

Predator AGM

R & J Batteries Pty Ltd

Chemwatch: 5319-59

Version No: 6.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 4

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S.GHS.AUS.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	Predator AGM
Chemical Name	Not Applicable
Synonyms	Absorbed Glass Mat Lead Acid Battery, Wet, Non Spillable
Proper shipping name	BATTERIES, WET, NON-SPILLABLE, electric storage
Chemical formula	Not Applicable
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Electric storage battery. 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 cause generation of corrosive acid mist. Large installations i.e. battery rooms must be constructed of acid resistant materials and well ventilated. Non-spillable batteries are not subject to the provisions of the ADG Code if, at a temperature of 55 degC, the electrolyte will not flow from a ruptured or cracked case and there is no free liquid to flow and if, when packaged for transport, the terminals are protected from short circuit.
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Details of the supplier of the safety data sheet

Registered company name	R & J Batteries Pty Ltd
Address	852 La Trobe Street Ballarat VIC 3350 Australia
Telephone	+61 3 5335 9888 +61 1300 769 282
Fax	+61 3 5336 4976
Website	https://www.rjbatt.com.au/
Email	rjbatt@rjbatt.com.au

Emergency telephone number

Association / Organisation	Chemwatch Emergency Response
Emergency telephone numbers	1800 951 288 (Toll free - use within AU)
Other emergency telephone numbers	+61 2 9186 1132 (Alternative global number)

SECTION 2 Hazards identification

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

Poisons Schedule	Not Applicable
Classification ^[1]	Acute Toxicity (Oral) Category 3, Skin Corrosion/Irritation Category 1A, Serious Eye Damage Category 1, Germ cell mutagenicity Category 2, Carcinogenicity Category 2, Lactation Effects, Specific target organ toxicity - single exposure Category 1, Specific target organ toxicity - repeated exposure Category 1
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
Signal word	Danger

Hazard statement(s)

H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H362	May cause harm to breast-fed children.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume.
P263	Avoid contact during pregnancy/while nursing.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
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.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307+P311	IF exposed: Call a POISON CENTER or doctor/physician.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P321	Specific treatment (see advice on this label).
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Precautionary statement(s) Storage

P405	Store locked up.
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Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7439-92-1	30-40	<u>lead</u>
68411-78-9	30-40	<u>lead oxide</u>

CAS No	%[weight]	Name
7664-93-9	10-15	<u>sulfuric acid</u>
Not Available		as sulfuric acid <51%
9003-56-9)4-7	<u>styrene/ butadiene/ acrylonitrile copolymer</u>
9003-07-0)	<u>polypropylene</u>
65997-17-3	1	<u>glass fibres</u>

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <p>Immediately hold eyelids apart and flush the eye continuously with running water.</p> <p>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.</p> <p>Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</p> <p>Transport to hospital or doctor without delay.</p> <p>Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</p>
Skin Contact	<p>If skin or hair contact occurs:</p> <p>Immediately flush body and clothes with large amounts of water, using safety shower if available.</p> <p>Quickly remove all contaminated clothing, including footwear.</p> <p>Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</p> <p>Transport to hospital, or doctor.</p>
Inhalation	<p>If fumes or combustion products are inhaled remove from contaminated area.</p> <p>Lay patient down. Keep warm and rested.</p> <p>Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</p> <p>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.</p> <p>Transport to hospital, or doctor.</p>
Ingestion	<p>For advice, contact a Poisons Information Centre or a doctor at once.</p> <p>Urgent hospital treatment is likely to be needed.</p> <p>If swallowed do NOT induce vomiting.</p> <p>If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</p> <p>Observe the patient carefully.</p> <p>Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</p> <p>Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</p> <p>Transport to hospital or doctor without delay.</p>

Indication of any immediate medical attention and special treatment needed

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 desiccating action of the acid on proteins in specific tissues.

INGESTION:

Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.

DO NOT attempt to neutralise the acid since exothermic reaction may extend the corrosive injury.

Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.

Charcoal has no place in acid management.

Some authors suggest the use of lavage within 1 hour of ingestion.

SKIN:

Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.

Deep second-degree burns may benefit from topical silver sulfadiazine.

EYE:

Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes. **DO NOT use neutralising agents or any other additives.** Several litres of saline are required.

Cycloplegic drops, (1% cyclopentolate for short-term use or 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury.

Steroid eye drops should only be administered with the approval of a consulting ophthalmologist).

