

SAFETY DATA SHEET

LEAD ACID BATTERY, WET

Infosafe No.: HXWBP
ISSUED Date : 01/11/2019
ISSUED by: R & J BATTERIES PTY LTD

1. Identification

GHS Product Identifier

LEAD ACID BATTERY, WET

Company name

R & J BATTERIES PTY LTD

Address

852 La Trobe St Ballarat
VIC 3356 AUSTRALIA

Telephone/Fax Number

Tel: +61 3 5335 9888

Fax: +61 3 5336 4976

Emergency phone number

1800 951 288 (Toll free - use within AU) | +61 2 9186 1132 (Alternative global number)

E-mail Address

rjbatt@rjbatt.com.au

Recommended use of the chemical and restrictions on use

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.

Other Names

Name
LEAD/ACID BATTERY

Additional Information

Other means of identification: Not Available

Website: rjbatt.com.au

Once connected and if the message is not in your preferred language then please dial 01

2. Hazard Identification

GHS classification of the substance/mixture

[1] Skin Corrosion/Irritation Category 1A, Serious Eye Damage Category 1, Lactation Effects

Signal Word (s)

DANGER

Hazard Statement (s)

H314 Causes severe skin burns and eye damage.

H362 May cause harm to breast-fed children.

Pictogram (s)

Corrosion

**Precautionary statement – Prevention**

P201 Obtain special instructions before use.

P260 Do not breathe dust/fume.

P263 Avoid contact during pregnancy/while nursing.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P270 Do not eat, drink or smoke when using this product.

Precautionary statement – Response

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.

P310 Immediately call a POISON CENTER or doctor/physician.

P321 Specific treatment (see advice on this label).

P363 Wash contaminated clothing before reuse.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Precautionary statement – Storage

P405 Store locked up.

Precautionary statement – Disposal

P501 Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

Other Information

Legend: 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

3. Composition/information on ingredients**Ingredients**

Name	CAS	Proportion
Lead	7439-92-1	30-40 %weight
Sulfuric Acid	7664-93-9	10-15 %weight
As sulfuric acid <51%	Not Available	-
Styrene/ butadiene/ acrylonitrile copolymer	9003-56-9)4-7%weight
Polypropylene	9003-07-0)

Other Information

Substances:

See section below for composition of Mixtures

Mixtures:

CAS No: 68411-78-9

%[weight]: 30-40

Name: Lead oxide

4. First-aid measures

Inhalation

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.

Transport to hospital, or doctor.

Ingestion

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.

Observe the patient carefully.

Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.

Transport to hospital or doctor without delay.

Skin

If skin or hair contact occurs:

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.

Eye contact

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.

Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Indication of immediate medical attention and special treatment needed if necessary

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.

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).

5. Fire-fighting measures

Suitable Extinguishing Media

Water spray or fog.

Foam.

Dry chemical powder.

BCF (where regulations permit).

Carbon dioxide.

Specific Hazards Arising From The Chemical

Fire Incompatibility:

Charging process and particularly overcharging produces highly flammable and explosive hydrogen gas.

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.

May emit corrosive, poisonous fumes. May emit acrid smoke.

Decomposition may produce toxic fumes of:

Sulfur oxides (SO_x)

Hazchem Code

2R

Decomposition Temperature

Not Applicable

Precautions in connection with Fire

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.

6. Accidental release measures

Emergency Procedures

See section 8

Clean-up Methods - Small Spillages

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.

Wipe up.

Place in a suitable, labelled container for waste disposal.

Clean-up Methods - Large Spillages

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

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.

Stop leak if safe to do so.

Contain spill with sand, earth or vermiculite.

Collect recoverable product into labelled containers for recycling.

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Neutralise/decontaminate residue (see Section 13 for specific agent).

Collect solid residues and seal in labelled drums for disposal.

Wash area and prevent runoff into drains.

After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

If contamination of drains or waterways occurs, advise emergency services.

Environmental Precautions

See section 12

Other Information

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

7. Handling and storage

Precautions for Safe Handling

Safe 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.

Other information:

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.

Conditions for safe storage, including any incompatibilities

Suitable container:

Normally packed with inert cushioning material.

Storage incompatibility:

Protect from accidental short-circuit.

