MATERIAL SAFETY DATA SHEET

BATTERY – DRY CHARGED

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COMPANY DETAILS

Company: Century Yuasa Batteries Pty. Ltd. (A.C.N. 009685232)
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Hazardous according to criteria of Worksafe Australia.

IDENTIFICATION

Product Name: **BATTERY – DRY CHARGED**
Other Name: Dry charged, lead-acid battery.
UN Number: None allocated
Dangerous Goods Class: None allocated
Hazchem Code: None allocated
Poisons Schedule Number: None allocated
Use: Dry charged battery – requires addition of sulphuric acid before use.

Physical Description/Properties

Appearance: Automotive starting battery.
Boiling Point (°C): Not Applicable
Melting Point (°C): Not Applicable
Vapour Pressure: Not Applicable
Specific Gravity: Not Applicable
Flashpoint: Not Applicable
Flammability Limits (%): Not Applicable
Solubility in Water (g/L): Insoluble in water

Other Properties

Decomposition Temperature (°C): >500-700°C lead fumes given off
Solubility in Organic Solvents: Resistant to solvents

Reactivity Data

Stability: Stable
Incompatibility: Incompatible with oxidisers. Reacts with hot concentrated nitric acid and with boiling concentrated sulphuric and hydrochloric acid. Resistant to hydrofluoric acid. Attacked by weak organic acids in the presence of oxygen.
Hazardous Decomposition Products: Will produce toxic fumes (lead oxides) at high temperatures.
Hazardous Polymerisation: Will not occur.

Ingredients

Chemical Name	CAS Number	Proportion by Weight
Lead	7439-92-1	30-50%
Lead Dioxide	1309-60-0	35-50%
Lead Sulphate	7446-14-2	5-20%
Inert Material (Polypropylene/Polyethylene)	-	10-15%

HEALTH HAZARD INFORMATION

Health Effects

Acute:

Swallowed: Unlikely unless in the form of dust or fume. Lead is absorbed in small amounts from the gastrointestinal tract, which it may enter through the swallowing of inhaled particles or via smoking tobacco, eating food, etc, and may result in symptoms of poisoning (see “inhaled”, below).

Eye: Unlikely route of entry given the physical form of the product. However, entry of lead particles may cause inflammation and physical damage, and in severe cases may cause cataracts. Lead dust and fume are irritating to the eyes.

Skin: Contact with skin may result in irritation. Inorganic lead is not significantly absorbed through unbroken skin.

Inhaled: Unlikely due to physical form, however dust or fumes are readily absorbed from the respiratory tract and may result in symptoms of poisoning. The primary route of entry is via inhalation of the dust or fume. Lead is retained in the body (primarily in bones and other hard tissues) for a long period of time, hence is a cumulative poison. The lowest concentration of lead-in-air reported to produce any toxic effect in humans (TC_{LO}) is 10 ug/m^3. Early symptoms of poisoning include fatigue, headache, sleep disturbances, constipation, aching bones and muscles, gastrointestinal tract disturbances and reduced appetite. Later, anaemia, lead line on the gums, and lead colic may occur. These symptoms may often be precipitated by alcohol or exercise. Large doses affect the central nervous system (CNS), causing severe headaches, convulsions, coma and possible death.

Chronic:
Kidney damage occurs on long term exposure through inhalation or ingestion of the dust or fume. High concentrations of metallic dust in factories have been reported to affect peripheral airway function and cause lung fibrosis and emphysema. These problems would only be expected to occur in the industrial use of the material.

Psychological disturbances, such as learning difficulties, behavioural changes and intelligence defects have been observed in young children with elevated blood lead levels due to ingestion of lead contaminated material.

Some animal studies have shown that a number of lead compounds induce benign and malignant tumours in several species, but there is no conclusive evidence of it being an animal or human carcinogen. Therefore the International Agency for Research on Cancer (IARC) classify lead as a group 2B carcinogen. Lead is classed by the Registry of Toxic Effects of Chemical Substances (RTECS) as a tumorigen, mutagen and reproductive effector, primarily on animal data. Lead presents a reproductive hazard in several ways. It can cause stillbirths and miscarriages and may reduce male fertility (gonadotoxic). It causes a reduction in pregnancies in successfully mated mice, and is embryotoxic. Lead crosses the placental barrier, and reduced foetal birth weight, neonatal body weight and motor activity, and skeletal deformities have been reported in mice. Lead induces quite specific teratogenic effects on the tail buds of hamster embryos, and these malformations tend to be potentiated by the presence of cadmium.

First Aid:

Swallowed: Rinse mouth with water and give plenty of water to drink; seek medical advice if a large object has been swallowed.

