MATERIAL SAFETY DATA SHEET

# Battery Containing Liquid Sulphuric Acid

## 1. IDENTIFICATION OF THE PRODUCT AND COMPANY

Product Name: Lead Acid Batteries
Intended Use: Starter Battery
Name and telephone number of company:

UK Batteries Limited
Battery House, 1 Lyons Road,
Trafford Park, Manchester, Lancashire, M17 1RN
Tel: 0845 063 9999 Fax: 0845 063 8888
e-mail – info@ukbatteries.co.uk

## 2. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

Chemical Lead Acid battery.
Polypropylene case with six elements, each containing lead plates and sulphuric acid, with a specific gravity of 1.280g/cm$^3$

| Names | Conc. Range% | Haz. Symbol | Risk Phrases | CAS No | EINECS No |
|---|---|---|---|---|---|
| Sulphuric Acid | 25-50% | C | R35 | 7664-93-9 | 231-639-5 |

## 3. HAZARD IDENTIFICATION OF THE PREPARATION

**Possible Hazards**

**Principal Physical Dangers:** Causes severe burns.
**Eye Contact:** Eye Burns
**Skin Contact:** Skin Burns
**Inhalation:** Irritation to respiratory systems
**Swallowing:** Digestive tract burns
**Environment:** C Corrosive

Contact with some metals may produce flammable hydrogen gas.

## 4. FIRST AID MEASURES

Never give fluids or induce vomiting, if patient is unconscious or is having convulsions.

**Inhalation:** Remove to fresh air. Wash out mouth and nose with water. If breathing has stopped, apply artificial respiration (NOT MOUTH TO MOUTH) by qualified personnel. If conscious, give water. Call a physician or transport to a medical facility.
**Eye Contact:** SPEED IS ESSENTIAL, Flush eyes immediately with water for at least 15 minutes and seek urgent medical advice.
**Skin Contact:** Immediately remove contaminated clothing and wash affected areas with plenty of water. Seek urgent medical attention.
**Ingestion:** If conscious, wash out mouth with water, and give plenty of water to drink. Call a physician and transport to emergency facility immediately. Do not induce vomiting.
**Note to Physician:** The patient should be kept under medical review for at least 48 hours, as delayed pulmonary oedema can develop.

## 5. FIRE FIGHTING MEASURES

**General Hazards:** Toxic oxides of sulphur liberated on thermal decomposition e.g. sulphur trioxide. Contact with metals may form explosive hydrogen gas.
**Extinguishing Media:** Non-flammable liquid. Use dry powder or $CO_2$ for small fires. Flood fire with water from a distance. Keep containers cool by spraying with water. Care should be taken not to splatter or splash this material.
**Extinguishing Media Not To Be Used:** Do not put a solid stream of water onto spilled material, as this will cause a violent reaction. Do not absorb with sawdust.
**Fire Fighting Protective Equipment:** Wear protective, pressure self-contained breathing apparatus and protective fire-fighting clothing (including fire-fighting helmet, coat, trousers, boots and gloves).

## 6. ACCIDENTAL RELEASE MEASURES

**General Hazards:** Exclude sources of ignition and ventilate area. Avoid breathing vapours. Refer to protective measures listed in Sections 7 & 8.
**Personal Precautions:** Evacuate area. Only trained and properly protected personnel should be involved in cleanup operations. Avoid contact with skin and eyes. Wear suitable gloves, plastic apron and boots. Wear goggles and/or face shield. Wear suitable overalls. Eyewash bottles should be on hand.
**Environmental Precautions:** Contain liquid to prevent contamination of soil, surface water or ground water.
**Methods for cleaning up:** Small spills, neutralise with soda ash, earth or sand. Place into plastic containers for safe disposal. Dispose of according to applicable regulation, see Section 13. Large spills: Secure and block drains. Alert local authorities. Once cleaned the surface may be flushed. Treat as for small spills.

## 7. HANDLING & STORAGE

**Handling:** Proper safe handling procedures must be instituted for handling this product, particularly for unloading bulk supplies. Emergency showers, hoses and eyewash should be available. Avoid inhalation of mists and ensure adequate ventilation to meet the LTEL. Product exposed to the atmosphere will absorb moisture. Wear PVC or rubber gloves, goggles and protective clothing. Always wash protective equipment after use. When diluting, prepare solutions slowly. Always add ACID TO WATER, never water to acid and stir. The battery should not be tilted at an angle of more than 45° for long periods. If the battery is dropped it should be scrapped immediately.

**Precautions:** Do not smoke. Do not place near open flames or sparks.
Never place a metal object (tool, lamp) on top of the battery.
Never stack more than two pallets at a time.

