



# Requirements - Hazards and Disposal of Batteries

In accordance with  
**DIRECTIVE 2006/6/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**  
**of 6 September 2006**  
**on batteries and accumulators and waste batteries and accumulators and repealing Directive**  
**91/157/EEC**

## Health and Environmental Effects.

Lead-acid batteries contain chemicals that can be hazardous to health and the environment. These particular batteries contain lead, a highly toxic metal and sulphuric acid, a corrosive electrolyte solution. Since both these materials are classified hazardous, it is important they are disposed of in the correct manner.

**Sulphuric Acid Solution** - Contact can lead to irritation or burns, or irritation to the mucous membranes of the eyes and the upper respiratory system.

**Lead** - Low-level lead exposure can cause fatigue, impaired central nervous functions and impaired learning. Extreme lead poisoning can result in coma, convulsions, irreversible mental retardation, seizures and even death.

### HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Exposure Limits Material	% By Wt.	CAS Number	Air Exposure Limits (ug/m3)		
			OSHA	AGGIH	NIOSH
Lead	57	7439-92-1	50	150	100
Lead Oxide	22	1309-60-0	50	150	100
Electrolyte (sulfuric acid)	14	7664-93-9	1	1	1

(Note: Product contains toxic chemicals that are subject to the reporting requirements of Section 302 and 313 of the Emergency Planning and Community Right-to-Know Act of 1986).

## Dangers of Disposing Batteries with other waste.

Lead-acid and other such batteries should never be disposed of in a solid waste landfill. Contaminates such as Lead and Sulphuric acid can bleed into soil contaminating vegetation and can also affect ground water, invading water supply.

If the batteries are disposed of near rivers, streams, lakes or coastal waters the Lead and Sulphuric acid can also threaten aquatic life.

## Recycling.

With the dangers associated with battery disposal the need for recycling becomes ever more important, and all types of batteries including Lead Acid, Silver Mercury, Nickel Cadmium, Lithium Alkali and UPS's can be put through this process.

There are also other benefits of recycling such as: -

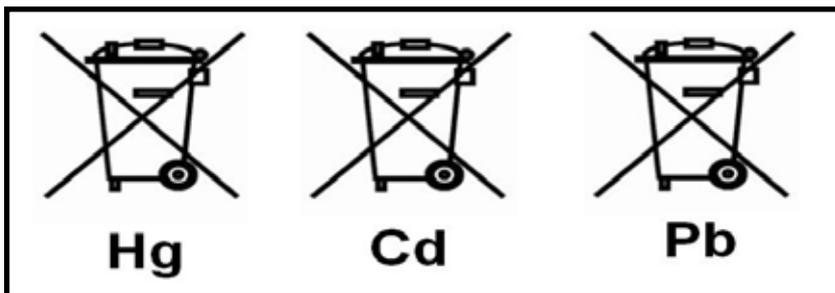
- Nickel, cobalt and, silver are valuable metals, when their re-use is possible it would enable us to save resources.
- Recycled cadmium and nickel requires respectively 46% and 75% less energy in extraction than virgin metals.

The European Battery Directive on recycling comes into force on the 26<sup>th</sup> of September 2008. For further information on the Directive: -

[http://uk.farnell.com/images/en\\_UK/rohs/pdf/battery\\_directive\\_nov08.pdf](http://uk.farnell.com/images/en_UK/rohs/pdf/battery_directive_nov08.pdf)

Camden Electronics is registered for the disposal of Hazardous waste-Registration Number N0A 428

## Battery Labelling.



- Crossed-out wheeled bin applies to all batteries.
- “Hg” printed below wheelie bin symbol if battery contains >0.0005% mercury.
- “Cd” printed below wheelie bin symbol if battery contains >0.002% cadmium.
- “Pb” printed below wheelie bin symbol if battery contains >0.004% lead.



## Material Safety Data Sheet

### Valve Regulated Lead Acid AGM Batteries

#### HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

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#### PHYSICAL/CHEMICAL CHARACTERISTIC DATA

**Electrolyte (Sulfuric Acid):**

**Appearance and Odor:** Clear, Odorless, Colorless Liquid

**Boiling Point:** 112 - 115° C (235 - 240° F)

**Evaporation Rate (Butyl Acetate=1):** less than 1.0

**Melting Point:** N/A

**Solubility in water:** 100%

**Specific Gravity (H<sub>2</sub>O=1)** 1.270 - 1.330

**Vapor Density (AIR=1):** Greater than 1

**Vapor Pressure (mm Hg):** 10

#### FIRE AND EXPLOSION HAZARD DATA

**Flash Point (Method Used):** Non-Flamable

**Extinguishing Media:** Class ABC extinguisher

**NOTE:** CO<sub>2</sub> may be used, but not directly on the cell. The thermal shock may cause cracking of the battery case and/or cases

\* Hydrogen gas may be generated during battery charging.

**Flammable Limits:** \*Hydrogen Gas

**LEL:** 4%

**UEL:** 74%

#### REACTIVITY DATA

**Stability:** Stable

**Condition to Avoid:** Prolonged overcharging, sources of ignition

**Incompatibility (Materials to Avoid):** Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong agents, metals, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

**Hazardous Decomposition of By-Products:** Sulfuric Acid: Excessive overcharging or fire may create Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen.