8. Exposure controls/personal protection

Occupational exposure limit values

Control parameters:

OCCUPATIONAL EXPOSURE LIMITS (OEL):

INGREDIENT DATA:

Source: Australia Exposure Standards

Ingredient: lead

Material name: Lead, inorganic dusts & fumes (as Pb)

TWA: 0.05 mg/m³

STEL: Not Available

Peak: Not Available

Notes: Not Available

Source: Australia Exposure Standards

Ingredient: lead oxide

Material name: Lead, inorganic dusts & fumes (as Pb)

TWA: 0.05 mg/m³

STEL: Not Available

Peak: Not Available

Notes: Not Available

Source: Australia Exposure Standards

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Ingredient: sulfuric acid
Material name: Sulphuric acid
TWA: 1 mg/m³
STEL: 3 mg/m³
Peak: Not Available
Notes: Not Available

EMERGENCY LIMITS:

Ingredient: lead
Material name: Lead
TEEL-1: 0.15 mg/m³
TEEL-2: 120 mg/m³
TEEL-3: 700 mg/m³

Ingredient: sulfuric acid
Material name: Sulfuric acid
TEEL-1: Not Available
TEEL-2: Not Available
TEEL-3: Not Available

Ingredient: polypropylene
Material name: Polypropylene
TEEL-1: 5.2 mg/m³
TEEL-2: 58 mg/m³
TEEL-3: 350 mg/m³

Ingredient: lead
Original IDLH: Not Available
Revised IDLH: Not Available

Ingredient: lead oxide
Original IDLH: 100 mg/m³
Revised IDLH: Not Available

Ingredient: sulfuric acid
Original IDLH: 15 mg/m³
Revised IDLH: Not Available

Ingredient: styrene/ butadiene/ acrylonitrile copolymer
Original IDLH: Not Available
Revised IDLH: Not Available

Ingredient: polypropylene
Original IDLH: Not Available
Revised IDLH: Not Available

MATERIAL DATA:

None assigned. Refer to individual constituents.

Appropriate 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. Ventilation can remove or dilute an air contaminant if 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.

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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: Solvent, vapours, degreasing etc., evaporating from tank (in still air).

Air Speed: 0.25-0.5 m/s (50-100 f/min)

Type of Contaminant: 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)

Air Speed: 0.5-1 m/s (100-200 f/min.)

Type of Contaminant: Direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)

Air Speed: 1-2.5 m/s (200-500 f/min.)

Type of Contaminant: Grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

Air Speed: 2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range:

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only.
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range:

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 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.

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: up to 10 x ES

Half-Face Respirator: AE-AUS P2

Full-Face Respirator: -

Powered Air Respirator: AE-PAPR-AUS / Class 1 P2

Required Minimum Protection Factor: up to 50 x ES

Half-Face Respirator: -

Full-Face Respirator: AE-AUS / Class 1 P2

Powered Air Respirator: -

Required Minimum Protection Factor: up to 100 x ES

Half-Face Respirator: -

Full-Face Respirator: AE-2 P2

Powered Air Respirator: 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

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= Methyl bromide, AX = Low boiling point organic compounds (below 65 degC)

Eye 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]

Hand Protection

Wear chemical protective gloves, e.g. PVC.

Recommended material(s):

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the computer-generated selection:

Lead Acid Battery, Wet

Material: NATURAL RUBBER

CPI: A

Material: NATURAL+NEOPRENE

CPI: A

Material: NEOPRENE

CPI: A

Material: NEOPRENE/NATURAL

CPI: A

Material: NITRILE

CPI: A

Material: PE

CPI: A

Material: PVC

CPI: A

Material: SARANEX-23

CPI: A

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Footwear

Wear safety footwear.

Body Protection

Overalls.

PVC Apron.

PVC protective suit may be required if exposure severe.

Eyewash unit.

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Ensure there is ready access to a safety shower.

