



MATERIAL SAFETY DATA SHEET
USED LEAD ACID BATTERY
 Hazardous under the criteria set by Worksafe Australia

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SECTION I – IDENTIFICATION OF MATERIAL AND THE SUPPLIER

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HAZARD RATINGS

Flammability: 0
 Toxicity: 0
 Body Contact: 3
 Reactivity: 0

SCALE

Min/Nil = 0
 Low = 1
 Moderate = 2
 High = 3
 Extreme = 4

Product Name: Battery, wet filled with acid
Other names: Lead Acid Automotive Battery
CAS RN No(s): None
UN Number: 2794
Dangerous Goods Class: 8
Subsidiary Risk: None
Hazchem Code: 2W
Poisons Schedule Number: Exempt

USE

- Power source for electric start motors for motor vehicles.
- Charging Hazard, completion of charging process includes evolution of highly flammable and explosive hydrogen gas which is readily detonated by electric spark. No smoking or naked lights.
- Do not attach/detach metal clips or operate open switches during charging process because arcing/sparking hazard. Overcharging to excess results in vigorous hydrogen evolution - boiling- which may cause generation of corrosive acid mist. Large installations i.e. battery rooms must be constructed of acid resistant materials and well ventilated.

Supplier's name and address: Orbitas Pty Ltd, 18 Station Street, Wagga Wagga

Emergency Telephone Number: Orbitas – 1300 783 879

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SECTION II - HAZARDOUS IDENTIFICATION

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APPEARANCE

- Rectangular plastic casing with exposed terminals for electrical connections. High weight to volume ratio.
- The hazard of lead acid batteries include: CORROSIVE CONTENTS SHORT CIRCUIT - accidental discharge. Current flow by external heat generated may boil battery acid with evolution of large amounts of highly corrosive acid mist/vapor. Boiling may develop internal pressure and cause explosion with scattering of acid contents.
- Battery circuits must include electrical fusible links: terminals and external metal parts must be insulated. Do not clean terminals or battery top with conducting liquids.
- SPILL - damage to casing or overturning may cause corrosive acid contents to spill, causing skin burns on contact. Acid reacts quickly with many metals, generating highly flammable and explosive hydrogen gas; may also weaken metal structures.
- Chemical hazards relate to the contents of the battery.

| | |
|-----------------------------------|------------------|
| Boiling Point (deg C): | Not Applicable |
| Melting Point (deg C): | Not Applicable |
| Vapor Pressure (deg C): | Not Applicable |
| Specific Gravity: | 1.2 - 1.3 (acid) |
| Flash Point (deg C): | None |
| Lower Explosive Limit (%): | Not Applicable |
| Upper Explosive Limit (%): | Not Applicable |
| Solubility in water (g/L): | Not Applicable |
| Packaging Group Number: | 3 |

INGREDIENTS

Rechargeable electric storage batteries of lead acid electrochemical cells in a vented outer polypropylene casing through which protrude metal terminals connected to alternative grid plates of:
Hazardous Ingredients

Risk Phrases:

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|---------|--|
| R20/22: | Harmful if inhaled or ingested |
| R33: | Danger cumulative effect |
| R35: | Causes severe burns |
| R58: | May cause long term adverse effects in the environment |
| R61: | May cause harm to unborn children |
| R62: | Possible risk of impaired fertility |

Safety Phrases:

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|-------|--|
| S1/2: | Keep locked up and out of reach of children |
| S26: | Contact with eyes, rinse immediately & seek medical advice |
| S30: | Never add water to this product |
| S45: | In case of accident, seek medical advice immediately |
| S53: | Avoid exposure – obtain special instructions before use |

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SECTION III – COMPOSITION/INFORMATION ON INGREDIENTS

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| Ingredients | CAS Number | Ave Proportion by Weight |
|--------------------|-------------------|---------------------------------|
| Lead | 7439-92-1 | 30 – 60% |
| Lead dioxide | 1309-60-0 | 10 – 30% |
| Sulfuric acid | 7664-93-9 | 20 – 40% |

| Property: | Data Point: |
|----------------------|---|
| Boiling point: | Sulphuric Acid (electrolyte) 95C / -7 to – 70C |
| Vapour pressure: | Sulphuric Acid (electrolyte) 13 to 22 mmHg@ 25C |
| Specific Gravity: | Sulphuric Acid (electrolyte) 1.2 to 1.3 @ 25C (average) |
| Flashpoint: | Sulphuric Acid (electrolyte) Not Applicable |
| Flammable Limits: | Sulphuric Acid (electrolyte) Not Applicable |
| Solubility in water: | Sulphuric Acid (electrolyte) 100% |

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SECTION IV - FIRST AID

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SWALLOWED

If this product is swallowed:

- Rinse mouth with plenty of water
- If poisoning occurs, contact doctor or Poison Information Centre
- If swallowed, DO NOT induce vomiting. Give a glass of water.

