



Alphaseal AC-922

ALPHA CHEMICALS PTY LTD

Chemwatch Hazard Alert Code: 2

Chemwatch: 86-2667

Version No: 3.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Issue Date: 01/11/2019

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S.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	Alphaseal AC-922
Synonyms	Not Available
Other means of identification	Not Available

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

Relevant identified uses	Use according to manufacturer's directions.
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Details of the supplier of the safety data sheet

Registered company name	ALPHA CHEMICALS PTY LTD
Address	4 ALLEN PLACE WETHERILL PARK NSW 2099 Australia
Telephone	61 (0)2 9982 4622
Fax	Not Available
Website	~
Email	shane@alphachem.com.au

Emergency telephone number

Association / Organisation	ALPHA CHEMICALS PTY LTD
Emergency telephone numbers	61 (0)418 237 771
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	0		
Toxicity	1		0 = Minimum
Body Contact	2		1 = Low
Reactivity	0		2 = Moderate
Chronic	0		3 = High
			4 = Extreme

Poisons Schedule	Not Applicable
Classification [1]	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Acute Aquatic Hazard Category 2
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	WARNING
Hazard statement(s)	H315 Causes skin irritation.

H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H401	Toxic to aquatic life.

Precautionary statement(s) Prevention

P271	Use only outdoors or in a well-ventilated area.
P261	Avoid breathing mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

P321	Specific treatment (see advice on this label).
P362	Take off contaminated clothing and wash before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P332+P313	If skin irritation occurs: Get medical advice/attention.

Precautionary statement(s) Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

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
758-12-3	5-15	<u>acetic acid glacial-D</u>
1336-21-6	1-5	<u>ammonium hydroxide</u>
37971-36-1	0-1	<u>2-phosphonobutane-1,2,4-tricarboxylic acid</u>
Not Available	balance	Ingredients determined not to be hazardous

SECTION 4 FIRST AID MEASURES**Description of first aid measures**

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh 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. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ 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, without delay.
Ingestion	<ul style="list-style-type: none"> ▶ 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. ▶ Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For acute or short term repeated exposures to ammonia and its solutions:

- ▶ Mild to moderate inhalation exposures produce headache, cough, bronchospasm, nausea, vomiting, pharyngeal and retrosternal pain and conjunctivitis. Severe inhalation

produces laryngospasm, signs of upper airway obstruction (stridor, hoarseness, difficulty in speaking) and, in excessively, high doses, pulmonary oedema.

- ▶ Warm humidified air may soothe bronchial irritation.
- ▶ Test all patients with conjunctival irritation for corneal abrasion (fluorescein stain, slit lamp exam)
- ▶ Dyspneic patients should receive a chest X-ray and arterial blood gases to detect pulmonary oedema.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- ▶ foam.
- ▶ dry chemical powder.
- ▶ carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves in the event of a fire. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ 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.
Fire/Explosion Hazard	<p>carbon dioxide (CO₂) other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.</p> <ul style="list-style-type: none"> ▶ Non combustible. ▶ Not considered a significant fire risk, however containers may burn. <p>Decomposes on heating and produces toxic fumes of:</p>
HAZCHEM	Not Applicable

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	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▶ 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.
Major Spills	<p>Environmental hazard - contain spillage. Moderate hazard.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves. ▶ 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.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ DO NOT allow clothing wet with material to stay in contact with skin ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked. ▶ DO NOT allow material to contact humans, exposed food or food utensils. ▶ Avoid contact with incompatible materials. ▶ When handling, DO NOT eat, drink or smoke.
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Other information	<ul style="list-style-type: none"> ▶ 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.
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Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Lined metal can, lined metal pail/ can. ▶ Plastic pail. ▶ Polyliner drum. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> ▶ Avoid strong acids, bases.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**Control parameters****OCCUPATIONAL EXPOSURE LIMITS (OEL)****INGREDIENT DATA**

Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
ammonium hydroxide	Ammonium hydroxide	61 ppm	330 ppm	2,300 ppm


Ingredient	Original IDLH	Revised IDLH
acetic acid glacial-D	Not Available	Not Available
ammonium hydroxide	Not Available	Not Available
2-phosphonobutane-1,2,4-tricarboxylic acid	Not Available	Not Available

OCCUPATIONAL EXPOSURE BANDING

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
ammonium hydroxide	E	≤ 0.1 ppm

Notes: 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.

