DISTRIBUTOR FOR

Hazard Alert Code: EXTREME

Chemwatch Material Safety Data Sheet (REVIEW)
Issue Date: 28 th March 2013

CHEMWATCH 24-4682
Version No:2.1.1.1

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME POWER-SONIC
PSH, PS, PSG,PHR,PG,PDC AND DCG VALVE REGULATED (VRLA) BATTERIES
ABSORBED ELECTROLYTE (AGM)

SYNONYMS
SEALED LEAD ACID AGM

PROPER SHIPPING NAME
VRLA BATTERY

MANUFACTURERS DETAILS
Power-Sonic Corporation
7500 Panasonic Way
San Diego, CA 92154

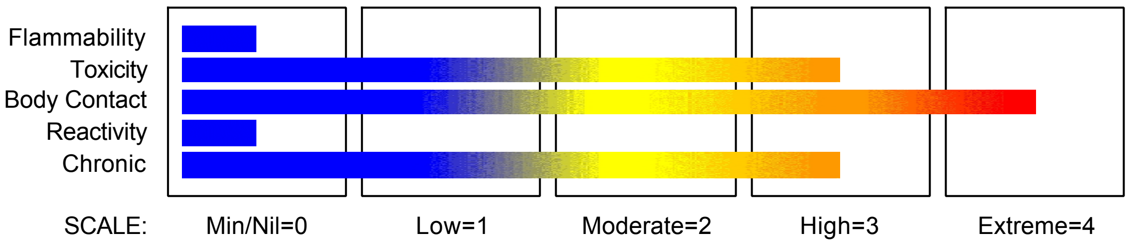
PRODUCT USE
Power source.
Use involves discharge then regenerative charging cycle from external DC power source.
CHARGING HAZARD. Completion of charging process includes evolution of highly flammable and explosive hydrogen gas which is readily detonated by electric spark. No smoking or naked lights.
Do not attach/detach metal clips or operate open switches during charging process because of arcing/sparking hazard.
Overcharging to excess results in vigorous hydrogen evolution - boiling - which may causegeneration of corrosive acid mist.
Large installations i.e. battery rooms must be constructed of acid resistant materials and well ventilated.

COMPANY DETAILS
Sealed Performance Batteries
1 Ant Road
Yatala QLD 4207
(07) 3386 1102
(07) 3102 9913
sales@spb.net.au
Emergency Number: (07) 3386 1102
Mobile: 0418 187 036

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE
HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

CHEMWATCH HAZARD RATINGS



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RISK
■ Toxic by inhalation.
■ Causes severe burns.
■ Risk of serious damage to eyes.
■ Cumulative effects may result following exposure*.
■ Possible cancer- causing agent following repeated inhalation*.
* (limited evidence).

SAFETY
• Keep locked up.
• Avoid contact with skin.
• Avoid contact with eyes.
• Wear suitable protective clothing.

• In case of insufficient ventilation, wear suitable respiratory equipment.
• Wear suitable gloves.
• Wear eye/face protection.
• Use only in well ventilated areas.
• Keep container in a well ventilated place.
• Avoid exposure - obtain special instructions before use.
• To clean the floor and all objects contaminated by this material, use water and detergent.
• This material and its container must be disposed of in a safe way.
• Keep away from food, drink and animal feeding stuffs.
• Take off immediately all contaminated clothing.
• In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
• In case of accident or if you feel unwell IMMEDIATELY contact Doctor or Poisons Information Centre (show label if possible).
• This material and its container must be disposed of as hazardous waste.
• In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
lead acid electrochemical cells in a vented outer casing made from polypropylene through which protrude metal terminals connected to grid plates of		
lead	7439-92-1	
Plates are immersed in battery acid comprising		
sulfuric acid	7664-93-9	30-50
water	7732-18-5	>50

Section 4 - FIRST AID MEASURES

SWALLOWED
• For advice, contact a Poisons Information Centre or a doctor at once.
• Urgent hospital treatment is likely to be needed.
• If swallowed do NOT induce vomiting.
• If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE
■ If this product comes in contact with the eyes:
• Immediately hold eyelids apart and flush the eye continuously with running water.
• Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
• Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
• Transport to hospital or doctor without delay.

SKIN
■ If skin or hair contact occurs:

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- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

NOTES TO PHYSICIAN

For acute or short term repeated exposures to strong acids:

- Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
- Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
- Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
- Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered to be a significant fire risk.
- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
- Heating may cause expansion or decomposition leading to violent rupture of containers.

Decomposition may produce toxic fumes of: sulfur oxides (SOx).

HAZCHEM

2R

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.