9. Physical and chemical properties

Properties	Description	Properties	Description
Form	Article - Battery	Appearance	A manufactured article cased in plastic with a sealed case, terminals and flame arrestor vent caps. Case colour varies. Essentially odourless. 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.
Odour	Not Available	Decomposition Temperature	Not Applicable
Solubility in Water	Not Applicable	pH	<1 acid content (as supplied) Not Available (as a solution (1%))
Vapour Pressure	Not Available	Vapour Density (Air=1)	Not Available
Evaporation Rate	Not Available	Physical State	Manufactured
Odour Threshold	Not Available	Viscosity	Not Applicable
Volatile Component	Not Available	Partition Coefficient: n-octanol/water	Not Available
Surface Tension	Not Applicable	Flash Point	Not Applicable
Flammability	Not Applicable	Auto-Ignition Temperature	Not Applicable
Explosion Limit - Upper	74.2% hydrogen gas	Explosion Limit - Lower	4.1% hydrogen gas
Explosion Properties	Not Available	Molecular Weight	Not Applicable
Oxidising Properties	Not Available	Initial boiling point and boiling range	Not Available

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Properties	Description	Properties	Description
Relative density	Not Available (Water = 1)	Melting/Freezing Point	>149°C for case

Other Information

Taste: Not Available

Gas group: Not Available

VOC g/L: Not Applicable

10. Stability and reactivity

Reactivity

See section 7

Chemical Stability

Contact with alkaline material liberates heat

Conditions to Avoid

See section 7

Incompatible materials

See section 7

Hazardous Decomposition Products

See section 5

Possibility of hazardous reactions

See section 7

11. Toxicological Information

Toxicology Information

Lead Acid Battery, Wet

TOXICITY: Not Available

IRRITATION: Not Available

Lead

TOXICITY:

Dermal (rat) LD50: >2000 mg/kg[1]

Inhalation (rat) LC50: >5.05 mg/l/4 h[1]

Oral (rat) LD50: >2000 mg/kg[1]

IRRITATION: Not Available

Lead oxide

TOXICITY: Not Available

IRRITATION: Not Available

Sulfuric acid

TOXICITY:

Inhalation (guinea pig) LC50: 0.036 mg/l/8H[2]

Oral (rat) LD50: 2140 mg/kg[2]

IRRITATION:

Eye (rabbit): 1.38 mg SEVERE

Eye (rabbit): 5 mg/30sec SEVERE

Styrene/ butadiene/acrylonitrile copolymer

TOXICITY:

Dermal (rabbit) LD50: 5010 mg/kg[2]

Oral (rat) LD50: 5010 mg/kg[2]

IRRITATION: Not Available

Polypropylene

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TOXICITY:

Oral (rat) LD50: >8000 mg/kg[2]

IRRITATION: 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 a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

SULFURIC ACID:

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. 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.

Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

WARNING: For inhalation exposure ONLY: 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/ ACRYLONITRILE COPOLYMER:

Ultrafine particles (UFPs) may be produced at lower temperatures during the 3D printing process Concerns have been raised regarding airborne UFP concentrations generated while printing with ABS, as UFPs have been linked with adverse health effects

POLYPROPYLENE:

* 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.

Read across data exist for health effects endpoints from the following similar hydrogenated long chain branched alkanes derived from a C8, C10, and/or C12 alpha olefins:

Decene homopolymer

Decene/dodecene copolymer

Octene/decene/dodecene copolymer

Dodecene trimer

The data for these structural analogs demonstrated no evidence of health effects. In addition, there is evidence in the literature that alkanes with 30 or more carbon atoms are unlikely to be absorbed when administered orally. The physicochemical data suggest that it is unlikely that significant absorption will occur. If a substance of the size and structure of a typical PAO is absorbed, then the principal mechanisms of absorption after oral administration are likely to be passive diffusion and absorption by way of the lymphatic system. The former requires both good lipid solubility and good water solubility as the substance has to partition from an aqueous environment through a lipophilic membrane into another aqueous environment during absorption. Absorption by way of the lymphatics occurs by mechanisms analogous to those that absorb fatty acids and is limited by the size of the molecule. Lipophilicity generally enhances the ability of chemicals to cross biological membranes.

Biotransformation by mixed function oxidases often increases the water solubility of a substance; however, existing data suggest that these substances will not undergo oxidation to more hydrophilic metabolites. Finally, a chemical must have an active functional group that can interact chemically or physically with the target cell or receptor upon reaching it; there are no moieties in PAOs that represent a functional group that may have biological activity. The water solubilities of a C10 dimer PAO and a C12 trimer PAO were determined to be <1 ppb and < 1 ppt respectively.

