



**SECTION 3: AZARDS IDENTIFICATION****Hazards identification:**

The battery has passed the vibration test, pressure differential test and leakage test at 55 °C according to Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulation SPECIAL PROVISION 238. It is not restricted to IATA Dangerous Goods Regulation (DGR) 62th according to special provision A67 and is not restricted to IMDG CODE according to special provision 238.

**Emergency overview:**

The internal battery materials may cause severe irritation to eyes and skin. Causes burns.

**SECTION 4: FIRST-AID MEASURES****Skin exposure:**

If the internal battery materials of an opened battery cell come into contact with the skin, immediately flush with plenty of water for at least 15 minutes. Seek immediate medical attention.

**Eye exposure:**

In case of contact the electrolyte contained inside the battery with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Seek immediate medical attention.

**Inhalation exposure:**

If potential for exposure to mist or dusts occurs, remove immediately to fresh air and seek medical attention.

**Oral exposure:**

If swallowed, do not induce vomiting. Seek immediate medical attention.

**Most important symptoms/effects, acute and delayed:**

Under normal conditions of processing and use, exposure to the chemical constituents in this product is unlikely. The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

**Indication of immediate medical attention and special treatment needed:**

Treat symptomatically.

**General information:**

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

**SECTION 5: FIRE FIGHTING MEASURES****Extinguishing media:**

Suitable: Dry chemical, Sandy soil, Carbon dioxide or appropriate foam.

**Unsuitable extinguishing media:**

In the event that a battery is ruptured and the internal components are exposed, DO NOT USE WATER. Do not use carbon dioxide directly on cells.

**Specific hazards arising from the chemical:**

Batteries evolve flammable hydrogen gas during charging and may increase fire risk. Containers may explode when heated.





**SECTION 9: PHYSICAL/CHEMICAL PROPERTIES****Appearance**

Physical state	Solid.
Form	Sulfuric acid, gelatinous. Lead, solid.
Color	Not available.
Odor	Odorless.
Odor threshold	Not available.
pH	< 1
Melting point/freezing point	Not available.
Initial boiling point and boiling range	235 - 240 °F (112.78 - 115.56 °C) (Sulfuric acid) Flash point Below room temperature (as hydrogen gas).
Evaporation rate	< 1 (n-BuAc=1)

**Flammability (solid, gas):**

Upper/lower flammability or explosive limits	
Flammability limit – lower	4 % (Hydrogen) (%)
Flammability limit - upper	74 % (Hydrogen) (%)
Vapor pressure	10 mm Hg
Vapor density	> 1 ( Air=1)
Relative density	1.27 - 1.33
Solubility(ies)	
Solubility (water)	100 % (Sulfuric acid)
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

**Other information:**

Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

**SECTION 10: STABILITY AND REACTIVITY****Stability:**

Stable under normal temperatures and pressures.

**Incompatible materials:**

Strong bases. Combustible organic materials. Reducing agents. Finely divided metals. Strong oxidizers. Water.

**Conditions to avoid:**

Avoid exposure to heat and open flame, Avoid mechanical or electrical abuse and overcharge. Prevent short circuits. Prevent movement which could lead to short circuits.

**Hazardous polymerization:**

Will not occur.

**Hazardous decomposition products:**

Sulfur dioxide. Sulfur trioxide. Carbon monoxide. Sulfuric acid. Hydrogen



**Reproductive toxicity:**

None under normal conditions. Exposure to contents of an open or damaged battery: May damage fertility or the unborn child.

**Specific target organ toxicity - single exposure:**

None under normal conditions. Exposure to contents of toxicity-single an open or damaged battery: Causes damage to organs exposure (respiratory system).

**Specific target organ toxicity - repeated exposure:**

None under normal conditions. Exposure to contents of an open or damaged battery: Causes damage to organs through prolonged or repeated exposure: Respiratory system.

**Aspiration hazard chronic effects:**

Due to the physical form of the product it is not an aspiration hazard. Exposure to contents of an open or damaged battery: Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues. Chronic inhalation of sulfuric acid mist may increase the risk of lung cancer.

**SECTION 12: ECOLOGICAL INFORMATION****Ecotoxicity:**

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Exposure to contents of an open or damaged battery: Very toxic to aquatic life with long lasting effects.

Components	Species	Test Results
Lead and lead compounds (CAS 7439-92-1)		
LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss)	1.17 mg/l, 96 Hours

**Persistence and degradability:**

The degradation half-life of the product is not known. Lead and its compounds are highly persistent in water.

**Bioaccumulative potential:**

Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants, but very little bioaccumulation occurs through the food chain.

**Mobility in soil:**

If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater.

**Mobility in general:**

The product is insoluble in water and will spread on water surfaces

**Other adverse effects:**

None known.