Acid spills may be neutralised with soda ash or slaked lime.

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Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

■ Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area.
• Avoid smoking, naked lights or ignition sources.
When handling, DO NOT eat, drink or smoke.
Wash hands with soap and water after handling.
• Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Normally packed with inert cushioning material.

STORAGE INCOMPATIBILITY

Protect from accidental short-circuit.

STORAGE REQUIREMENTS

• Store in original containers.
• Keep containers securely sealed.
• Store in a cool, dry, well-ventilated area.
• Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
Australia Exposure Standards	lead (Lead, inorganic dusts & fumes (as Pb))		0.15						
Australia Exposure Standards	sulfuric acid (Sulphuric acid)		1		3				

The following materials had no OELs on our records
• water: CAS:7732- 18- 5

MATERIAL DATA

None assigned. Refer to individual constituents.

LEAD:
The lead concentration in air is to be maintained so that the lead concentration in workers' blood remains below 0.060 mg/100 g of whole blood. The recommended TLV-TWA has been derived following a review of reports of adverse effects on reproduction, blood-pressure and other end-points of toxicity.

SULFURIC ACID:
Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations.
NOTE: Detector tubes for sulfuric acid, measuring in excess of 1 mg/m3, are commercially available.
Based on controlled inhalation studies the TLV-TWA is thought to be protective against the significant risk of pulmonary irritation and incorporates a margin of safety so as to prevent injury to the skin and teeth seen in battery workers acclimatised to workplace concentrations of 16 mg/m3.

WATER:
No exposure limits set by NOHSC or ACGIH.

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PERSONAL PROTECTION




RESPIRATOR

•Type E-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure
- Chemical goggles.whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted
- Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
- Alternatively a gas mask may replace splash goggles and face shields.

HANDS/FEET

■ Wear chemical protective gloves, e.g. PVC.
Wear safety footwear.

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.

ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Battery containing clear, colourless, odourless acid.
The hazard of lead acid batteries include: CORROSIVE CONTENTS
SHORT CIRCUIT - accidental discharge. Current flow by external short circuit may heat metals to welding temperatures with fire hazard; internal heat generated may boil battery acid with evolution of large amounts of highly corrosive acid mist/vapour. Boiling may develop internal pressure and cause explosion with scattering of acid contents.
Battery circuits must include electrical fusible links; terminals and external metal parts must be insulated. Do not clean terminals, battery top with conducting liquids.
SPILL - damage to casing or overturning may cause corrosive acid contents to spill, causing skin burns on contact. Acid reacts quickly with many metals, generating highly flammable and explosive hydrogen gas; may also weaken metal structures.

PHYSICAL PROPERTIES

Corrosive.
Acid.

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State	Manufactured	Molecular Weight	Not applicable.
Melting Range (°C)	Not applicable.	Viscosity	Not Applicable
Boiling Range (°C)	Not applicable.	Solubility in water (g/L)	Not applicable
Flash Point (°C)	Not Applicable	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Applicable	pH (as supplied)	<1 acid content
Autoignition Temp (°C)	Not applicable	Vapour Pressure (kPa)	1.73
Upper Explosive Limit (%)	74 hydrogen gas	Specific Gravity (water=1)	1.22- 1.34 acid content
Lower Explosive Limit (%)	4 hydrogen gas	Relative Vapour Density (air=1)	Not applicable.
Volatile Component (%vol)	Not available.	Evaporation Rate	Not available

Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY

• Contact with alkaline material liberates heat.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. Swelling of the epiglottis may make it difficult to breathe which may result in suffocation. More severe exposure may result in vomiting blood and thick mucus, shock, abnormally low blood pressure, fluctuating pulse, shallow respiration and clammy skin, inflammation of stomach wall, and rupture of oesophageal tissue. Untreated shock may eventually result in kidney failure. Severe cases may result in perforation of the stomach and abdominal cavity with consequent infection, rigidity and fever. There may be severe narrowing of the oesophageal or pyloric sphincters; this may occur immediately or after a delay of weeks to years. There may be coma and convulsions, followed by death due to infection of the abdominal cavity, kidneys or lungs.

EYE

■ Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely. Severe burns produce long-lasting and possibly irreversible damage. The appearance of the burn may not be apparent for several weeks after the initial contact. The cornea may ultimately become deeply opaque resulting in blindness.

SKIN

■ Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.

INHALED

■ Not normally a hazard due to physical form of product.
Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness. Swelling of the lungs can occur, either immediately or after a delay; symptoms of this include chest tightness, shortness of breath, frothy phlegm and cyanosis. Lack of oxygen can cause death hours after onset.
High concentrations cause inflamed airways and watery swellingof the lungs with oedema.