SECTION 5 Firefighting measures

Extinguishing media

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

Special hazards arising from the substrate or mixture

Fire Incompatibility	Charging process and particularly overcharging produces highly flammable and explosive hydrogen gas
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Advice for firefighters

Fire Fighting	<p>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. Do not approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use.</p>
Fire/Explosion Hazard	<p>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. May emit corrosive, poisonous fumes. May emit acrid smoke. Decomposition may produce toxic fumes of: sulfur oxides (SOx)</p>
HAZCHEM	2R

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	Not spillable, hence not applicable.
Major Spills	Not spillable, hence not applicable.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<p>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.</p>
Other information	<p>Store in original containers. Keep containers securely sealed. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS.</p>

Conditions for safe storage, including any incompatibilities

Suitable container	Normally packed with inert cushioning material.
Storage incompatibility	Protect from accidental short-circuit.



X — Must not be stored together

? — May be stored together with specific precautions

✓ — May be stored together

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	lead	Lead, inorganic dusts & fumes (as Pb)	0.05 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	lead oxide	Lead, inorganic dusts & fumes (as Pb)	0.05 mg/m ³	Not Available	Not Available	Not Available
Australia Exposure Standards	sulfuric acid	Sulphuric acid	1 mg/m ³	3 mg/m ³	Not Available	Not Available

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
lead	Lead	0.15 mg/m ³	120 mg/m ³	700 mg/m ³
sulfuric acid	Sulfuric acid	Not Available	Not Available	Not Available
polypropylene	Polypropylene	5.2 mg/m ³	58 mg/m ³	350 mg/m ³
glass fibres	Fibrous glass; (Fiber glass; Glass frit; Synthetic vitreous fibers)	15 mg/m ³	170 mg/m ³	990 mg/m ³

Ingredient	Original IDLH	Revised IDLH
lead	Not Available	Not Available
lead oxide	100 mg/m ³	Not Available
sulfuric acid	15 mg/m ³	Not Available
styrene/ butadiene/ acrylonitrile copolymer	Not Available	Not Available
polypropylene	Not Available	Not Available
glass fibres	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
glass fibres	E	≤ 0.01 mg/m ³
Notes:	<i>Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.</i>	

Exposure controls

Appropriate engineering controls	<p>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.</p> <p>The basic types of engineering controls are:</p> <ul style="list-style-type: none"> 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. Ventilation can remove or dilute an air contaminant if
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designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Personal protection



Eye and face protection

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.

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience.

Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

Skin protection

See Hand protection below

Hands/feet protection

Wear chemical protective gloves, e.g. PVC.

Wear safety footwear.

Body protection

See Other protection below

Other protection

Overalls.

PVC Apron.

PVC protective suit may be required if exposure severe.

Eyewash unit.

Ensure there is ready access to a safety shower.

Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AE-AUS P2	-	AE-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AE-AUS / Class 1 P2	-
up to 100 x ES	-	AE-2 P2	AE-PAPR-2 P2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Coloured plastic shell, with odourless solid battery Battery containing clear, gelatinous, odourless acid. Polypropylene case may be contained within an outer casing of aluminium or steel. 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.
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Physical state	Manufactured	Relative density (Water = 1)	1.27-1.33 acid content
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Applicable
pH (as supplied)	<1 acid content	Decomposition temperature	Not Applicable
Melting point / freezing point (°C)	350	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	74 hydrogen gas	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	4 hydrogen gas	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	1.33	Gas group	Not Available
Solubility in water	Miscible (sulfuric acid)	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	>1	VOC g/L	Not Applicable

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Contact with alkaline material liberates heat
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

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. High concentrations cause inflamed airways and watery swelling of the lungs with oedema.
Ingestion	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.
Skin Contact	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.
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.
Chronic	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. Strong inorganic acid mists containing sulfuric acid can cause cancer. Lead, in large amounts, can affect the blood, nervous system, heart, glands, immune system and digestive system. Anaemia may occur.