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The partition coefficient for a C12 trimer PAO was determined to be log Kow of >7. Given the very low water solubility it is extremely unlikely that PAOs will be absorbed by passive diffusion following oral administration, and the size of the molecules suggest that the extent of lymphatic absorption is likely to be very low. Although PAOs are relatively large lipophilic compounds, and molecular size may be a critical limiting determinant for absorption, there is some evidence that these substances are absorbed. However, the lack of observed toxicity in the studies with PAOs suggests that these products are absorbed poorly, if at all. Furthermore, a review of the literature regarding the absorption and metabolism of long chain alkanes indicates that alkanes with 30+ carbon atoms are unlikely to be absorbed. For example the absorption of squalane, an analogous C30 product, administered orally to male CD rats was examined - essentially all of the squalane was recovered unchanged in the faeces. At the same time, the hydrophobic properties of PAOs suggest that, should they be absorbed, they would undergo limited distribution in the aqueous systemic circulation and reach potential target organs in limited concentrations.

In addition to the general considerations discussed above, the low volatility of PAOs indicates that, under normal conditions of use or transportation, exposure by the inhalation route is unlikely. In particular, the high viscosity of these substances suggests that it would be difficult to generate a high concentration of respirable particles in the air.

Acute toxicity: PAOs (decene/dodecene copolymer, octene/decene/dodecene homo-polymer, and dodecene trimer) have been adequately tested for acute oral toxicity. There were no deaths when the test materials were administered at doses of 5,000 mg/kg (decene/dodecene copolymer and dodecene trimer) and at 2,000 mg/kg (octene/decene/dodecene copolymer) in rats. Overall, the acute oral LD50 for these substances was greater than the 2000 mg/kg limit dose, indicating a relatively low order of toxicity.

PAOs (decene/dodecene copolymer, octene/decene/dodecene copolymer, and dodecene trimer) have been tested for acute dermal toxicity. No mortality was observed for any substance when administered at the limit dose of 2000 or 5000 mg/kg. Overall, the acute dermal LD50 for these substances was greater than the 2000 mg/kg limit dose, indicating a relatively low order of toxicity.

1-Decene, homopolymer, is absorbed (unexpectedly for a high molecular weight polymer) to a moderate degree in rat skin and is eliminated slowly

PAOs (decene homopolymer, decene/dodecene copolymer, and decene trimer) have been tested for acute inhalation toxicity. Rats were exposed to aerosols of the substances at nominal atmospheric concentrations of 2.5, 5.0, and 5.06 mg/L, respectively, for four hours. These levels were the maximum attainable concentrations under the conditions of the tests, due to the low volatility and high viscosity of the test material. No mortality was noted, and all animals fully recovered following depuration. The lack of mortality at concentrations at or above the limit dose of 2.0 mg/L indicates a relatively low order of toxicity for these substances.

Repeat dose toxicity: Eight repeated-dose toxicity studies using two different animal species, rats and mice, and oral and dermal routes of administration have been conducted with three structural analogs. These data suggest that the structural analogs exhibit a low order of toxicity following repeated applications, due to their similarity in chemical structures and physicochemical properties. One 28-day oral toxicity study in rats, one 90-day dermal and two 90-day dietary studies in rats, and a dermal carcinogenicity study in mice exist for decene homopolymer. A rat oral combined reproductive toxicity and 91-day systemic toxicity study was also conducted with decene homopolymer. In addition, 28-day rat oral toxicity studies exist for two structurally analogous substances (dodecene trimer and octene/decene/dodecene copolymer); and a 90-day rat dermal toxicity study exists for octene/decene/dodecene copolymer. Results from these studies show a low order of repeated dose toxicity. The dermal NOAEL for systemic toxicity studies was equal to or greater than 2000 mg/kg/day.

The oral NOAEL for 1-decene homopolymer is between 5,000 and 20,000 mg/kg/day in Sprague-Dawley rats.

Rats exposed repeatedly by dermal exposure at doses of 2000 mg/kg decene/dodecene copolymer showed increased incidences of hyperplasia of the sebaceous glands, hyperplasia/hyperkeratosis of the epidermis and dermal inflammation. These symptoms generally subsided within 2 weeks. Males showed decreased body weight gain and altered serum chemistry.

In a 90-day feeding study rats receiving 20000 ppm of 1-decene, homopolymer, hydrogenated did not exhibit any clinical signs of systemic toxicity. Marginal effects on clinical chemistry (glucose and ALT in males; sodium, phosphorus and calcium in females) were seen.