Eye: Irrigate the affected eye(s) with water and seek medical advice to remove the foreign body if necessary.

Skin: For sludge or dust contamination, wash the affected area with soap and water. If irritation occurs seek medical advice.

Inhaled: If fumes or dust is inhaled:
- ⇔ Remove victim to fresh air taking care not to become a casualty
- ⇔ Lay the patient down and keep warm and rested
- ⇔ Seek medical attention

First Aid Facilities: No specific first aid facilities are required.

Advice to Doctor:
Treat symptomatically. Test for lead in blood if patient has had long term exposure, particularly to dust or fume. Blood lead levels exceeding 100 ug/100mL indicate lead poisoning. Levels above 50 ug/100mL for adults and above 15 ug/100mL for children are of concern.

PRECAUTIONS FOR USE

Exposure Standard: Worksafe ES TWA: 0.15 mg/m^3 for inspirable inorganic dust and fume.

Engineering Controls: None required unless dust or fume are generated from the product. Inorganic lead dust or fume should be controlled below the Worksafe Australia exposure standard level. If the product is melted then appropriate mechanical ventilation (with filter) will be required. Avoid heating to greater than 500°C, and avoid grinding and abrasive cleaning of the product. State regulations apply to the use of inorganic lead. These should be consulted.

Personal Protection: The following personal protective equipment should be worn:
- ⇔ General use industrial safety glasses, goggles or face-shield as appropriate
- ⇔ Appropriate hand protection (PVC or leather gloves)
- ⇔ Overalls or similar protective clothing to cover bare skin
- ⇔ Wash contaminated clothing and protective equipment before storing or re-using. Always wash hands before smoking, eating, drinking or using the toilet. Avoid repeated skin contact. The use of barrier cream is recommended. Showering at the end of the working day is recommended.
- ⇔ Safety boots
- ⇔ Suitable respirator if dust or fume is generated. Respiratory protection is required above 0.15 mg/m^3 lead-in-air. Minimum protection requirements above this level are:
  - ✧ dust <1.5 mg/m^3: half-face dust/mist (P1) respirator
  - ✧ fume <1.5 mg/m^3: half-face fume (P2) respirator)
  - ✧ both <7.5 mg/m^3: full-face fume (P2) respirator or PAPR (Power Air-Purifying Respirator) with P2 filter
  - ✧ both <15 mg/m^3: full-face high efficiency particulate (P3) respirator

Flammability: Non combustible and non flammable in bulk form. Lead dust is flammable and moderately explosive when exposed to heat or flame.

SAFE HANDLING INFORMATION

Storage and Transport:
Store away form oxidising agents and acids. Not to be loaded or stored with foodstuffs.

Spills and Disposal:
Lead Dust: Wear suitable respirator and protective clothing. Collect spilled dust with a high-efficiency particulate filter vacuum if possible. Avoid generating dust while cleaning, wet with water to sweep up if necessary. Place spilled material in sealable, labelled containers. Return to manufacturer for recycling.

Fire/Explosion Hazard:
Extinguishing Media: Use appropriate agent (dry chemical, carbon dioxide, water spray or foam) for surrounding the fire.

Special Fire Fighting Procedures: Wear self contained breathing apparatus and protective clothing.

Unusual Fire & Explosion Hazards: Fire or excessive heat may produce toxic lead fumes.

OTHER INFORMATION

Safe Handling:
Good occupational practice should be followed when lifting or carrying lead, allowing for its high density.

Animal Toxicity Data:
Oral (Pigeon) LD_{LO}: 160 mg/kg.

Environment:
The product has no effect on the environment unless in finely divided form. Lead is taken from the soil by plants and can be concentrated in the food chain. It is also relatively mobile in the aquatic environment and can be concentrated by aquatic organisms. Acute toxicity data in the form of 96 hour LC_{50}'s for Australian freshwater animal is:

fish	- 0.18 to 32 mg Pb/L; and
crustaceans	- 0.5 mg Pb/L

Safety Phrases:
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible).
S53: Avoid exposure – obtain special instructions before use.
Risk Phrases:
R20/22: Harmful by inhalation and if swallowed.
R33: Causes severe burns.
R58: May cause long term adverse effects in the environment.
R61: May cause harm to the unborn child.
R62: Possible risk of impaired fertility.

CONTACT POINT

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Company Disclaimer:
This Material Safety Data Sheet is offered solely for information, consideration and investigation to determine the suitability of adopting safety and health precautions as may be necessary under the user's specific conditions and processes. All such conditions and processes are beyond the control of Century Yuasa Batteries Pty. Ltd.

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