**Recommendations for Use:** Recharging should be done in a well ventilated area, which should include exterior fans to extract gases.

**Storage:** Keep in a cool, dry, well-ventilated place away from flammable materials, metals, nitrates, chlorates and carbides. Minimum storage temperature - 0°C, Maximum storage temperature - 52°C

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Limits:** The UK Health and Safety Executive have established a Long Term Exposure Limit (LTEL) of 1mg.m$^{3,\ 8}$ hour TWA.

**Occupational Exposure Controls:** Control airborne concentration below the exposure guidelines. Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**Environmental Exposure Controls:** Products to be stored in bunded areas or self-bunded (double-skinned_ tanks. Local drains to be isolated.

### Personal Protective Equipment

**Respiratory:** In case of mist exceeding LTEL, use suitable respiratory protection.

**Hand/Skin Protection:** PVC or rubber gloves, boots and aprons.

**Eye Protection:** Use full face shield and goggles, giving complete protection to eyes.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Physical Form:** | Liquid Sulphuric Acid |
| **Appearance:** | Colourless Liquid |
| **Odour:** | Odourless |
| **p.H** | <1 |
| **Boiling Point:** | 112°C |
| **Boiling Ranges:** | |
| **Flash Point:** | None |
| **Flammability:** | Not Flammable |
| **Explosive Limits:** | |
| **Oxidising Properties:** | |
| **Solubility (Water):** | Completely Miscible |
| **Solubility (Oil):** | May react and cause fire |
| **Partition Coefficient n-octanol/water:** | |
| **Vapour Density (Air=1):** | |
| **Auto Ignition Temperature:** | |

**Evaporation Rate (n-butyl acetate=1):**

| Density 20°C | % H2SO4 W/W | Viscosity 20°C | Vapour Pressure mm, Hg 25°C | Freezing Point °C |
|---|---|---|---|---|
| 1.180 | 25 | | | -20 |
| 1.205 | 28 | 2.01 | 8.7 | -27 |
| 1.230 | 31 | | | -38 |
| 1.240 | 33 | | | -47 |
| 1.250 | 34 | | | -52 |
| 1.260 | 35 | | | -58 |
| 1.270 | 36 | | | -60 |
| 1.280 | 37 | | | -61 |
| 1.300 | 40 | 2.70 | 13.8 | -64 |
| 1.400 | 50 | 3.79 | 8.5 | -36 |

## 10. STABILITY AND REACTIVITY

**Stability:** Over 338°C formation of So3 and H2 (hydrogen)
**Conditions to Avoid:** Stable under normal conditions.
**Material to Avoid:** Avoid contact with metals, nitrates, chlorates, carbides, organic materials, cyanides, sulphides, and bases. Water may cause spattering of hot acid. Can ignite upon contact with combustibles.
**Hazardous Decomposition Products:** Thermal decomposition can liberate sulphur oxides and hydrogen on contact with water.

## 11. TOXICOLOGICAL INFORMATION

**Inhalation:** Vapour is severely irritating to the respiratory tract. Fluid build-up in the lungs may occur 48 hours after exposure and may prove fatal.
**Ingestion:** Corrosive – causes severe burns. Immediate damage to gastro-intestinal tract. Burns to mouth, throat, oesophagus and stomach. Exposure of strong mist in excess of LTEL may increase incidence of cancer in the larynx.
**Skin Contact:** Corrosive – Causes severe burns.
**Eye Contact:** Risk of severe damage to eyes. May cause permanent damage or even loss of sight. Mist will cause irritation.
**Sensitisation:** The substance has not been tested at all for this end point, so its hazardous property in this regard is not known.
**Repeated Dose Toxicity:** Long-term effects from repeated exposure may cause erosion or discolouration of the teeth.
**Mutagenicity:** The substance has not been tested at all for this end point, so its hazardous property in this regard is not known.
**Carcinogenicity:** The substance has not been tested at all for this end point, so its hazardous property in this regard is not known.
**Reproductive Toxicity:** The substance has not been tested at all for this end point, so its hazardous property in this regard is not known.
**Other information:**

## 12 ECOLOGICAL INFORMATION

**Ecotoxity:** Large discharges into watercourses may contribute to the acidification of water and soil and will injure aquatic life and soil micro-organisms. Bluegill sunfish TLM (24hr) 24.5mg/1 (fresh water). Daphnia Magna Lethal (24-72hr) 29mg/1 (soft water). Mosquito fish TLM (96hr) 42mg/1. 50mg/1 is regarded to all aquatic life. A concentration of 58mg/1 will cause 50% inhibition of sewerage organism.
**Mobility:** Soluble is aqueous systems. May layer out across the bottom surface of a water body. This effect may be more pronounced where there is little potential for natural turbulence.
**Bioaccumulation Potential:** None.
**Persistence and Degradability:** Will disperse as ions.
**Other adverse effects:**

## 13 DISPOSAL CONSIDERATIONS

Any disposal practice must be in compliance with all local and national laws and regulations. Do not dump into any sewers, on the ground or into any body of water. The preferred options are to send licensed reclaimer or to permit incinerators.