Reproductive toxicity: Data are available for decene homopolymer. Results from these studies show a low order of reproductive/developmental toxicity. The NOAEL for reproductive toxicity was 1000 mg/kg/day, the highest concentration tested. The lack of effects on fertility in this study or effects on reproductive organs in this or other subchronic studies with closely related chemicals indicates that PAOs are unlikely to exert effects on reproduction.

Developmental toxicity: Decene homopolymer (with 10 ppm of an antioxidant) was administered once daily on gestation days 0-19 via dermal application to presumed-pregnant rats at doses of 0, 800, and 2000 mg/kg/day. Dermal administration of the test material did not adversely affect parameters of reproductive performance during gestation, nor did it adversely affect in utero survival and development of the offspring. The NOAEL in this study for developmental parameters was 2000 mg/kg/day.

Genotoxicity: Information for the following PAOs (decene homopolymer, octene/decene/dodecene copolymer, dodecene trimer; and decene/dodecene copolymer [prepared from 10% C12 and 90% C10 alpha olefins; approx. 33% trimer and 51% tetramer, 16% pentamer and higher]) is available. Either bacterial or mammalian gene mutation assays, in vitro chromosomal aberration assays, or in vivo chromosomal aberration assays have been conducted for these substances. Neither mutagenicity nor clastogenicity were exhibited by any of these substances in the referenced in vivo or in vitro tests, with or without metabolic activation.

Carcinogenicity: While alpha-olefin polymers have similar properties to mineral oils, they do not contain polycyclic aromatic hydrocarbons, or other known possible carcinogens.

Decene homopolymer produced no treatment-related tumors in C3H mice treated with a 50 ul/application twice weekly for 104 weeks. In addition, survival (56%) was greater than in any other group, including the untreated control.

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STYRENE/ BUTADIENE/ACRYLONITRILE COPOLYMER & POLYPROPYLENE:

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.

Acute Toxicity: Data either not available or does not fill the criteria for classification

Ingestion

Ingestion of acidic corrosives may produce circumoral burns with a distinct discolouration of the mucous membranes of the mouth, throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. Oedema of the epiglottis may produce respiratory distress and possibly, asphyxia. Nausea, vomiting, diarrhoea and a pronounced thirst may occur. More severe exposures may produce a vomitus containing fresh or dark blood and large shreds of mucosa. Shock, with marked hypotension, weak and rapid pulse, shallow respiration and clammy skin may be symptomatic of the exposure. Circulatory collapse may, if left untreated, result in renal failure. Severe cases may show gastric and oesophageal perforation with peritonitis, fever and abdominal rigidity. Stricture of the oesophageal, gastric and pyloric sphincter may occur as within several weeks or may be delayed for years. Death may be rapid and often results from asphyxia, circulatory collapse or aspiration of even minute amounts. Delayed deaths may be due to peritonitis, severe nephritis or pneumonia. Coma and convulsions may be terminal.

Inhalation

Not normally a hazard due to physical form of product.

Acidic corrosives produce respiratory tract irritation with coughing, choking and mucous membrane damage. Symptoms of exposure may include dizziness, headache, nausea and weakness. In more severe exposures, pulmonary oedema may be evident either immediately or after a latent period of 5-72 hours. Symptoms of pulmonary oedema include a tightness in the chest, dyspnoea, frothy sputum and cyanosis. Examination may reveal hypotension, a weak and rapid pulse and moist rates. Death, due to anoxia, may occur several hours after onset of the pulmonary oedema.

Exposure to high concentrations causes bronchitis and is characterised by the onset of haemorrhagic pulmonary oedema.

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.

Eye

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

Skin corrosion/irritation

Data available to make classification

Serious eye damage/irritation

Data available to make classification

Mutagenicity

Data either not available or does not fill the criteria for classification

Respiratory sensitisation

Data either not available or does not fill the criteria for classification

Skin Sensitisation

Data either not available or does not fill the criteria for classification

Carcinogenicity

Data either not available or does not fill the criteria for classification

Reproductive Toxicity

Data either not available or does not fill the criteria for classification

STOT-single exposure

Data either not available or does not fill the criteria for classification

STOT-repeated exposure

Data either not available or does not fill the criteria for classification

Aspiration Hazard

Data either not available or does not fill the criteria for classification

Chronic Effects

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Repeated or prolonged exposure to acids may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.

