

Ultracell®

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCTS & COMPANY IDENTIFICATION

PRODUCT NAME: MAINTENANCE FREE RECHARGEABLE SEALED LEAD ACID BATTERY
MANUFACTURER'S NAME: ULTRACELL (UK) LTD
MANUFACTURER'S ADDRESS: FARRIERS WAY, LIVERPOOL U.K. L30 4XL
TELEPHONE NUMBER: +44 151 523 2777
FACSIMILE NUMBER: +44 151 523 0855

SECTION 2: HAZARDOUS COMPONENTS, PHYSICAL DATA, FLAMMABILITY DATA, FIRST AID, REACTIVITY DATA

HAZARDOUS COMPONENTS

| COMPONENTS | %WEIGHT | TLV | LD50 ORAL | LC50 INHALATION | LC50 CONTACT |
|--------------------------------------------------|-----------|---------------------|---------------|-----------------|--------------|
| Lead (Pb, PbO ₂ , PbSO ₄) | About 70% | N/A | (500) mg/Kg | N/A | N/A |
| Sulphuric Acid | About 20% | 1 mg/m ³ | (2.140) mg/Kg | N/A | N/A |
| Fibreglass Separator | About 5% | N/A | N/A | N/A | N/A |
| ABS | About 5% | N/A | N/A | N/A | N/A |

PHYSICAL DATA

| COMPONENTS | DENSITY | MELTING POINT | SOLLUBILITY (H ₂ O) | ODOUR | APPEARANCE |
|-----------------|-----------|-----------------------|--------------------------------|----------|-------------------------|
| Lead | 11.34 | 327.4°C (Boiling) | None | None | Silver-Grey Metal |
| Lead Sulphate | 6.2 | 1070°C (Boiling) | 40 mg/l (15°C) | None | White Powder |
| Lead Dioxide | 9.4 | 290°C (Boiling) | None | None | Brown Powder |
| Sulphuric Acid | About 1.3 | About 114°C (Boiling) | 100% | Acidic | Clear Colourless Liquid |
| Fibreglass Sep. | N/A | N/A | SLIGHT | TOXIC | WHITE FIBROUS GLASS |
| ABS | N/A | N/A | NONE | NO ODOUR | SOLID |

FLAMMABILITY DATA

| COMPONENTS | FLASHPOINT | EXPLOSIVE LIMITS | COMMENTS |
|-----------------|------------|------------------|----------------------------------------------------------------------------------------------------------------------------|
| Lead | None | None | |
| Sulphuric Acid | None | None | |
| Hydrogen | | 4% - 74.2% | Sealed batteries can emit hydrogen only if over charged(float voltage 2.4VPC) |
| Fibreglass Sep. | N/A | N/A | Poisonous vapours may be released. Please wear self contained breathing apparatus in case of fire. |
| ABS | None | N/A | Temperatures over 300 °C (572°F) may release combustible gases. Wear positive pressure self contained breathing apparatus. |

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FIRST AID

SULPHURIC ACID PRECAUTIONS

SKIN CONTACT: Flush with water immediately and seek medical advice.

EYE CONTACT: Flush with water immediately and seek medical advice.

Ingestion: Call the doctor immediately and flush mouth with water. Have the patient drink milk if the patient is conscious. Do not give anything to the unconscious person.

REACTIVITY DATA

| | |
|------------------------|----------------------------------------------------------------------------------------------------|
| COMPONENT | Sulphuric Acid |
| STABILITY | Stable at all temperatures |
| POLYMERIZATION | Will not polymerize |
| INCOMPATIBILITY | Reactive metals, strong bases, most organic compounds |
| DECOMPOSITION PRODUCTS | Sulfuric dioxide, trioxide, hydrogen sulfide, hydrogen |
| CONDITIONS TO AVOID | Prohibit smoking, sparks, etc. from battery charging area. Avoid mixing acid with other chemicals. |

SECTION 3: SPILL OR LEAK PROCEDURES, PROTECTION, ELECTRICAL SAFETY, HEALTH HAZARD DATA

SPILL OR LEAK PROCEDURES

ACTION TAKEN FOR LEAKAGE OR SPILLS

If sulphuric acid is spilled from a battery, neutralise the acid with sodium bicarbonate (baking soda), sodium carbon (soda ash), or calcium oxide (lime).

Flush the area with water to discard to the sewage systems. Do not allow the acid into the sewage system before it is neutralised.

WASTE DISPOSAL METHOD:

Neutralised acid may be flushed down the sewer. Used batteries must be treated as hazardous waste and disposed of according to local policy and National Laws. A copy of this material safety data must be supplied to any scrap dealer .

PROTECTION

| EXPOSURE | PROTECTION | COMMENTS |
|-------------|-----------------------------|-------------------------------------------------------------------------------|
| SKIN | Rubber gloves, Apron | Protective equipment must be worn if battery is cracked or otherwise damaged. |
| RESPIRATORY | Respirator (for lead) | A respirator should be worn during reclaim operations if the TLV exceeded. |
| EYES | Safety goggles, Face Shield | |

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ELECTRICAL SAFETY

Due to the battery's low internal resistance and high power density. High levels of short circuit can be developed across the battery terminals. Do not put tools or cables on the battery. Use insulated tools only. Strictly follow all the instructions for installation and diagrams when installing or maintaining battery systems..

HEALTH HAZARD DATA

LEAD: The toxic effects of lead are accumulative and slow to appear. It affects the kidneys, reproductive, and central nervous system.

The symptoms of lead overexposure are anemia, vomiting, headache, stomach pain (lead colic), dizziness, loss of appetite, and muscle and joint pain. Exposure to lead from a battery most often occurs during lead reclaim operations through the breathing or ingestion of lead dusts and fumes.

SULPHURIC ACID: Sulphuric acid is a strong corrosive. Contact with acid can cause severe burns on the skin and in the eyes.

Ingestion of sulphuric acid will cause GI tract burns. Acid can be released if the battery case is damaged or if the vents are tampered with.

FIBREGLASS SEPARATOR: Fibrous glass is an irritant of the upper respiratory tract, skin and eyes. Please use the relative protection gear if necessary.

SECTION 4: Transportation information

Identification and Proper Shipping Name: BATTERIES, NON-SPILLABLE, electric storage, UN2800

DOT: Unregulated, meets the requirements of 49 CFR 173, 159 (d)

IATA/ICAO: Unregulated, meets the requirements of Special Provision A67

IMO: Unregulated

Label/Marking: "Non-Spillable" or "Non-Spillable Battery"

UN/NA Number: UN2800

"For all modes of transport, each battery and outer package must be labeled/marked "Non-Spillable" or "Non-Spillable Battery"

Follow all regulations in your country.