## 14 TRANSPORT INFORMATION

| | **ADR/RID** | **IMO/IMDG** | **ICAO/IATA** |
|---|---|---|---|
| UN Number: | 2794 | 2794 | 2794 |
| Class: | 8 | 8 | 8 |
| Proper Shipping Name: | Lead Acid Starter Batteries | Lead Acid Starter Batteries | Lead Acid Starter Batteries |
| Packing Group: | III | III | III |
| Marine Pollutant: | | Yes | |
| Hazchem Code: | 2R | | |
| Label: | Corrosive | Corrosive IMDG Pg 8230 | Corrosive |
| Passenger: | | | 809 1 Ltr 813-30 Ltr |
| Exemption: | Disposition 598 | | |
| Code Danger: | 8.0 | F-A, S-B | |

**Other applicable information:** Sample shipment not allowed by mail.

The following special provisions in ADR apply to:

**295** (applicable to UN2794) – Batteries need not be individually marked and labelled if the pallet bears the appropriate mark and label.

**598** (applicable to UN2794) – The following are not subject to the requirements of ADR:

a) New storage batteries when:

- they are secured in such a way that they cannot slip, fall or be damaged.
- they are provided with carrying devices, unless they are suitably stacked, e.g. on pallets.
- there are no dangerous traces of alkalis or acids on the outside.
- they are protected against short circuits.

b) Used storage batteries when:

- their cases are undamaged.
- they are secured in such a way that they cannot leak, slip or fall or be damaged e.g. by stacking on pallets.
- there are no dangerous traces of alkalis or acids on the outside of the articles.
- they are protected against short circuits.

"Used storage batteries", means storage batteries carried for recycling at the end of their normal service life.

## 15 REGULATORY INFORMATION

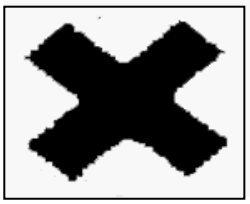
**EEC Classification and User Label Information**: Classification according to the UK Chemical (Hazard Information and Packaging) Regulations (CHIP) 2002.

| | | |
|---|---|---|
| **Classification:** | | Sulphuric Acid |
| **Hazard Symbol:** | | C – Corrosive<br>E – Explosive<br>Xi – Irritant<br>Xn - Harmful |
| **R Phrases:** | R2 | Risk of explosion by shock, friction, fire or other sources of ignition |
| | R22 | Harmful if swallowed |
| | R35 | Causes severe burns |
| | R36/37/38 | Irritating to eyes, respiratory system and skin |

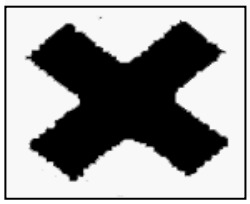
| | | |
|---|---|---|
| **S Phrases:** | S1/2 | Keep locked up and out of reach of children |
| | S13 | Keep away from food, drink and animal feeding stuffs |
| | S16 | Keep away from sources of ignition – No Smoking |
| | S20 | When using, do not eat or drink |
| | S24 | Avoid contact with skin |
| | S26 | In case of contact with eyes, rinse immediately with plenty of Water and seek medical advice |
| | S27/28 | After contact with skin, take off immediately contaminated clothing and wash immediately with plenty of water |
| | S29/56 | Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point |
| | S30 | Never add water to this product |
| | S36/37/39 | Wear suitable protective clothing, gloves and eye/face protection |
| | S40 | To clean the floor and all objects contaminated with this material, neutralise with alkali – soda ash, sodium carbonate, sodium bicarbonate and dilute with plenty of water |
| | S45 | In case of an accident or you feel unwell, seek medical advice immediately (show the label where possible). |

E – Explosive


C- Corrosive



Xi – Irritant



Xn - Harmful

## 16 OTHER INFORMATION

The advice is given by UK Batteries Ltd, who accepts no legal liability for it, the information contained herein is based on the present state of knowledge and current national legislation. It provides guidance on Health, Safety and environmental aspects of the product and should not be constructed as any guarantee of specific properties, technical performance or suitability for particular applications.