	TOXICITY	IRRITATION
Predator AGM	Not Available	Not Available
lead	dermal (rat) LD50: >2000 mg/kg ^[1] Oral(Rat) LD50; >2000 mg/kg ^[1]	Not Available
lead oxide	Not Available	Not Available
sulfuric acid	Inhalation(Rat) LC50; =0.348 mg/L4hrs ^[2] Oral(Rat) LD50; >300 mg/kg ^[1]	Eye (rabbit): 1.38 mg SEVERE Eye (rabbit): 5 mg/30sec SEVERE
styrene/ butadiene/ acrylonitrile copolymer	Dermal (rabbit) LD50: 5010 mg/kg ^[2] Oral(Rat) LD50; 5010 mg/kg ^[2]	Not Available
polypropylene	Oral(Rat) LD50; >0.008 mg/kg ^[2]	Not Available
glass fibres	Oral(Rat) LD50; >2000 mg/kg ^[1]	Not Available
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

LEAD	WARNING: Lead is a cumulative poison and has the potential to cause abortion and intellectual impairment to unborn children of pregnant workers.
LEAD OXIDE	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
SULFURIC ACID	WARNING: For inhalation exposure <u>ONLY</u> : This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS Occupational exposures to strong inorganic acid mists of sulfuric acid:
STYRENE/ BUTADIENE/	Ultrafine particles (UFPs) may be produced at lower temperatures during the 3D printing process Concerns have been raised

ACRYLONITRILE COPOLYMER	regarding airborne UFP concentrations generated while printing with ABS, as UFPs have been linked with adverse health effects
POLYPROPYLENE	<p>* For pyrolyzate For poly-alpha-olefins (PAOs): PAOs are highly branched, isoparaffinic chemicals produced by oligomerisation of 1-octene, 1-decene and/or 1-dodecene. The crude polyalphaolefin mixture is then distilled into appropriate product fractions to meet specific viscosity specifications and hydrogenated.</p> <p>In existing data, there appears to be no data to show that these structural analogs cause health effects. In addition, there is evidence in the literature that alkanes with 30 or more carbon atoms are unlikely to be absorbed when given by mouth. The physical and chemical properties make it unlikely that significant absorption into the body will occur. There are also no functional groups on PAO molecules that are biologically active. PAOs also have low volatility, so that exposure is unlikely to occur by inhalation. The high viscosity of these substances also makes it hard to generate a high concentration of breathable particles in air.</p> <p>Acute toxicity: Animal testing shows that PAOs have relatively low acute toxicity. Repeat dose toxicity: Animal testing shows that PAOs show low repeat dose toxicity – some increased scaling of the skin occurred, with skin inflammation, after exposure at high doses. Reproductive toxicity: Animal testing suggested that application of PAO to skin did not impair reproductive performance. Genetic toxicity: Testing has not shown any evidence that PAOs cause mutations or chromosomal aberrations. Cancer-causing potentials: Animal testing has not shown any propensity to cause tumours. While alpha-olefin polymers have similar properties to mineral oils, they do not contain polycyclic aromatic hydrocarbons, or other known cancer-causing materials.</p>
GLASS FIBRES	<p>The dust has been associated with skin irritation due to the mechanical action of the fibres [CHEMINFO, Sax, ILO ENCYCLOPAEDIA]. MMMF are manufactured to definite fibre diameters and cannot split along their length rather they break across and form small particles not needles [FARIMA].</p> <p>Borosilicate ingredients are insoluble, inert, and will not significantly penetrate the skin. The metal ions are locked in the molecules and will not be absorbed into the body. There is no whole-body toxicity expected from skin application or contact. These ingredients do not irritate or sensitise the skin.</p> <p>There is the possibility of inhaling borosilicates found in personal care products. Most particles of borosilicate glass are too large to reach the lungs, and they also aggregate to form much larger particles. Therefore, inhalation is unlikely to lead to significant adverse effects on breathing, or whole-body toxic effects.</p> <p>Testing appears to indicate that skin exposure does not lead to irritation or sensitization. C</p> <p>Borosilicate glasses are chemically inert and not systematically toxic.</p> <p>The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans.</p> <p>For fibre glass wool: In October 2001, IARC classified fiber glass wool as Group 3, "not classifiable as to its carcinogenicity to humans." The 2001 decision was based on current human and animal research that shows no association between inhalation exposure to dust from fibre glass wool and the development of respiratory disease. This is a reversal of the IARC finding in 1987 of a Group 2B designation (possibly carcinogenic to humans) based on earlier studies in which animals were injected with large quantities of fiber glass. NTP and ACGIH have not yet reviewed the IARC reclassification or the most current fibre glass health research; at this time, both agencies continue to classify glass wool based on the earlier animal injection studies.</p> <p>There is little evidence for acute toxicity after inhalation of rockwool/ slagwool/ glasswool mineral fibres (MMMF).</p> <p>Rockwool/glasswool administered by inhalation produced little pulmonary fibrosis in experimental animals. [IARC Monograph 43]</p> <p>Animal studies with amorphous silica show that surviving rats rapidly recovered on removal from dust, the silica was largely eliminated and cellular nodules, perivascular infiltrations and emphysema were almost completely resolved [Patty's].</p> <p>The dust has been associated with skin irritation due to the mechanical action of the fibres [CHEMINFO, Sax, ILO ENCYCLOPEDIA].</p> <p>MMMF are manufactured to definite diameters and cannot split along their length rather they break across and form small particles not needles [FARIMA].</p>
SULFURIC ACID & GLASS FIBRES	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.</p>
STYRENE/ BUTADIENE/ ACRYLONITRILE COPOLYMER & POLYPROPYLENE & GLASS FIBRES	<p>The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.</p>

