an acidic odor.	**Evaporation Rate**	NA
Flash Point	259°C (Hydrogen)	**Flammable Limits in Air % by Volume**	NA
Extinguisher Media	Dry chemical type extinguishers or water.	**Auto-Ignition Temperature**	580°C (Hydrogen)

Special Fire Fighting Procedures	Full protective clothing and NIOSH-approved self-contained breathing apparatus with full face- shield.
Unusual Fire and Explosion Hazards	Hydrogen and oxygen gases are produced in the cells during normal battery operation (hydrogen is flammable and oxygen supports combustion). These gases enter the air through the vent caps. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.

SECTION 4 – PHYSICAL HAZARDS

Stable or Unstable	Stable	**Conditions to Avoid**	Sparks and other sources of ignition. Electrical shorting.

Incompatibility (Materials to Avoid)	1. Lead/lead compounds: Potassium, carbides, sulfides, peroxides, phosphorus, sulfur. 2. Battery electrolyte (acid): Combustible materials, strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates, and fulminates.
Hazardous Decomposition Products	1. Lead/lead compounds: Oxides of lead and sulfur. 2. Battery electrolyte (acid): Hydrogen, sulfur dioxide, and sulfur trioxide.

SECTION 5 – HEALTH HAZARDS

Threshold Limit Value	NA
Signs and Symptoms of Exposure	1. Acute Effects: Over exposure to lead may lead to loss of appetite, constipation, sleeplessness and fatigue. Over exposure to acid may lead to skin irritation, corneal damage of the eyes and upper respiratory system. 2. Chronic Effects: Lead and its components may cause damage to kidneys and nervous system. Acid and its components may cause lung damage and pulmonary conditions.
Medical Conditions Generally Caused by Exposure	Potential to Cause Cancer: The International Agency for Research on Cancer has classified "strong inorganic acid mist containing sulfuric acid" as a Category1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist is not generated under normal use of this product. Misuse of the product, such as overcharging, may however result in the generation of sulfuric acid mist.
Routes of Entry	1. Inhalation: Acid mist from formation process may cause respiratory irritation. 2. Skin Contact: Acid may cause irritation, burns and/or ulceration. 3. Skin Absorption Not a significant route of entry. 4. Eye Contact: Acid may cause severe irritation, burns, cornea damage and/or blindness. 5. Ingestion: Acid may cause irritation of mouth, throat, esophagus and stomach.
Emergency and First Aid Procedures for	
1. Inhalation	Remove from exposure, move to fresh air, and apply oxygen if breathing is difficult. Consult physician immediately.
2. Eyes and Skin	Skin: Wash with plenty of soap and water for at least 15 minutes. Remove any contaminated clothing. Consult physician if skin irritation appears. Eyes: Flush with plenty of water immediately for at least 15 minutes, lifting lower and upper eyelids occasionally. Consult a physician immediately.
4. Ingestion	Do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Consult a physician immediately.

SECTION 6 – SPECIAL PROTECTION INFORMATION

Respiratory Protection	None required under normal handling conditions. During battery formation (high-rate charge condition), acid mist can be generated which may cause respiratory irritation. Also, if acid spillage occurs in a confined space, exposure may occur. If irritation occurs, wear a respirator suitable for protection against acid mist.

Ventilation	NA	**Local Exhaust**	NA	**Mechanical** (General)	NA

Gloves	Vinyl coated, VC, gauntlet type gloves with rough finish are preferred.	**Safety Glasses**	Chemical splash goggles are preferred. Also acceptable are "visor-gogs" or a chemical face shield worn over safety glasses.

Other Protective Equipment	Safety shoes are recommended when handling batteries. All footwear must meet requirements of ANSI Z41.1 -Rev.1972

SECTION 7 – SPECIAL PRECAUTIONS – SPILL AND LEAKAGE PROCEDURES

Precautions to be Taken when Handling and Storing	Store in a cool, dry place in closed containers. Keep away from ignition sources and high temperatures. Avoid skin or eye contact. Avoid breathing vapors. Do not use near sources of ignition.
Other Precautions	Store lead/acid batteries with adequate ventilation. Room ventilation is required for batteries utilized for standby power generation. Never recharge batteries in an unventilated, enclosed space. Do not remove vent covers. Follow shipping and handling instructions which are applicable to the battery type. To avoid damage to terminals and seals, do not double stack industrial batteries.
Steps to be Taken if chemicals are spilled	Not applicable under normal conditions. In case of damage resulting in breakage of the battery container, see Section 6 – Special Protection Information.

Waste Disposal

1. Battery electrolyte (acid): Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as hazardous waste.
2. Do not flush lead contaminated acid to sewer.
3. In case of accidental spill, utilize personal protective equipment, i.e., face shield, rubber apron, rubber safety shoes.
4. Batteries: Send to lead smelter for reclamation following applicable Federal,
State and local regulations. Product can be recycled along with automotive (SLI) lead acid batteries.
5. Battery may be returned, shipping pre-paid, to the manufacturer or any distributor for recycling. See 1.C for manufacturer's address or visit our web site @ www.northstarbattery.com.

*In accordance to Local, State and Federal regulations and laws.

SECTION 8 – TRANSPORTATION AND REGULATORY INFORMATION

Shipping and Transportation

Proper Shipping Name	UN2800 - Battery, wet, non-spillable (electric storage)
IATA	Batteries must be packed to protect against short circuits and firmly secured to skids or pallets. Packaging instruction 806 Not restricted per special provision A67.
U.S. DOT	X2 Batteries have been deemed to meet all requirements as specified in 49CFR§ 173.159 (d) for exception as hazardous material classification.
IMDG	X2 Batteries Company products, submitted and tested by Wyle Labs, have been deemed to meet all requirements as specified in special provision 238 for determination of "Non-Spillable" and are not subject to the provision of this Code.