CHRONIC HEALTH EFFECTS

■ Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining.
Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Chronic exposure may inflame the skin or conjunctiva.
Strong inorganic acid mists containing sulfuric acid can cause cancer.

TOXICITY AND IRRITATION

■ Not available. Refer to individual constituents.

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CARCINOGEN

lead	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B	Possibly carcinogenic to humans
lead	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2A	Probably carcinogenic to humans
lead	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1	Carcinogenic to humans
sulfuric acid	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1	Carcinogenic to humans

REPROTOXIN

lead	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	H A si

SKIN

sulfuric acid	GESAMP/EHS Composite List - GESAMP Hazard Profiles	D1: skin irritation/corrosion	3C

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
lead	No Data Available	No Data Available	LOW	No Data Available
sulfuric acid	No Data Available	No Data Available	LOW	No Data Available

Section 13 - DISPOSAL CONSIDERATIONS

No data for this material.

Section 14 - TRANSPORTATION INFORMATION

Labels Required: CORROSIVE

HAZCHEM:
2R (ADG7)

ADG7:

Class or Division:	8	Subsidiary Risk:	None
UN No.:	2794	Packing Group:	3
Special Provision:	295	Limited Quantity:	1 L

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Portable Tanks & Bulk Containers - Instruction:	None	Portable Tanks & Bulk Containers - Special Provision:	None
Packagings & IBCs - Packing Instruction:	P801	Packagings & IBCs - Special Packing Provision:	None

Name and Description: AGM/VRLA BATTERY

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	2794	Packing Group:	3
Special provisions:	A51		
Cargo Only Packing Instructions:	870	Maximum Qty/Pack:	No Limit
Passenger and Cargo Packing Instructions:	870	Passenger and Cargo Maximum Qty/Pack:	30 kg G
Passenger and Cargo Limited Quantity Packing Instructions:	Forbidden	Passenger and Cargo Limited Quantity Maximum Qty/Pack:	Forbidden

Shipping name: AGM/VRLA BATTERY

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	2794	Packing Group:	3
EMS Number:	F-A,S-B	Special provisions:	295
Limited Quantities:	1 L		

Shipping name:BATTERIES, WET, FILLED WITH ACID, electric storage

Section 15 - REGULATORY INFORMATION

Indications of Danger:

C Corrosive
T Toxic

POISONS SCHEDULE

None

REGULATIONS

Regulations for ingredients

lead (CAS: 7439-92-1) is found on the following regulatory lists;

"Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (IRRIG - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIG)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)", "Australia - New South Wales Hazardous Substances Requiring Health Surveillance", "Australia - Queensland Work Health and Safety Regulation - Lead requiring health monitoring", "Australia - Queensland Work Health and Safety Regulation - Restricted hazardous chemicals", "Australia - Western Australia Hazardous Substances Prohibited for Specified Uses or Methods of Handling", "Australia Australian Safety and Compensation Council (ASCC) Draft National Code of Practice for the Control of Workplace Hazardous Chemicals - Schedule 4 Hazardous chemicals Requiring Health Surveillance", "Australia Criteria for the export and import of used electronic equipment - Hazardous constituents", "Australia Drinking Water Guideline Values For Physical and Chemical Characteristics", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix I", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4", "Australia Work Health and Safety Regulations 2011 - Lead requiring health

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monitoring", "Australia Work Health and Safety Regulations 2011 - Restricted hazardous chemicals", "FisherTransport Information", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway", "OSPAR National List of Candidates for Substitution – United Kingdom", "Sigma-AldrichTransport Information", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

sulfuric acid (CAS: 7664-93-9) is found on the following regulatory lists;
"Australia Council of Australian Governments (COAG) Chemicals of Security Concern", "Australia Customs (Prohibited Exports) Regulations 1958 - Schedule 9 Precursor substances - Part 2", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Illicit Drug Reagents/Essential Chemicals - Category III", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6", "FisherTransport Information", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Air Transport Association (IATA) Dangerous Goods Regulations", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Numbering System for Food Additives", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – United Kingdom", "Sigma-AldrichTransport Information", "United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances - Table II", "United Nations List of Precursors and Chemicals Frequently used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances Under International Control (Red List) - Table II"

water (CAS: 7732-18-5) is found on the following regulatory lists;
"Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway", "Sigma-AldrichTransport Information"

Section 16 - OTHER INFORMATION

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

The chemical content of this MSDS has been prepared by Chemwatch.

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This is the end of the MSDS.