Acute Toxicity		Carcinogenicity	
Skin Irritation/Corrosion		Reproductivity	
Serious Eye Damage/Irritation		STOT - Single Exposure	
Respiratory or Skin sensitisation		STOT - Repeated Exposure	

Legend: – Data either not available or does not fill the criteria for classification
– Data available to make classification

SECTION 12 Ecological information

Toxicity

	Endpoint	Test Duration (hr)	Species	Value	Source
	Predator AGM	Not Available	Not Available	Not Available	Not Available
lead	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	0.0079mg/L	2
	EC50	48	Crustacea	0.029mg/L	2
	EC50	72	Algae or other aquatic plants	0.0205mg/L	2
	BCF	864	Not Available	-24.19-24.23mg/L	4
NOEC	672	Fish	0.00003-mg/L	4	
lead oxide	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
sulfuric acid	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>16- <28mg/L	2
	EC50	48	Crustacea	=42.5mg/L	1
	EC50	72	Algae or other aquatic plants	2.56mg/L	2
NOEC	Not Available	Crustacea	0.15mg/L	2	
styrene/ butadiene/ acrylonitrile copolymer	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
polypropylene	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
glass fibres	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>1000mg/L	2
	EC50	96	Algae or other aquatic plants	2.655mg/L	2
	EC10	48	Algae or other aquatic plants	0.0045mg/L	2
NOEC	264	Algae or other aquatic plants	0.0091mg/L	2	
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
polypropylene	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
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Ingredient	polypropylene	EC registration number	1.6783)
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Mobility in soil

Ingredient	Mobility
polypropylene	LOW (KOC = 23.74)

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	Lead acid batteries are recyclable.
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SECTION 14 Transport information

Note: Non-spillable batteries are not subject to Dangerous Goods Transport requirements if conditions specified in the applicable Special provisions are met. Applicable special provisions: 238 (ADR, ADN, ADG, IMDG, UN) or A67 (IATA).

Labels Required

	
Marine Pollutant	NO
HAZCHEM	2R

Land transport (ADG)

UN number	2800	
UN proper shipping name	BATTERIES, WET, NON-SPILLABLE, electric storage	
Transport hazard class(es)	Class	8
	Subrisk	Not Applicable
Packing group	Not Applicable	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions	238
	Limited quantity	1 L

Air transport (ICAO-IATA / DGR)

UN number	2800	
UN proper shipping name	Batteries, wet, non-spillable electric storage	
Transport hazard class(es)	ICAO/IATA Class	8
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	8L
Packing group	Not Applicable	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions	A48 A67 A164 A183
	Cargo Only Packing Instructions	872
	Cargo Only Maximum Qty / Pack	No Limit
	Passenger and Cargo Packing Instructions	872
	Passenger and Cargo Maximum Qty / Pack	No Limit
	Passenger and Cargo Limited Quantity Packing Instructions	Forbidden

Passenger and Cargo Limited Maximum Qty / Pack

Forbidden

Sea transport (IMDG-Code / GGVSee)

UN number	2800	
UN proper shipping name	BATTERIES, WET, NON-SPILLABLE electric storage	
Transport hazard class(es)	IMDG Class	8
	IMDG Subrisk	Not Applicable
Packing group	Not Applicable	
Environmental hazard	Not Applicable	
Special precautions for user	EMS Number	F-A , S-B
	Special provisions	238
	Limited Quantities	1 L