EYES

If this product comes in contact with the eyes:

- Immediately hold the eyes open and wash continuously for at least 15 minutes with fresh running water
- Ensure irrigation under eyelids by occasionally lifting upper and lower lids
- Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If this product comes in contact with the skin:

- Immediately flush body and clothes with large amounts of water, using safety shower if available
- Quickly remove all contaminated clothing, including footwear
- Wash affected areas with water (and soap if available) for at least 15 minutes
- Transport to hospital or doctor.

INHALED

If this product is inhaled:

- Remove to fresh air (if fumes or combustion products are inhaled)
- Lay patient down. Keep warm and rested
- If available, administer medical oxygen by trained personnel
- If breathing is shallow or has stopped, ensure clear airway and apply resuscitation
- Transport to hospital or doctor without delay.

ADVICE TO DOCTOR

For acute or short term repeated exposures to strong acids:

1. Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially
2. Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
3. Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise
4. Strong acids produce a coagulation necrosis characterized by formation of a coagulum (eschar) as a result of dissipating action of the acid on proteins in specific tissues.

INGESTION

1. Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.
2. Do not attempt to neutralize the acid since exothermic reaction may extend the corrosive injury
3. Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
4. Charcoal has no place in acid management.
5. Some authors suggest the use of lavage within 1 hour of ingestion.

SKIN

1. Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.
2. Deep second-degree burns may benefit from topical silver sulfadiazine.

EYES

1. Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes. Do not use neutralizing agents or any other additives. Several litres of saline are required.
2. Cycloplegic drops (1% cyclopentolate for short-term use of 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on severity of the injury.
3. Steroid eye drops should only be administered with the approval of a consulting ophthalmologist. [Ellenhorn and Barceloux: Medical Toxicology].

SECTION V - FIRE AND EXPLOSION

FIRE/EXPLOSION HAZARD

- Non combustible dangerous hazard when exposed to heat, flame and oxidisers.
- May emit corrosive fumes.
- Decomposes on heating and produces acid and toxic fumes of sulfuric acid (H₂SO₄) and sulfuric oxides (SO_x).
- Contact with readily oxidisable organic material may cause ignition/fire.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- Reacts with metals producing flammable/explosive hydrogen gas.

SECTION VI – ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

If contents exposed:

- Clean up all spills immediately
- Avoid breathing vapors and contact with skin and eyes
- Control personal contact by using protective equipment
- Neutralize contain and absorb spill with sand, earth, inert material or vermiculite
- Wipe up. Place in suitable labeled container for waste disposal
- Use soda ash or slaked lime to neutralize.

MAJOR SPILLS

- Do not touch the spill material. Clear the area of personnel and move upwind.
- Alert Fire Brigade and tell them the location and nature of hazard.
- May be violently or explosively reactive. Wear full body protection with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Consider evacuation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralizes/decontaminate residue.
- Collect solid residue and seal in labelled drums for disposal.
- Wash area and prevent run off into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.
- **DO NOT USE WATER OR NEUTRALISING AGENTS INDISCRIMINATELY ON LARGE SPILLS.**
- Use soda ash or slaked lime to neutralise.

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SECTION VII – HANDLING AND STORAGE
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STORAGE AND TRANSPORT

Check that containers are clearly labelled.

STORAGE INCOMPATIBILITY

Protect from accidental short-circuit.

STORAGE REQUIREMENT

- Keep dry. Store in original containers. Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well ventilated area.
- Store away from incompatible materials, including combustibles, organic materials and strong reducing agents.
- Protect containers against physical damage. Check regularly for leaks.
- Observe manufacturers storing and handling recommendations.
- Incompatibility avoid strong reducing agents, sulphur trioxide gas, strong oxidizer.

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SECTION VIII – EXPOSURE CONTROLS AND PERSONEL PROTECTION
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ACUTE HEALTH EFFECTS

Health effects relate to the corrosive sulfuric acid battery contents.

SWALLOWED

Considered an unlikely route of entry in commercial/industrial environments. The liquid is highly discomforting and corrosive if swallowed and capable of causing burns to mouth, throat, esophagus, with extreme discomfort and pain. Ingestion may result in nausea, abdominal irritation, pain and vomiting.

