BOSCH
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SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **VALVE REGULATED, LEAD-ACID AND GEL BATTERY**

Synonyms AGM DEEP CYCLE; AGM DEEP CYCLE PLUS; GEL DEEP CYCLE

1.2 Uses and uses advised against

Uses BATTERIES

1.3 Details of the supplier of the product

Supplier name **HCB TECHNOLOGIES LTD**

Address 19 Timberly Road, Mangere, Auckland

Telephone +64 9 622 0033

Email sales@hcb.co.nz

Website https://www.hcb.co.nz

1.4 Emergency telephone numbers

Emergency +64 9 622 0033

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

HAZARDOUS ACCORDING TO NZ ENVIRONMENTAL PROTECTION AUTHORITY CRITERIA

The sealed battery is not hazardous in normal use. The chemical hazards are related to leaked battery contents. Batteries are classified as articles under GHS, are not classified as hazardous but are Dangerous Goods for transport.

HSNO classifications

6.1D (inhalation)	Substances that are acutely toxic - Harmful.
6.1D (oral)	Substances that are acutely toxic - Harmful.
6.6B	Substances that are suspected human mutagens.
6.7A	Substances that are known or presumed human carcinogens.
6.8A	Substances that are known or presumed reproductive or development toxicants.
6.9A (Repeated)	Substances that are toxic to human target organs or systems.
8.1A	Substances that are corrosive to metals.
8.2B	Substances that are corrosive to dermal tissue.
8.3A	Substances that are corrosive to ocular tissue.
9.1A (H410)	Very toxic to aquatic life with long lasting effects.
9.3B	Substances that are ecotoxic to terrestrial vertebrates.

2.2 GHS Label elements

Signal word **DANGER**

Pictograms

Hazard statements

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H360	May damage fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.
H432	Toxic to terrestrial vertebrates.

Prevention statements

P102	Keep out of reach of children.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P234	Keep only in original container.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P101	If medical advice is needed, have product container or label at hand.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTRE or doctor/physician.
P321	Specific treatment is advised - see first aid instructions.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P391	Collect spillage.

Storage statements

P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No hazards occur during the normal operation of a lead acid battery as it is described in the instructions for use that are provided with the battery. Lead-acid batteries have three significant characteristics:
* They contain an electrolyte which contains dilute sulphuric acid. Sulphuric acid may cause severe chemical burns.
* During the charging process or during operation they might develop hydrogen gas and oxygen, which under certain circumstances may result in an explosive mixture.
* They can contain a considerable amount of energy, which may be a source of high electrical current and a severe electrical shock in the event of a short circuit.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
LEAD	7439-92-1	231-100-4	65 to 75%
SULPHURIC ACID	7664-93-9	231-639-5	20 to 25%
SILICON DIOXIDE (SILICA, AMORPHOUS)	7631-86-9	231-545-4	1 to 2%
TIN	7440-31-5	231-141-8	0.1 to 0.2%
CALCIUM	7440-70-2	231-179-5	<0.03%
ALUMINIUM	7429-90-5	231-072-3	<0.002%
2-PROPENENITRILE, POLYMER WITH 1,3-BUTADIENE AND ETHENYLBENZENE	9003-56-9	618-371-8	Not Available

POLYPROPYLENE	9003-07-0	618-352-4	Not Available

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye Exposure to contents: If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation Exposure to contents: If inhaled, remove from contaminated area. To protect rescuer, use a Type B (Inorganic and acid gas) respirator where an inhalation risk exists. Apply artificial respiration if not breathing.

Skin Exposure to contents: If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact the National Poisons Centre on 0800 764 766 (0800 POISON) or +643 479 7248 or a doctor (at once). If swallowed, do not induce vomiting. Rinse mouth out with water and give plenty of water to drink.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

The electrolyte is corrosive and may cause irritation or severe chemicals burns. Lead is a cumulative poison and has the potential to cause chronic health effects. Chronic exposure may result in blood, kidney and central nervous system/brain damage. Lead is classified as possibly carcinogenic to humans (IARC Group 2B). May cause harm to the unborn child. Possible risk of impaired fertility.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. Liquid component may evolve flammable hydrogen gas upon contact with metals. The potential for fire - explosion does exist through short circuit of terminals. May evolve carbon oxides and sulphur oxides when heated to decomposition.

5.3 Advice for firefighters

Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

2R

2 Fine Water Spray.

R Wear liquid-tight chemical protective clothing and breathing apparatus. Dilute spill and run-off.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Contact emergency services where appropriate.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Large storage areas should have appropriate ventilation systems.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Acrylonitrile	WES [NZ]	2	4.3	--	--
Lead, inorganic dusts & fumes, as Pb	WES [NZ]	--	0.1	--	--
Sulphuric acid	WES [NZ]	--	1	--	--
Tin metal	WES [NZ]	--	2	--	--
Tin metal, organic compounds, as Sn	WES [NZ]	--	0.1	--	0.2
Tin metal, oxide & inorganic compounds except SnH4	WES [NZ]	--	2	--	--

