ROWE SCIENTIFIC

Chemwatch: 4659-74 Version No: 11.1

Safety Data Sheet according to Work Health and Safety Regulations (Hazardous Chemicals) 2023 and ADG requirements

Chemwatch Hazard Alert Code: 4

Issue Date: **12/08/2024** Print Date: **13/08/2024** L.GHS.AUS.EN.E

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

Product Identifier		
Product name	Rowe Scientific Acid Mixture (H2SO4 / H3PO4)	
Chemical Name	Not Applicable	
Synonyms	CA1131; CS14910; CS6500; CS6505	
Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (contains sulfuric acid)	
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	Acid mixture.
	Use according to manufacturer's directions.

Details of the manufacturer or supplier of the safety data sheet

Registered company name	ROWE SCIENTIFIC
Address	11 Challenge Boulevard Wangara WA 6065 Australia
Telephone	+61 8 9302 1911
Fax	+61 8 9302 1905
Website	https://rowe.com.au/
Email	rowewa@rowe.com.au

Emergency telephone number

0,1	
Association / Organisation	ROWE SCIENTIFIC
Emergency telephone numbers	+61 8 9302 1911 (24 Hrs)
Other emergency telephone numbers	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

Poisons Schedule	S6
Classification ^[1]	Skin Corrosion/Irritation Category 1A, Serious Eye Damage/Eye Irritation Category 1, Acute Toxicity (Inhalation) Category 4, Hazardous to the Aquatic Environment Long-Term Hazard Category 4
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)

H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary statement(s) Prevention

P260	Do not breathe mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P273	Avoid release to the environment.

Precautionary statement(s) Response		
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.	
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or 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/doctor/physician/first aider.	
P363	Wash contaminated clothing before reuse.	
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.	
Precautionary statement(s) Sto	brage	
P405	Store locked up.	
Precautionary statement(s) Dis	sposal	
P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.	

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7664-93-9	10-30	sulfuric acid
7664-38-2	10-30	phosphoric acid
7732-18-5	>60	water
Legend: 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L * EU IOELVs available		

SECTION 4 First aid measures

Description of first aid measures

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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. 	
Skin Contact	If skin contact occurs: 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	 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	 For advice, contact a Poisons Information Centre or a doctor. 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

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 conjuctival 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).

[Ellenhorn and Barceloux: Medical Toxicology]

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	Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.
Advice for firefighters	
Fire Fighting	 Alert Fire Brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Use fire fighting procedures suitable for surrounding area. 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	 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) phosphorus oxides (POx)
HAZCHEM	2X

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	 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	 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. 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.

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

SECTION 7 Handling and storage

Precautions for safe handling Avoid all personal contact, including inhalation.

	Avoid all personal contact, including initialation.
	Wear protective clothing when risk of exposure occurs.
	Use in a well-ventilated area.
	WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.
	Avoid smoking, naked lights or ignition sources.
	Avoid contact with incompatible materials.
Orfe handling	When handling, DO NOT eat, drink or smoke.
Safe handling	Keep containers securely sealed when not in use.
	Avoid physical damage to containers.
	Always wash hands with soap and water after handling.
	Work clothes should be laundered separately. Launder contaminated clothing before re-use.
	Use good occupational work practice.
	Observe manufacturer's storage and handling recommendations contained within this SDS.
	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.
litions for safe storage, in	cluding any incompatibilities
Suitable container	 Polyethylene or polypropylene container. Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Segregate from strong alkalis reducing agents organic materials / compounds • Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air. • Avoid strong bases.

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA						
Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	sulfuric acid	Sulphuric acid	1 mg/m3	3 mg/m3	Not Available	Not Available
Australia Exposure Standards	phosphoric acid	Phosphoric acid	1 mg/m3	3 mg/m3	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2		TEEL-3
sulfuric acid	Not Available	Not Available		Not Available
phosphoric acid	Not Available	Not Available		Not Available
Ingredient	Original IDLH		Revised IDLH	
sulfuric acid	15 mg/m3		Not Available	
phosphoric acid	1,000 mg/m3		Not Available	
water	Not Available		Not Available	