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. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>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.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>General exhaust is adequate under normal operating conditions.</p>
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ 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.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage.</p>
Body protection	See Other protection below

Other protection

- ▶ Overalls.
- ▶ P.V.C. apron.
- ▶ Barrier cream.
- ▶ Skin cleansing cream.
- ▶ Eye wash unit.

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:

Alphaseal AC-922

Material	CPI
BUTYL	A
NEOPRENE	A
HYPALON	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C
PVA	C
PVC	C
VITON	C

* 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.

Respiratory protection

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

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	ABK-AUS / Class1	-
up to 50	1000	-	ABK-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	ABK-2
up to 100	10000	-	ABK-3
100+			Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand

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)

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Clear liquid; miscible with water.		
Physical state	Liquid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	100 approx	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	as for water	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	as for water	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	as for water	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
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Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual.
Skin Contact	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition. Open cuts, abraded or irritated skin should not be exposed to this material.
Eye	This material can cause eye irritation and damage in some persons.
Chronic	Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Alphaseal AC-922	TOXICITY	IRRITATION
	Not Available	Not Available
acetic acid glacial-D	TOXICITY	IRRITATION
	Not Available	Not Available
ammonium hydroxide	TOXICITY	IRRITATION
	Inhalation (rat) LC50: 1997.718 mg/l/4h ^[2] Oral (rat) LD50: 350 mg/kg ^[2]	Eye (rabbit): 0.25 mg SEVERE Eye (rabbit): 1 mg/30s SEVERE
2-phosphonobutane-1,2,4-tricarboxylic acid	TOXICITY	IRRITATION
	dermal (rat) LD50: >4000 mg/kg ^[2] Oral (rat) LD50: >4000 mg/kg ^[2]	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

Alphaseal AC-922	No significant acute toxicological data identified in literature search.
ACETIC ACID GLACIAL-D	The material may cause severe 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. Repeated exposures may produce severe ulceration. Prolonged or repeated exposure to acetic acid may produce irritation and/ or corrosion at the site of contact as well as systemic toxicity. Prolonged inhalation exposure results in muscle imbalance, increase in blood cholinesterase activity, decrease in albumin and decreased growth but no reproductive or foetal toxicity, according to animal testing. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID	<p>* Van Waters and Rogers Ten male rats each received a single dose of 10 - 30 ml of the potassium salt per gavage. The animals were observed for mortality and clinical signs through day 14. A gross pathological examination was performed on animals which died during the observation period or were killed after termination of the study. Signs of intoxication were ruffle fur, decreased motility, prone position, accelerated and irregular breathing, cyanosis and after 24 hours diarrhoea. The section of the animals which died revealed a diffuse reddening of the mucosa of the stomach and intestine. For male and female rats a LD50 = 20.1 ml/kg bw (ca. 8300 mg/kg bw) was found. Five male and female rats were exposed for 4 hours to the test substance in analysed concentrations of 800, 1479, 1979 mg/m³ air. After 7 days of observations, no mortality occurred, no clinical symptoms were observed and no significant difference was found in haematological parameters which were examined before and after exposure. The LC50 can be estimated as >1979 mg/m³. 1979 mg/m³ was the highest concentration that could technically be achieved. Following the mentioned results, the tetrasodium hydrogen 2-phosphonobutane-1,2,4-tricarboxylate is not to be classified as harmful via inhalation as at the highest achievable concentration (1979 mg/m³) no clinical symptoms were observed and no significant difference was found in haematological parameters which were examined before and after exposure. A 32.6 % aqueous solution (4000 mg/kg bw) of tetrasodium hydrogen 2-phosphonobutane-1,2,4-tricarboxylate was examined for acute dermal toxicity. 5 male rats and 5 female rats were observed for 14 days after dermal application of the test substance. No mortality occurred during the study time. The LD50 (rat, oral) was therefore estimated as > 1300 mg/kg based on active ingredient of a 32.6 % aqueous solution of tetrasodium hydrogen 2-phosphonobutane-1,2,4-tricarboxylate. No systemic clinical symptoms or local skin changes were observed. Minor changes were observed in body weight of female rats and no influence was observed in the growing development of the male rats. In a pathological examination of the study- rats at the end of the study, it was found that one male rat had a brighter (paler) liver with stains and another male rat had in addition a brighter kidney, two female rats, had also a brighter liver. Following the mentioned results, tetrasodium hydrogen 2-phosphonobutane-1,2,4-tricarboxylate is not to be classified as an acute toxic substance. Irritation:</p> <p>Skin</p> <p>The test item was applied at a 100% concentration, i.e. 25 mg per insert. (plus 50 µl 0.9% NaCl to moisten and ensure good contact with the skin). The results show that no corrosive property of the test item was determined by the assay used. Eye: An in vitro study for assessing ocular irritation of compounds using a human epithelial corneal cell model was performed. The results show that tetrasodium hydrogen 2-phosphonobutane-1,2,4-tricarboxylate is predicted as non-irritant under the conditions of this test method. Sensitisation: The skin sensitisation effect of tetrasodium hydrogen 2-phosphonobutane-1,2,4-tricarboxylate was examined in guinea pigs by a Guinea Pig</p>