EYE

The liquid is extremely discomforting and corrosive to the eyes and any contact may cause rapid tissue destruction and is capable of causing severe damage with loss of sight. The material may produce severe irritation to the eye causing pronounced inflammation.

SKIN

The liquid is highly discomforting and corrosive to the skin and contact may cause tissue destruction i.e. chemical burns.

INHALED

The vapour/mist is highly discomforting and corrosive to the upper respiratory tract if inhaled.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are skin contact with acid contents, eye contact with acid contents, inhalation of acid mists generated when overcharging occurs. Repeated minor exposure to acid mist can cause erosion of teeth and inflammation of the upper respiratory tract leading to chronic bronchitis. There is evidence that the corrosion of teeth enamel occurs at 1 mg/m³ but that acclimatized workers may tolerate three to four times that level. Workers chronically exposed to sulfuric acid may show skin lesions, tracheobronchitis, stomatitis, conjunctivitis and gastritis.

Occupational exposure to strong inorganic acid mists containing sulfuric acid is designated by IARC to be carcinogenic. Increased risk of laryngeal cancer being seen with chronic exposure.

SECTION VIII – PHYSICAL AND CHEMICAL PROPERTIES

| Material | % by Weight | CAS Number | Exposure OSHA | Limits ACGIH |
|----------------------------------|-------------|------------|-----------------------|-----------------------|
| Lead | 51.4 | 7439-92-1 | 0.05mg/m ³ | 0.15mg/m ³ |
| Electrolyte (Sulfuric Acid) | 19-44 | 7664-93-9 | 1 mg/m ³ | 1 mg/m ³ |
| Lead Dioxide (PbO ₂) | 20.8 | 1309-60-0 | 0.05mg/m ³ | 0.05mg/m ³ |
| Non-Hazardous Ingredients | 8.2 | | | |

SECTION X – STABILITY AND REACTIVITY DATA

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|--|---|
| Stability: | not applicable |
| Incompatible materials: | Many common metals |
| Conditions of reactivity: | Exposure to battery acid (electrolyte) |
| Hazardous decomposition products: | For battery acid - if heated above 340oC, sulfuric acid may decompose to sulfur trioxide, carbon monoxide, sulphuric acid mist, sulphur dioxide and hydrogen. |

SECTION XI - TOXICOLOGICAL PROPERTIES

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|-------------------------|---|
| Exposure limits: | Blood Lead levels above 50 ppm is considered at risk. |
| Inhalation: | May cause irritation. |
| Skin contact: | May cause rash or irritation. |
| Eye contact: | May cause eye damage. |
| Ingestion: | May cause irritation or burning. |
| Chronic effects: | Battery Acid (electrolyte) & Lead are poisonous. |
| Carcinogenicity: | Lead and lead dioxide are listed as carcinogens, however there is little or no possibility for exposure under normal conditions of use. |

Other reproductive effects: Long term exposure to high Blood Lead Levels may cause birth defects.
Sensitization to material: Product is not known to cause allergies.
Synergistic materials: None known.

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SECTION XII – ECOLOGICAL INFORMATION
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SECTION XIII – DISPOSAL CONSIDERATIONS
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DISPOSAL

Acid contents:

- Recycle wherever possible
- Consult State Land Waste Management Authority for disposal
- DO NOT discharge into sewer or waterways
- Use soda ash or slaked lime to neutralize.

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SECTION XIII – TRANSPORT INFORMATION
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TRANSPORTATION

- Class 8 Corrosives shall not be loaded in the same vehicle or packed in the same freight containers.
- Class 1 Explosives.
- Class 4.3 Dangerous when wet substances.
- Class 5.1 Oxidizing agents.
- Class 5.2 Organic peroxides.
- Class 6 Poisonous (toxic) substances (where poisonous substances are cyanides and corrosives are acids).
- Class 7 Radioactive substances; foodstuffs and foodstuff empties.
- Class 8 Strong alkalis.

Packaging

Group Number 3

Insulate terminals against short circuiting. Packed with insert cushioning materials in a fiberboard box - package gross 40kg: wooden box or wooden slatted crate - package gross 225kg.

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SECTION XV – REGULATORY INFORMATION
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SECTION XVI - PREPARATION INFORMATION
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Prepared by: Orbitas Pty Ltd
Telephone #: 1300 783 879
Preparation date: February 1, 2008

Additional notes or references:

Common terms:

ULAB: Used Lead Acid Battery
DG: Dangerous Goods
HAZMAT: Hazardous Material
OH&S: Occupational Health & Safety

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