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
lead	Not Available
lead oxide	Not Available
sulfuric acid	Not Available
styrene/ butadiene/ acrylonitrile copolymer	Not Available
polypropylene	Not Available
glass fibres	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
lead	Not Available
lead oxide	Not Available
sulfuric acid	Not Available
styrene/ butadiene/ acrylonitrile copolymer	Not Available
polypropylene	Not Available
glass fibres	Not Available

SECTION 15 Regulatory information**Safety, health and environmental regulations / legislation specific for the substance or mixture****lead is found on the following regulatory lists**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans

lead oxide is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 10 / Appendix C

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2A: Probably carcinogenic to humans

sulfuric acid is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans

styrene/ butadiene/ acrylonitrile copolymer is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

polypropylene is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

glass fibres is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (lead; sulfuric acid; styrene/ butadiene/ acrylonitrile copolymer; polypropylene; glass fibres)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	No (styrene/ butadiene/ acrylonitrile copolymer; polypropylene)
Japan - ENCS	No (lead; glass fibres)
Korea - KECI	Yes
New Zealand - NZIoC	No (lead oxide)
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (lead oxide)
Vietnam - NCI	Yes
Russia - ARIPS	No (lead oxide)
Legend:	<i>Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)</i>

SECTION 16 Other information

Revision Date	03/02/2021
Initial Date	28/08/2018

SDS Version Summary

Version	Issue Date	Sections Updated
5.1.1.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification

Version	Issue Date	Sections Updated
6.1.1.1	03/02/2021	Classification, Environmental

Other information

Ingredients with multiple cas numbers

Name	CAS No
lead oxide	68411-78-9, 1314-27-8, 1335-25-7
styrene/ butadiene/ acrylonitrile copolymer	9003-56-9, 101484-40-6, 1186292-82-9, 1430815-64-7, 1468403-04-4, 166091-25-4, 179865-29-3, 179865-39-5, 2099119-81-8, 288860-11-7, 37229-19-9, 37331-48-9, 39291-19-5, 39306-83-7, 52433-83-7, 52434-26-1, 52434-32-9, 52682-91-4, 52907-26-3, 53637-30-2, 73990-12-2, 74238-96-3, 74238-98-5, 82346-94-9, 874948-21-7, 884843-12-3, 884905-25-3, 96827-60-0, 97048-04-9
polypropylene	9003-07-0, 25085-53-4, 1007233-35-3, 104625-25-4, 1072914-17-0, 1084698-59-8, 112024-68-7, 112327-42-1, 112821-10-0, 1161009-62-6, 1170942-23-0, 1187015-71-9, 122933-37-3, 123243-04-9, 131801-18-8, 132823-57-5, 133757-66-1, 1365635-76-2, 1365657-50-6, 139465-75-1, 143710-36-5, 144855-91-4, 148464-77-1, 150261-04-4, 156680-70-5, 159074-97-2, 162731-35-3, 169741-70-2, 171903-39-2, 178535-67-6, 181232-12-2, 186777-48-0, 201873-76-9, 215369-91-8, 220286-70-4, 221350-75-0, 223461-98-1, 262610-59-3, 268745-65-9, 286465-97-2, 301161-99-9, 313378-44-8, 313471-92-0, 343259-03-0, 349655-63-6, 368887-79-0, 37329-03-6, 37370-57-3, 391599-57-8, 399509-34-3, 425369-26-2, 439608-93-2, 457057-49-7, 52440-18-3, 52622-64-7, 53664-32-7, 582300-70-7, 58318-95-9, 60440-68-8, 73989-50-1, 107001-49-0, 109281-32-5, 1292821-55-6, 1330065-51-4, 1369482-55-2, 1428902-81-1, 1429741-59-2, 1449076-61-2, 1596356-13-6, 1610944-39-2, 1646789-22-1, 170346-99-3, 1708965-95-0, 1808111-63-8, 1821166-88-4, 1821374-82-6, 182876-31-9, 1850381-83-7, 1855877-67-6, 1980812-29-0, 2002431-75-4, 2014375-57-4, 2089120-70-5, 2094994-09-7, 2133458-36-1, 2170444-76-3, 76560-78-6, 796853-32-2, 848784-13-4, 868670-76-2, 875121-17-8, 883306-97-6, 890309-25-8, 9044-59-1, 928298-83-3, 929710-90-7, 95751-29-4, 958447-30-8
glass fibres	65997-17-3, 94551-77-6, 1204320-21-7, 308066-97-9, 155775-82-9

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.

The 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. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average
PC - STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit,
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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TEL (+61 3) 9572 4700.