SAFETY DATA SHEET

SDS: 853027AU
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SECTION 1 – IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product:	SEALED LEAD BATTERY - CYCLON®, GENESIS®, SBS®, XE®, HAWKER, ARMASAFE® & ODYSSEY® RANGES OF BATTERIES
Recommended Use:	Rechargeable Battery
Supplier:	ENERSYS AUSTRALIA PTY LTD 46 Egerton Street SILVERWATER, NSW 2128
Telephone:	02 9739 9999 (Mon - Fri 8.am - 5.pm AEST)
Facsimile:	02 9739 9900
Emergency:	CHEMTREC +1 703 527 3887 (International 24 hours) 02 9037 2994 (within Australia)

SECTION 2 – HAZARDS IDENTIFICATION

Classification of the Hazardous Chemical

The materials contained within the battery are classified as hazardous, according to criteria of National Occupational Health & Safety Commission, Australia (NOHSC) and in accordance with the GHS.

R (Risk) Phrase	R35 = Causes severe burns
S (Safety) Phrase	S26 = In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S30 = Never add water to this product S45 = In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

Hazard Category

Skin Corrosion/Irritation – Category 1B
Serious Eye Damage – Category 2A
Acute Toxicity-Oral – Category 4
Specific Target Organ Toxicity – Category 3

Label Elements

Label	Signal Word	Hazard Statement	
 Corrosion	Danger	H314	Causes severe skin burns and eye damage
 Exclamation Mark	Warning	H302 H319 H335	Harmful if swallowed Causes serious eye irritation May cause respiratory irritation

Precautionary Statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P270	Do not eat, drink or smoke when using this product
P280	Wear protective gloves/eye protection/face protection
P304 + P340	IF INHALED: Remove victim to fresh air
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330	Rinse Mouth
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Identity of Chemical Ingredients, CAS Number and Other Unique Identifiers, Concentration of Ingredients

Identity of Chemical Ingredients			Air Exposure Limits (ug/m^3)
Components	**CAS Number**	**Approximate % by Wt. Or Vol.**	**OSHA**
Lead	7439-92-1	45 - 60	50
Lead Dioxide	1309-60-0	15 - 25	50
Sulfuric Acid Electrolyte	7664-93-9	15 - 20	1.0mg/m3
Non-Hazardous Materials	N/A	5-10	N/A

SECTION 4 – FIRST AID MEASURES

Battery contains acid electrolyte which is absorbed in the separator material. If battery case is punctured, completely flush any released material from skin or eyes with water.

Inhalation

Sulphuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen.
Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion

Sulphuric Acid: Give large quantities of water; do NOT induce vomiting; for advice, contact a Poisons Information Centre (phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor/physician (at once).
Lead: Consult physician immediately.

Skin

Sulphuric Acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes.
Lead: Wash immediately with soap and water.

Eyes

Sulphuric Acid and Lead: Hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre (phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor, or for at least 15 minutes.

SECTION 5 – FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Multipurpose Dry chemical, CO2

Specific Hazards Arising From the Chemical

Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

Special Protective Equipment and Precautions for Fire Fighters

Cool Battery exterior to prevent rupture. Acid mists and vapors in a fire are toxic and corrosive. If batteries are on charge, shut off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wash hands after handling. Wear acid-resistant clothing, boots, gloves, and face shield.

Environmental precautions

Do not allow discharge of unneutralised acid to sewer.

Methods and Materials for Containment and Cleaning Up

Stop flow of material; contain/absorb small spills with dry sand, earth or vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc.

SECTION 7 – HANDLING AND STORAGE

Precautions for Safe Handling

Avoid contact with acid materials. Do not incinerate. Batteries should be shipped to a reclamation facility for recovery of the metal and plastic components as the proper method of waste management. Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing when handling batteries

Conditions for Safe Storage, Including Any Incompatibilities

Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters – exposure standards, biological monitoring

In areas where sulphuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

Appropriate engineering controls

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.