Maximisation Test (GPMT) according to Magnusson and Kligman. No skin reaction was observed in the treated group after the challenge test compared to the controls. Moreover, the test animals body weight development was examined and they were observed for clinical symptoms. No difference was exhibited between the treated and the control groups. Therefore, it can be concluded that under the test conditions, the test substance tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate, is not a potential skin sensitiser. Repeat dose toxicity: oral Doses of up to 5000 ppm tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate applied over 3 months were tolerated without any effects. The NOAEL of the tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate is equal or higher than 5000 ppm (equivalent to about 424 mg/kg bw for male rats and 632 mg/kg bw for female rats). Genetic toxicity: in vitro A 45-50% (w/w) solution of 2-phosphonobutane-1,2,4-tricarboxylic acid in water was found to be non-mutagenic under test conditions. Toxicity to reproduction: The available information on toxicity gave no evidence of damage in doses up to 375 mg/kg body weight. There is no evidence of embryo-toxicity, teratogenicity or genotoxicity. Based on the available data on toxicity and the data on occupational exposure and exposure of the general population, 2-phosphonobutane-1,2,4-tricarboxylic acid is of low concern." Development toxicity/ teratogenicity After oral application of 2-phosphonobutane-1,2,4-tricarboxylic acid up to maximal dosage of 1000 mg/kg no signs of maternal toxicity were found (by means of death, weight loss, changes in appearance and behaviour). Moreover, female mother rats were proved later to be fertile. No influence was observed in embryo and foetus development (resorption, placenta weight, any skeletal and internal malformation). The NOEL value for these effects is therefore determined as 1000 mg/kg bw/day. Under the experimental conditions, the test item is considered to have no maternal and embryonic toxic effects and no teratogenicity effects in rats. REACH Dossier

For acid mists, aerosols, vapours

Test results suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. Cells from the respiratory tract have not been examined in this respect. Mucous secretion may protect the cells of the airway from direct exposure to inhaled acidic mists (which also protects the stomach lining from the hydrochloric acid secreted there).

For ATMP (aminotris(methylenephosphonic acid)) and its salts:

ATMP acid, the monosodium salt and hexasodium salts cause serious eye irritation, while the disodium to pentasodium salts do not cause eye irritation. The low pH would predict that ATMP acid should be severely irritant or corrosive to skin as well as eyes.

Acute toxicity: In animals, ATMP has low acute toxicity.

Sensitisation: Based on animal data and human exposure reports, ATMP is not classified with respect to skin sensitization.

Toxicity after repeated exposure: Not classified.

Genetic toxicity / mutation-causing potential: ATMP and its salts do not cause genetic toxicity or mutations.

Cancer-causing potential: ATMP sodium salts and the acid are not expected to cause cancer.

