



Material Safety Data Sheet

Product Identity:

Date: 3/16/05

Seal Lead Acid

Tempest Power Security Batteries

IMC Power Sources
903 Dell Ave
Campbell, CA 95008

Phone: 408-874-0800

HAZARDOUS INGREDIENTS	CAS #	OSHA PEL- TWA	% (BY WEIGHT)
Lead	7439-92-1	50µg/m3	45 -- 60 %
Lead Dioxide	1309-60-0	50µg/m3	15 – 25 %
Sulfuric Acid	766493-9	1.0 mg/m3	32 – 40 % @ 60°

PHYSICAL & CHEMICAL CHARACTERISTICS	
Boiling Point:	(@ 14.7 psia) Approx. 203° C
Specific Gravity:	1.25 to 1.295
Vapor Pressure (mmHg):	10 @ 18° F
Melting Point:	-70°C/-103° F
Solubility in Water	N/A

FIRE & EXPLOSION DATA	
Flash point:	Non-combustible
LEL Lower:	Non-combustible
VEL Upper:	Non-combustible
Auto-ignition:	N/A
Extinguisher Medium:	Dry chemical, carbon dioxide, water fog, and water

SPECIAL FIRE FIGHTING PROCEDURES

Sulfuric acid fume, sulfur dioxide gas or carbon monoxide may be released when acid decomposes. Wear NIOSH approved self-contained breathing apparatus. Water applied to sulfuric acid generates heat and causes acid to splatter. Wear full cover sulfuric acid resistant clothing. Sulfuric acid is an electrolyte. Sulfuric acid reacts violently with metals, nitrates, chlorates, carbides, fulminates, pectrates, and other organic materials. Sulfuric acid reacts with most metals to yield explosive/flammable hydrogen gas. This reaction is intensified when acid is diluted, as in electrolyte.

PHYSICAL HAZARDS

Incompatibility:

Contact of sulfuric acid with combustibles and organic materials such as: chlorates, carbides, fulminates, pectrates, peroxides, nitrates, cyanides, etc. may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur dioxide fume, and may release flammable hydrogen gas; this reaction is intensified when diluted.

Hazardous Decomposition Products:

Decomposition of sulfuric acid releases sulfur trioxide, carbon monoxide, sulfuric acid fumes, and sulfur dioxide. Reaction with above may release with toxic gases, such as hydrogen cyanide or hydrogen sulfide. Decomposition also produces large quantities of heat.

HEALTH HAZARDS	
Acute:	Yes
Chronic:	No
Signs and Symptoms of Exposure:	Contact with sensitive skin or prolonged contact with normal skin may cause mild irritation
Medical conditions generally aggravated by exposure:	Irritation, burns, ulceration
Chemicals listed as carcinogens or potential carcinogens:	None
Emergency and First Aid Procedures:	Flush affected area with large amounts of cool, clean water. If redness or blistering occurs, consult a physician.
ROUTES OF ENTRY	
Inhalation:	N/A
Eyes:	Contact may damage corneas. Flush with large amount of cool, clean water. If redness or blistering occurs, consult a physician.
Skin:	See above.
Ingestion:	If ingested, drink large amounts of water. Consult a physician.

SPECIAL PRECAUTIONS & SPILL/LEAK PROCEDURES
Wear appropriate protective clothing and avoid prolonged contact.

IF MATERIAL IS RELEASED OR SPILLED
Clean area in plain water. Wash hands and other skin areas with cool water and mild soap. DO NOT TOUCH EYES!
DISPOSAL
Dispose with other solid waste. DO NOT INCINERATE!

HAZARDOUSING SPECIAL PROTECTION INFORMATION/CONTROL MEASURES	
Respiratory Protection:	Not required under normal conditions.
Ventilation:	Not required under normal conditions.
Protective Clothing and Equipment:	Acid resistant gloves, safety glasses with side shields, long sleeved shirts, long pants, and closed shoes.

REGULATORY TRANSPORTATION INFORMATION
UN 2800: "Batteries, wet, non-spillable, electric storage." NMFC #60682, Class 60.
D.O.T Unregulated, meets the requirements of CFR-49 paragraph 173.159 (d).
I.A.T.A/I.C.A.O. – Unregulated, meets the requirements of Special Provision A67.
IMO – Unregulated.

Other Information

General Product Description – TR Series VRLA Batteries

Tempest TR Series Batteries are sealed (valve regulated) non-spillable lead-acid batteries with pasted lead-calcium plates. The electrolyte is held captive in an Absorbed Glass Mat (AGM) separator between plates that immobilize the electrolyte in the cell. AGM separator material is a highly porous, absorbent micro fiberglass mat mixed with polymer fibers. There is no “free” electrolyte to leak out if the cell is tipped over (cell case and cover are sealed together) or if the cell is punctured. The AGM separator material immobilizes the electrolyte and creates a situation where the spill of electrolyte is highly unlikely. Typical accidents where a battery case is punctured results in a slight drip or a slow ooze of material out of the cell that cannot be characterized as a spill.