The impact of inhaled acidic agents on the respiratory tract depends upon a number of interrelated factors. These include physicochemical characteristics, e.g., gas versus aerosol; particle size (small particles can penetrate deeper into the lung); water solubility (more soluble agents are more likely to be removed in the nose and mouth). Given the general lack of information on the particle size of aerosols involved in occupational exposures to acids, it is difficult to identify their principal deposition site within the respiratory tract. Acid mists containing particles with a diameter of up to a few micrometers will be deposited in both the upper and lower airways. They are irritating to mucous epithelia, they cause dental erosion, and they produce acute effects in the lungs (symptoms and changes in pulmonary function). Asthmatics appear to be at particular risk for pulmonary effects.

Occupational exposure to strong inorganic acid mists containing sulfuric acid is designated by IARC to be carcinogenic, increased risk of laryngeal cancer being seen with chronic exposures. Repeated minor exposures to mists can cause erosion of teeth and inflammation of the upper respiratory tract leading to chronic bronchitis. Repeated skin contact with dilute solutions may produce dermatitis. Lungs of sulfuric acid plant workers appear to be less affected than the lungs of workers exposed to "dust". There is evidence that corrosion of tooth enamel occurs at 1 mg/m³ but that acclimated workers could tolerate three to four times that level. Forming room workers in a battery factory exposed to 3 to 16 mg/m³ sulfuric acid mist concentrations exhibited the most serious signs of erosion whilst charging room workers, exposed to 0.08 to 2.5 mg/m³ were affected to a lesser degree. Workers chronically exposed to sulfuric acid mists may show various skin lesions, tracheobronchitis, stomatitis, conjunctivitis and gastritis.

12. Ecological information

Ecotoxicity

Lead Acid Battery, Wet
ENDPOINT: Not Available
TEST DURATION (HR): Not Available
SPECIES: Not Available
VALUE: Not Available
SOURCE: Not Available

Lead
ENDPOINT: LC50
TEST DURATION (HR): 96
SPECIES: Fish
VALUE: 0.001-0.06756mg/L
SOURCE: 2
ENDPOINT: EC50
TEST DURATION (HR): 48
SPECIES: Crustacea
VALUE: 0.029mg/L
SOURCE: 2
ENDPOINT: EC50
TEST DURATION (HR): 72
SPECIES: Algae or other aquatic plants
VALUE: 0.0205mg/L
SOURCE: 2
ENDPOINT: BCFD
TEST DURATION (HR): 8
SPECIES: Fish
VALUE: 4.324mg/L
SOURCE: 4
ENDPOINT: NOEC
TEST DURATION (HR): 672
SPECIES: Fish
VALUE: 0.00003mg/L
SOURCE: 4

Lead oxide
ENDPOINT: Not Available
TEST DURATION (HR): Not Available
SPECIES: Not Available
VALUE: Not Available
SOURCE: Not Available

Sulfuric acid
ENDPOINT: LC50
TEST DURATION (HR): 96
SPECIES: Fish
VALUE: =8mg/L
SOURCE: 1
ENDPOINT: EC50
TEST DURATION (HR): 48
SPECIES: Crustacea
VALUE: =42.5mg/L
SOURCE: 1
ENDPOINT: EC50
TEST DURATION (HR): 72
SPECIES: Algae or other aquatic plants
VALUE: >100mg/L

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SOURCE: 2
ENDPOINT: NOEC
TEST DURATION (HR): Not Available
SPECIES: Crustacea
VALUE: 0.15mg/L
SOURCE: 2

Styrene/ butadiene/acrylonitrile copolymer
ENDPOINT: LC50
TEST DURATION (HR): 96
SPECIES: Fish
VALUE: 11.5mg/L
SOURCE: 4

Polypropylene
ENDPOINT: LC50
TEST DURATION (HR): 96
SPECIES: Fish
VALUE: 12.237mg/L
SOURCE: 3
ENDPOINT: EC50
TEST DURATION (HR): 96
SPECIES: Algae or other aquatic plants
VALUE: 40.113mg/L
SOURCE: 3

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

Mobility

Mobility in soil:
Ingredient: polypropylene
Mobility: LOW (KOC = 23.74)

Bioaccumulative Potential

Ingredient: polypropylene
Bioaccumulation: LOW (LogKOW = 1.6783)

13. Disposal considerations

Waste Disposal

Product / Packaging disposal: Lead acid batteries are recyclable.