Biological limits

Ingredient	Determinant	Sampling Time	BEI
LEAD	Lead in blood	Not critical	200 µg/L
	Lead in blood (women of child bearing potential)	Not critical	10 µg/100ml
	Lead in blood (women of child bearing potential)	Not critical	10 µg/dL
	Lead in blood	Not critical	30 µg/dL

Reference: ACGIH Biological Exposure Indices

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

PPE

Eye / Face	Wear safety glasses.
Hands	Wear PVC or rubber gloves.
Body	Wear safety boots.
Respiratory	Where an inhalation risk exists, wear a Type B (acid gas and vapours) respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	LIQUID (BATTERY ENCLOSED)
Odour	SLIGHT ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE

9.1 Information on basic physical and chemical properties

Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Relative density	NOT AVAILABLE
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

If damaged, contents may be corrosive to metals.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Hazardous polymerisation is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), alkalis (e.g. sodium hydroxide), heat and ignition sources. Incompatible with acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve carbon oxides and sulphur oxides when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Exposure to battery contents may result in severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach. Lead compounds are expected to be harmful if swallowed, in contact with skin, and/or if inhaled.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
LEAD	50 mg/kg to 600 mg/kg (calf)	--	--
SULPHURIC ACID	2140 mg/kg (rat)	--	18 mg/m³ (guinea pig); 510 mg/m3/2hrs (rat)
SILICON DIOXIDE (SILICA, AMORPHOUS)	3160 mg/kg (rat)	--	--

Skin Due to product encapsulation, the potential for skin contact with contents is reduced. If the container is damaged, contact may result in irritation, redness, pain, rash, dermatitis and possible burns. Effects may be delayed.

Eye Due to product encapsulation, the potential for eye contact with contents is reduced. If the container is damaged, direct contact may result in irritation, lacrimation and burns.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Due to product encapsulation, the potential for exposure to the contents is reduced. Occupational exposure

	to strong inorganic acid mists containing sulphuric acid is classified as carcinogenic to humans (IARC Group 1). Lead compounds (inorganic) are classified as probably carcinogenic to humans (IARC Group 2A).
Reproductive	Due to product encapsulation, the potential for exposure to the contents is reduced. Exposure to high levels of lead and its compounds may cause adverse effects on male and female fertility, including adverse effects on sperm quality. Prenatal exposure to lead and its compounds is also associated with adverse effects on neurobehavioral development in children.
STOT - single exposure	Due to product encapsulation, the potential for exposure is unlikely. If the container is damaged, inhalation may result in mucous membrane irritation of the respiratory tract, coughing and inflammation. High level exposure may result in ulceration of the respiratory tract and lung tissue damage.
STOT - repeated exposure	Due to product encapsulation, the potential for exposure to the contents is reduced. Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Lead has been documented in observational human studies to produce toxicity in multiple organ systems and body function including the haematopoietic (blood) system, kidney function, reproductive function and the central nervous system.
Aspiration	Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Lead is potentially toxic to all aquatic organisms, with organic lead compounds tending to be more toxic than inorganic lead compounds. Lead becomes more toxic to fish as dissolved oxygen levels decrease. Toxicity to aquatic organisms increases in acidic or soft water. Very toxic to aquatic life with long lasting effects. Toxic to terrestrial vertebrates.

12.2 Persistence and degradability

Inorganic lead does not degrade.

12.3 Bioaccumulative potential

Lead bioconcentrates and bioaccumulates in both aquatic and terrestrial organisms.

12.4 Mobility in soil

Lead is sparingly soluble and is expected to be adsorbed onto soils and sediments. Mobility is expected to be low.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal	This product is recyclable. Please return to manufacturer. Contact the manufacturer/supplier for additional information (if required).
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE: DANGEROUS GOODS 2005; NZS 5433:2012, UN, IMDG OR IATA

	LAND TRANSPORT (NZS 5433)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	2800	2800	2800
14.2 Proper Shipping Name	BATTERIES, WET, NON-SPILLABLE, electric storage	BATTERIES, WET, NON-SPILLABLE, electric storage	BATTERIES, WET, NON-SPILLABLE, electric storage
14.3 Transport hazard class	8	8	8
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

Marine Pollutant.

14.6 Special precautions for user

Hazchem code	2R
EmS	F-A, S-B

Other information These batteries are not subject to NZS DG, IMDG or IATA codes because they meet relevant non-spillable requirements and provided, when packaged for transport, the terminals are protected from short circuit. This means, for example, road vehicle shipments of these batteries do not need to be placarded. For more information, refer to the following special provisions:

NZS 5433 DG special provision 238.
IMDG special provision 238.
IATA special provision A67.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Approval code MANUFACTURED ARTICLE

Group standard Something for which its intended use is primarily to do with its physical shape, rather than its chemical composition.

Inventory listings

AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)
All components are listed on AIIC, or are exempt.
NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)
All components are listed on the NZIoC inventory, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

ACIDS: When mixing acids with water (diluting), caution must be taken as heat will be generated which causes violent spattering. Always add a small volume of acid to a large volume of water, NEVER the reverse.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CCID	Chemical Classification and Information Database (HSNO)
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
EPA	Environmental Protection Authority [New Zealand]
GHS	Globally Harmonized System
HSNO	Hazardous Substances and New Organisms
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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