

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

SECTION 11: TOXICOLOGICAL INFORMATION
Information on likely routes of exposure:

- Inhalation** Exposure to contents of an open or damaged battery: Harmful if inhaled.
- Skin contact** Exposure to contents of an open or damaged battery: Causes severe skin burns.
- Eye contact** Exposure to contents of an open or damaged battery: Causes serious eye damage.
- Ingestion** Exposure to contents of an open or damaged battery: Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Exposure to contents of an open or damaged battery:
Dust may irritate the eyes and the respiratory system.

Information on toxicological effects:

Acute toxicity Exposure to contents of an open or damaged battery: Harmful if inhaled or swallowed.

Components	Species	Test Results
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Sulphuric acid (CAS 7664-93-9):

Acute Oral LD50	Rat	2140 mg/kg
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Skin corrosion/irritation

Exposure to contents of an open or damaged battery: Causes severe skin burns

Serious eye damage/eye irritation

Exposure to contents of an open or damaged battery: Causes serious eye damage.

Respiratory or skin sensitization:

Respiratory sensitization No data available.

Skin sensitization No data available.

Germ cell mutagenicity No data available.

Carcinogenicity

The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.

IARC Monographs. Overall Evaluation of Carcinogenicity

Lead and lead compounds (CAS 7439-92-1)	2B Possibly carcinogenic to humans.
Sulphuric acid (CAS 7664-93-9)	1 Carcinogenic to humans.

NTP Report on Carcinogens

Lead and lead compounds (CAS 7439-92-1)	Reasonably Anticipated to be a Human Carcinogen.
Sulphuric acid (CAS 7664-93-9)	Known to be human Carcinogen.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)	Not regulated.