Personal protective equipment (PPE)

Respiratory Protection: None required under normal conditions. When concentrations of sulphuric acid mist are known to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.
Protective Gloves: Rubber or plastic acid-resistant gloves with elbow-length gauntlet.
Eye Protection: Chemical goggles or face shield.
Other Protection: Acid-resistant apron. Under severe exposure emergency conditions, wear acid-resistant clothing and boots.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Melting Point/Freezing Point: NA

Specific Gravity: NA

Boiling Point and Boiling Range: NA

Appearance and Colour: NA

Vapour Pressure: NA

Solubility in Water: NA

NA = Not Applicable for finished product when used in normal conditions

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability

Stable

Conditions to Avoid

Avoid shorting: high levels of short circuit current can be developed across the battery terminals. Do not rest tools or cables on the battery.
Avoid over-charging: Use only approved charging methods. Do not charge in gas tight containers.
Avoid sources of ignition.

Incompatible Materials and Possible Hazardous Reactions

Sulphuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulphur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulphur dioxide fumes and may release flammable hydrogen gas.
Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Hazardous Decomposition Products

Sulphuric Acid: Sulphur trioxide, carbon monoxide, sulphuric acid mist, sulphur dioxide, and hydrogen.
Lead Compounds: High temperatures likely to produce toxic metal fumes, vapour, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

SECTION 11 – TOXICOLOGICAL INFORMATION

Information on Routes of Exposure

Sulphuric Acid: Harmful by all routes of entry.
Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapour or fume.

Symptoms Related To Exposure

Inhalation
Sulphuric Acid: Breathing of sulphuric acid vapours or mists may cause severe respiratory irritation.
Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion
Sulphuric Acid: May cause severe irritation of mouth, throat, oesophagus and stomach.
Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhoea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact
Sulphuric Acid: Severe irritation, burns and ulceration.
Lead Compounds: Not absorbed through the skin.

Eye Contact
Sulphuric Acid: Severe irritation, burns, cornea damage, and blindness.
Lead Components: May cause eye irritation.

Acute Toxicity
Sulphuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.
Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Chronic Toxicity
Sulphuric Acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.
Lead Compounds: Anaemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females.

Carcinogenicity
Sulphuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulphuric acid" as a Category 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of

sulphuric acid or sulphuric acid solutions contained within a battery. Inorganic acid mist (sulphuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulphuric acid mist.

Medical Conditions Generally Aggravated by Exposure
Overexposure to sulphuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulphuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

SECTION 12 – ECOLOGICAL INFORMATION

Eco toxicity: No ecological data are available for this material

Persistence and Degradability: Not available

Bio accumulative Potential: Not available

Mobility in Soil: Not available

Other Adverse Effects: Do not discharge this material into waterways, drains and sewers.

SECTION 13 – DISPOSAL CONSIDERATIONS

Safe Handling and Disposal Methods

Spent batteries: Send to secondary lead smelter for recycling. All cells must be discharged prior to disposal. Any battery terminals should be insulated or capped to prevent a short circuit. Do not incinerate.

Disposal of Any Contaminated Packaging

Place neutralised slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

SECTION 14 – TRANSPORT INFORMATION

ROAD AND RAIL TRANSPORT

Not classified as Dangerous Goods by the criteria of the transport by Road and Rail under Special Provisions 238.

MARINE TRANSPORT

Not classified as Dangerous Goods by the criteria of the Code for transport by sea.

AIR TRANSPORT

Not classified as Dangerous Goods by the criteria of the Dangerous Goods Regulations for transport by air.

Requirements for Safe Shipping and Handling of Cyclon Cells:
Warning – Electrical Fire Hazard – Protect Against Shorting
•Terminals can short and cause a fire if not insulated during shipping.
•Cyclon product must be labeled “NONSPILLABLE” during shipping. Follow all federal shipping regulations.
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Requirements for Shipping Cyclon Product as Single Cells
•Protective caps or other durable inert material must be used to insulate each terminal of each cell unless cells are shipping in the original packaging from EnerSys, in full box quantities.

Requirements for Shipping Cyclon Product Assembled Into Multicell Batteries
•Assembled batteries must have short circuit protection during shipping.
•Exposed terminals, connectors, or lead wires must be insulated with a durable inert material to prevent exposure during shipping.

SECTION 15 – REGULATORY INFORMATION

Safety, Health and Environmental Regulations Specific for: Sulphuric Acid

Classified as hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.
Classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Poisons Schedule Number

S6

SECTION 16 – OTHER INFORMATION

The information above is believed to be accurate and represents the best information currently available to us.
EnerSys Australia makes no warranty or merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This safety data sheet (SDS) provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

End of SDS