Reproductive toxicity: Based on animal testing, ATMP and its salts do not cause reproductive toxicity.

Animal testing to date have not shown phosphonic acids or their salts to induce skin sensitisation. However, testing has been incomplete.

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for 2-phosphonobutane-1,2,4-tricarboxylic acid (PBTC)

The substance has low acute toxicity. It produced negative results in two Ames tests one in vitro chromosomal aberration test. The NOAEL for repeated dose toxicity is 375 mg/kg body weight and no embryotoxicity or teratogenicity was recorded up to a dose of 1000 mg/kg. An estimated dose of low concern (EDLC) of 3.75 mg/kg was derived.

The highest aquatic local PEC due to its use as additive in cooling waters was estimated to be 10 - 100 ug/L.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Alphaseal AC-922 & ACETIC ACID GLACIAL-D & AMMONIUM HYDROXIDE & 2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID

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.

ACETIC ACID GLACIAL-D & AMMONIUM HYDROXIDE

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

ACETIC ACID GLACIAL-D & 2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function. 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.

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

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
	Alphaseal AC-922	Not Available	Not Available	Not Available	Not Available
acetic acid glacial-D	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
ammonium hydroxide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	15mg/L	4
	NOEC	72	Fish	3.5mg/L	4

2-phosphonobutane-1,2,4-tricarboxylic acid	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	>1-42mg/L	2
	EC50	48	Crustacea	>1-71mg/L	2
	EC50	72	Algae or other aquatic plants	>1-81mg/L	2
	NOEC	336	Fish	>=1-42mg/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

On the basis of available evidence concerning either toxicity, persistence, potential to accumulate and or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and /or delayed, to the structure and/ or functioning of natural ecosystems.

Toxic to aquatic organisms.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

For Ammonia:

Atmospheric Fate: Ammonia reacts rapidly with available acids (mainly sulfuric, nitric, and sometimes hydrochloric acid) to form the corresponding salts. Ammonia is persistent in the air.

Aquatic Fate: Biodegrades rapidly to nitrate, producing a high oxygen demand. Non-persistent in water (half-life 2 days).

Ecotoxicity: Moderately toxic to fish under normal temperature and pH conditions and harmful to aquatic life at low concentrations. Does not concentrate in food chain.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
2-phosphonobutane-1,2,4-tricarboxylic acid	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
2-phosphonobutane-1,2,4-tricarboxylic acid	LOW (LogKOW = -1.359)

Mobility in soil

Ingredient	Mobility
2-phosphonobutane-1,2,4-tricarboxylic acid	LOW (KOC = 846)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible. ▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. ▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or incineration in a licensed apparatus (after admixture with suitable combustible material). ▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

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

Not Applicable

SECTION 15 REGULATORY INFORMATION**Safety, health and environmental regulations / legislation specific for the substance or mixture****ACETIC ACID GLACIAL-D IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Not Applicable

AMMONIUM HYDROXIDE IS FOUND ON THE FOLLOWING REGULATORY LISTSAustralia 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 6**2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Inventory of Chemical Substances (AICS)

National Inventory Status

National Inventory	Status
Australia - AICS	No (acetic acid glacial-D)
Canada - DSL	No (acetic acid glacial-D)
Canada - NDSL	No (acetic acid glacial-D; ammonium hydroxide; 2-phosphonobutane-1,2,4-tricarboxylic acid)
China - IECSC	No (acetic acid glacial-D)
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (acetic acid glacial-D)
Korea - KECI	No (acetic acid glacial-D)
New Zealand - NZIoC	No (acetic acid glacial-D)
Philippines - PICCS	No (acetic acid glacial-D)
USA - TSCA	No (acetic acid glacial-D)
Taiwan - TCSI	Yes
Mexico - INSQ	No (acetic acid glacial-D)
Vietnam - NCI	No (acetic acid glacial-D)
Russia - ARIPS	No (acetic acid glacial-D)
Legend:	<i>Yes = All CAS declared ingredients are on the inventory</i> <i>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	01/11/2019
Initial Date	21/10/2017

SDS Version Summary

Version	Issue Date	Sections Updated
3.1.1.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

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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