

MSDS - Material Safety Data Sheet - Battery Model 12CD-80

1. Hazardous Ingredients/Identity Information

Hazardous Components

Component	No. CAS	% Weight	OSHA PEL (TLV)	LD50 Ora	LD50 Inhalation	LD50 Contact
Lead Pb, PbO ₂ , PbSO ₄	7439-92-1	65-75%	0.050mg/m ³	< 500 mg/kg	< 20 mg/m ³	N/A
Sulfuric Acid	7664-93-9	17-30%	1 mg/m ³	2.140 kg/kg	18 mg/m ³	135 mg/kg

Physical Data

Component	Density	Solubility in water	Odor	Appearance
Lead	11.34 mg/cm ³	None	None	Silver-gray metal
Lead Sulfate	6.20 gm/cm ³	43 mg/l	None	White powder
Lead Dioxide	9.375 gm/cm ³	None	None	Brown powder
Sulfuric Acid	1.290 gm/cm ³	100%	None	Clear liquid

Flammability

Component	Flash point	Expansive Limits	Comments
Lead	None	None	Use "ABC" Type fire extinguisher for battery fires
Sulfuric Acid	None	None	CCB
Hydrogen	<0 oF	4%-74.2%	Power batteries can emit hydrogen only if over charged (float voltage 2.40 VPC or greater)

2. Health Hazard Information

Under normal operating conditions, the internal material will not be hazardous to your health. Only internally exposed material during production or case breakage or extreme heat (fire) may be hazardous to your health.

Routes of Entry:

1. Installation: 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.

Sign and Symptoms of Over Exposure:

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.

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.

Potential to Cause Cancer: The International Agency for Research on Cancer has classified "strong inorganic acid mist containing sulfuric acid" as a Category 1 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.

Emergency and First Aid Procedures:

1. Inhalation: Remove from exposure and apply oxygen if breathing is difficult.
2. Skin: Wash with plenty of soap and water. Remove any contaminated clothing.
3. Eyes: Flush with plenty of water immediately for at least 15 minutes. Consult a physician.
4. Ingestion: Consult a physician immediately.

3. Fire And Explosion Hazard Data

Flash Point: Hydrogen = 259oC

Auto ignition Temperature: Hydrogen = 580oC

Extinguishing Media: Dry Chemical, foam, CO2

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.

4. Reactivity Data

Stability: Stable

Conditions to Avoid: Sparks and other sources of ignition.

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.

Conditions to Avoid:

High temperature. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.

5. Control Measures

Engineering Controls:

Store lead/acid batteries with adequate ventilation. Room ventilation is required for batteries utilized for standby power generation. Never re-charge batteries in an unventilated enclosed space.

Work Practices:

Do not remove vent caps. 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.

6. Personal Protective Equipment

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.

Eyes and Face:

Chemical splash goggles are preferred. Also acceptable are "visor-gogs" or a chemical face shield worn over safety glasses.

Hands, Arms, Body:

Vinyl coated, VC, gauntlet type gloves with rough finish are preferred.

7. Precautions For Safety Handling And Use

Hygiene Practices:

Following contact with internal battery components, wash hand thoroughly before eating, drinking, or smoking.

Respiratory Protection:

Wear safety glasses. Do not permit flames or sparks in the vicinity of battery(s). If battery electrolyte (acid) comes in contact with clothing, discard clothing.

Protective Measures:

Remove combustible materials and all sources of ignition. Cover sills with soda ash (sodium carbonate) or quicklime (calcium oxide). Mix well. Make certain mixture is neutral then collect residue and place in a drum or other suitable container. Dispose of a hazardous waste.

Wear acid-resistant boots, chemical face shield, chemical splash goggles, and acid-resistant gloves. Do not release un-neutralized acid.

Waste Disposal Method:

Battery electrolyte (acid): Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as hazardous waste. Do not flush lead contaminated acid to sewer.