14. Transport information

U.N. Number

2794

UN proper shipping name

BATTERIES, WET, FILLED WITH ACID, electric storage

Transport hazard class(es)

8

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Packing Group

Not Applicable

Hazchem Code

2R

IERG Number

37

UN Number (Air Transport, ICAO)

2794

IATA/ICAO Proper Shipping Name

Batteries, wet, filled with acid electric storage

IATA/ICAO Hazard Class

8

IATA/ICAO Packing Group

Not Applicable

IMDG UN No

2794

IMDG Proper Shipping Name

BATTERIES, WET, FILLED WITH ACID electric storage

IMDG Hazard Class

8

IMDG Pack. Group

Not Applicable

Other Information

Labels Required:

Marine Pollutant: NO

HAZCHEM: 2R

Land transport (ADG):

UN number: 2794

UN proper shipping name: BATTERIES, WET, FILLED WITH ACID, 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: 295 AU08

Limited quantity: 1 L

Air transport (ICAO-IATA / DGR):

UN number: 2794

UN proper shipping name: Batteries, wet, filled with acid 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: A51 A164 A183 A802

Cargo Only Packing Instructions: 870

Cargo Only Maximum Qty / Pack: No Limit

Passenger and Cargo Packing Instructions: 870

Passenger and Cargo Maximum Qty / Pack: 30 kg

Passenger and Cargo Limited Quantity Packing Instructions: Forbidden

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Passenger and Cargo Limited Maximum Qty / Pack: Forbidden

Sea transport (IMDG-Code / GGVSee):

UN number: 2794

UN proper shipping name: BATTERIES, WET, FILLED WITH ACID 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: 295

Limited Quantities: 1 L

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

Not Applicable

15. Regulatory information

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 Inventory of Chemical Substances (AICS)

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

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 Inventory of Chemical Substances (AICS)

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

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

Australia Inventory of Chemical Substances (AICS)

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:

Australia Inventory of Chemical Substances (AICS)

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

POLYPROPYLENE IS FOUND ON THE FOLLOWING REGULATORY LISTS:

Australia Inventory of Chemical Substances (AICS)

Chemical Footprint Project - Chemicals of High Concern List

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

National Inventory Status:

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National Inventory: Australia - AICS
Status: Yes
National Inventory: Canada - DSL
Status: Yes
National Inventory: Canada - NDSL
Status: No (lead; sulfuric acid; styrene/ butadiene/ acrylonitrile copolymer; polypropylene)
National Inventory: China - IECSC
Status: Yes
National Inventory: Europe - EINEC / ELINCS / NLP
Status: No (styrene/ butadiene/ acrylonitrile copolymer; polypropylene)
National Inventory: Japan - ENCS
Status: No (lead)
National Inventory: Korea - KECI
Status: Yes
National Inventory: New Zealand - NZIoC
Status: No (lead oxide)
National Inventory: Philippines - PICCS
Status: Yes
National Inventory: USA - TSCA
Status: Yes
National Inventory: Taiwan - TCSI
Status: Yes
National Inventory: Mexico - INSQ
Status: No (lead oxide)
National Inventory: Vietnam - NCI
Status: Yes
National Inventory: Russia - ARIPS
Status: No (lead oxide)

Legend:

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)

Poisons Schedule

N/A

16. Other Information

Contact Person/Point

Stuart Hamilton: General Manager

Phone: (03) 53359888

Mobile: 0407 8476 85

User Codes

User Title Label	User Codes
Wis Numbers	02833479

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Other Information

Version No: 6.1.1.1

Safety Data Sheet according to WHS and ADG requirements

SDS Version Summary:

Version: 2.1.1.1

Issue Date: 23/08/2018

Sections Updated: Appearance, Environmental, Fire Fighter (fire incompatibility), Physical Properties, Synonyms, Use

Version: 6.1.1.1

Issue Date: 01/11/2019

Sections Updated: One-off system update. NOTE: This may or may not change the GHS classification

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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END OF SDS

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