Lead Compounds: Contacts with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.



**HEALTH HAZARD DATA**

**Route(s) of Entry:** Not Applicable under normal use.

**Carcinogenicity:**

**Sulfuric Acid:** The International Agency for Research on Cancer (IARC) 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 contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product such as overcharging, may result in the generation of sulfuric acid mist.

**Lead Compounds:** Lead is listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present.

**Arsenic:** Listed by National Toxicology Program (NTP), IARC, OSHA and NIOSH as a carcinogen only after prolonged exposure at high levels.

**Signs and Symptoms of Exposure:** Avoid contact, with absorbed electrolyte (sulfuric acid) may cause irritation of the eyes, nose and throat. Contact with eyes and skin causes irritation and skin burns. Absorbed electrolyte is corrosive.

**Medical Conditions Generally Aggravated by Exposure:** Pregnant women and children must be protected from lead exposure.

**Health Hazards (Acute and Chronic):** Do not open the battery. Avoid any contact with internal components. Internal components include lead and absorbed electrolyte. Electrolyte is corrosive and contact may cause skin irritation and chemical burns.

**Emergency and First Aid Procedures: (contact with electrolyte)**

- 1) Flush contacted area with large amounts of water for at least 15 minutes. Remove contaminated clothing and obtain medical attention if necessary. Eye wash and/or emergency shower should be readily available.
- 2) If swallowed, give large volumes of water. **DO NOT** induce vomiting, obtain medical treatment.

**PRECAUTIONS FOR SAFE HANDLING AND USE**

**Steps to be taken in case Material is Released or Spilled:** Electrolyte material is corrosive. Contains sulfuric acid. Neutralize any spilled material. Reference 1996 North American Emergency Response Guidebook, #154

**Waste Disposal Method:** Lead-acid batteries are completely recyclable. For information on returning batteries to Camden for recycling, contact your Camden Representative. Dispose of any collected material in accordance with local, state or applicable federal regulations.

**Precautions to be Taken in Handling and Storing:** Store away from reactive material as defined in Section V, Reactive Data. Place cardboard between layers of stacked batteries to avoid damage and short circuit. Do not allow materials to simultaneously contact both terminals.

**Other Precautions:** If battery case is broken, avoid direct contact with internal components. Keep away from ignition sources during charging.

**CONTROL MEASURES**

**Respiratory Protection (Specific Type):** NA

**Ventilation:** Must be provided when charging in an enclosed area.

**Protective Gloves:** Recommended

**Eye Protection:** Recommended

**Other Protective Clothing or Equipment:** N/A

**Work Hygienic Practices:** Good personal hygiene and work practices are recommended.

## TRANSPORT INFORMATION

**Proper Shipping Name**

Batteries, Wet, Non-spillable. Electric storage

**Emergency Action Code**

EAC None

UN. No. 2800

Hazard Class 8

**Road/Rail (ADR/RID)**

Proper Shipping Name Batteries, Wet, Non-spillable. Electric storage

ADR UN No 2800

ADR Hazard Class 8 ADR Item No. 81°(c)

ADR/RID No. 80 Tremcard

**Sea (IMDG)**

Proper Shipping Name Batteries, Non- spillable. Electric storage

**Air (RAO/IATA)**

These batteries are not considered hazardous for air (ICAO/IATA) by reason of special provision A67: they are also not considered hazardous for sea (IMO/IMDG) by reason of an exemption on page 8121 of the IMDG Code (Vol, IV).

## OTHER REGULATORY INFORMATION

Under normal conditions of battery use, internal components will not present a health hazard. The information contained in this Safety Data Sheet is provided for battery electrolyte (acid) and lead, for exposure that may occur during battery production or container breakage or under extreme heat conditions such as fire.

This Safety Data Sheet and the information therein does not constitute the user's own assessment of work place risk as required by other Health & Safety legislation.

<u>NFPA Hazard Rating</u>	<u>Sulfuric Acid</u>	<u>Lead</u>
Health (Blue)	3	3
Flammability (Red)	0	0
Reactivity (Yellow)	2	0

Note: Sulfuric acid is water-reactive if concentrated.

**U.S. DOT:** The Non-Spillable lead acid battery complies with the provisions listed in 49CFR173.159(d) therefore must not be marked with an identification number.

**RCRA:** Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste, EPA hazardous waste number D002 (corrosivity).

**CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know ACT)**

- a) Reportable Quantity (RQ) for spilled 100% sulfuric acid is 1000 lbs.
- b) Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA with a Threshold Planning Quantity (TPQ) of 1000 lbs.
- c) EPCRA Section 312 Tier II reporting for batteries if sulfuric acid is present in quantities of 500 lbs or more and/or lead is present of 10.000 lbs or more.

**California Prop 65:** This product contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

This information is accurate to the best of Camden Electronic's knowledge or obtained from sources believed by Camden to be accurate. Before using any product, read all warnings and directions on the label.