MATERIAL DATA

Exposure controls

	Engineering controls are used to remove a hazard or place a can be highly effective in protecting workers and will typically The basic types of engineering controls are: Process controls which involve changing the way a job activi Enclosure and/or isolation of emission source which keeps a strategically "adds" and "removes" air in the work environme design of a ventilation system must match the particular proc Employers may need to use multiple types of controls to prev General exhaust is adequate under normal operating conditio of overexposure exists, wear approved respirator. Correct fit warehouse or closed storage areas. Air contaminants genera- determine the "capture velocities" of fresh circulating air requ	^r be independent of worker interactions to provide this hig ty or process is done to reduce the risk. selected hazard "physically" away from the worker and v nt. Ventilation can remove or dilute an air contaminant if of tess and chemical or contaminant in use. vent employee overexposure. ons. Local exhaust ventilation may be required in specific is essential to obtain adequate protection. Provide adequated in the workplace possess varying "escape" velocities	h level of protection. rentilation that designed properly. The c circumstances. If risk late ventilation in
	Type of Contaminant:		Air Speed:
	solvent, vapours, degreasing etc., evaporating from tank (i	0.25-0.5 m/s (50- 100 f/min)	
Appropriate engineering	aerosols, fumes from pouring operations, intermittent conta spray drift, plating acid fumes, pickling (released at low vel	0.5-1 m/s (100- 200 f/min.)	
controls	direct spray, spray painting in shallow booths, drum filling, generation into zone of rapid air motion)	1-2.5 m/s (200- 500 f/min.)	
	grinding, abrasive blasting, tumbling, high speed wheel ge 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 decreases with the square of distance from the extraction po adjusted, accordingly, after reference to distance from the co a minimum of 1-2 m/s (200-400 f/min) for extraction of solver mechanical considerations, producing performance deficits w multiplied by factors of 10 or more when extraction systems	int (in simple cases). Therefore the air speed at the extra ntaminating source. The air velocity at the extraction fan, nts generated in a tank 2 meters distant from the extraction vithin the extraction apparatus, make it essential that theo	ction point should be for example, should be on point. Other

Individual protection measures, such as personal protective equipment	
Eye and face protection	 Chemical goggles. Full face shield may be required for supplementary but never for primary protection of eyes. 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.

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:

Rowe Scientific Acid Mixture (H2SO4 / H3PO4)

Material	CPI
NEOPRENE	А
BUTYL	С
NAT+NEOPR+NITRILE	С
NATURAL RUBBER	С
NATURAL+NEOPRENE	С
NEOPRENE/NATURAL	С
NITRILE	С
NITRILE+PVC	С
PE	С
PVA	С
PVC	С
SARANEX-23	С
VITON	С

Respiratory protection

Type BE-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	BE-AUS P2	-	BE-PAPR-AUS / Class 1 P2
up to 50 x ES	-	BE-AUS / Class 1 P2	-
up to 100 x ES	-	BE-2 P2	BE-PAPR-2 P2 ^

^ - Full-face

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

* 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.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Clear, colourless, acidic liquid; mixes 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)	<1	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
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 Available	Explosive properties	Not Available

Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Applicable

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	 Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerisation will not occur. 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 products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	include dizziness, headache, nausea and weakness. In r after a latent period of 5-72 hours. Symptoms of pulmona Examination may reveal hypotension, a weak and rapid p	coughing, choking and mucous membrane damage. Symptoms of exposure may nore severe exposures, pulmonary oedema may be evident either immediately or ny oedema include a tightness in the chest, dyspnoea, frothy sputum and cyanosis. 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.		
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.			
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. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.			
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.			
	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.			
Chronic	particles with a diameter of up to a few micrometers will epithelia, they cause dental erosion, and they produce ac	be deposited in both the upper and lower airways. They are irritating to mucous		
Chronic	particles with a diameter of up to a few micrometers will a epithelia, they cause dental erosion, and they produce as appear to be at particular risk for pulmonary effects. Occupational exposure to strong inorganic acid mists cor laryngeal cancer being seen with chronic exposures. Rep upper respiratory tract leading to chronic bronchitis. Rep acid plant workers appear to be less affected than the lur occurs at 1 mg/m3 but that acclimated workers could tole exposed to 3 to 16 mg/m3 sulfuric acid mist concentratio	be deposited in both the upper and lower airways. They are irritating to mucous sute effects in the lungs (symptoms and changes in pulmonary function). Asthmatics that an ing sulfuric acid is designated by IARC to be carcinogenic, increased risk of beated minor exposures to mists can cause erosion of teeth and inflammation of the pated skin contact with dilute solutions may produce dermatitis. Lungs of sulfuric rigs of workers exposed to "dust". There is evidence that corrosion of tooth enamel irrate three to four times that level. Forming room workers in a battery factory ns exhibited the most serious signs of erosion whilst charging room workers, legree. Workers chronically exposed to sulfuric acid mists may show various skin		
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Rowe Scientific Acid Mixture	particles with a diameter of up to a few micrometers will be pithelia, they cause dental erosion, and they produce and appear to be at particular risk for pulmonary effects. Occupational exposure to strong inorganic acid mists correlaryngeal cancer being seen with chronic exposures. Represerrespiratory tract leading to chronic bronchitis. Represer acid plant workers appear to be less affected than the lur occurs at 1 mg/m3 but that acclimated workers could tole exposed to 3 to 16 mg/m3 sulfuric acid mists concentration exposed to 0.08 to 2.5 mg/m3 were affected to a lesser or lesions, tracheobronchitis, stomatitis, conjunctivitis and groups and the second substance of t	taining sulfuric acid is designated by IARC to be carcinogenic, increased risk of peated minor exposures to mists can cause erosion of teeth and inflammation of the pated skin contact with dilute solutions may produce dermatitis. Lungs of sulfuric carges of workers exposed to "dust". There is evidence that corrosion of tooth enamel rrate three to four times that level. Forming room workers in a battery factory as exhibited the most serious signs of erosion whilst charging room workers, legree. Workers chronically exposed to sulfuric acid mists may show various skin astritis.		
Rowe Scientific Acid Mixture	particles with a diameter of up to a few micrometers will i epithelia, they cause dental erosion, and they produce and appear to be at particular risk for pulmonary effects. Occupational exposure to strong inorganic acid mists cor- laryngeal cancer being seen with chronic exposures. Rep upper respiratory tract leading to chronic bronchitis. Repa acid plant workers appear to be less affected than the lur occurs at 1 mg/m3 but that acclimated workers could tole exposed to 3 to 16 mg/m3 sulfuric acid mist concentratio exposed to 0.08 to 2.5 mg/m3 were affected to a lesser of lesions, tracheobronchitis, stomatitis, conjunctivitis and g TOXICITY Not Available TOXICITY Inhalation (Mouse) LC50: 0.85 mg/l4h ^[1]	be deposited in both the upper and lower airways. They are irritating to mucous sute effects in the lungs (symptoms and changes in pulmonary function). Asthmatics training sulfuric acid is designated by IARC to be carcinogenic, increased risk of be beated minor exposures to mists can cause erosion of teeth and inflammation of the bated skin contact with dilute solutions may produce dermatitis. Lungs of sulfuric three to four times that level. Forming room workers in a battery factory as exhibited the most serious signs of erosion whilst charging room workers, legree. Workers chronically exposed to sulfuric acid mists may show various skin astritis. IRRITATION Not Available Eye (rabbit): 1.38 mg SEVERE		
Rowe Scientific Acid Mixture (H2SO4 / H3PO4)	particles with a diameter of up to a few micrometers will i epithelia, they cause dental erosion, and they produce and appear to be at particular risk for pulmonary effects. Occupational exposure to strong inorganic acid mists cor laryngeal cancer being seen with chronic exposures. Rep upper respiratory tract leading to chronic bronchitis. Repe acid plant workers appear to be less affected than the lur occurs at 1 mg/m3 but that acclimated workers could tole exposed to 3 to 16 mg/m3 sulfuric acid mist concentratio exposed to 0.08 to 2.5 mg/m3 were affected to a lesser or lesions, tracheobronchitis, stomatitis, conjunctivitis and g TOXICITY Not Available TOXICITY	taining sulfuric acid is designated by IARC to be carcinogenic, increased risk of peated minor exposures to mists can cause erosion of teeth and inflammation of the pated skin contact with dilute solutions may produce dermatitis. Lungs of sulfuric carges of workers exposed to "dust". There is evidence that corrosion of tooth enamel rrate three to four times that level. Forming room workers in a battery factory as exhibited the most serious signs of erosion whilst charging room workers, legree. Workers chronically exposed to sulfuric acid mists may show various skin astritis.		

	Dermal (rabbit) LD50: >1260 mg/kg ^[2]	Eye (rabbit): 119	mg - SEVERE [Monsanto]*
	Inhalation (Rat) LC50: 0.026 mg/L4h ^[2]	Eye: adverse effe	ct observed (irritating) ^[1]
	Oral (Rat) LD50: 1530 mg/kg ^[2]	Skin (rabbit):595	mg/24h - SEVERE
		Skin: adverse effe	ect observed (corrosive) ^[1]
water	ΤΟΧΙΟΙΤΥ	IRRITATION	
water	Oral (Rat) LD50: >90000 mg/kg ^[2]	Not Available	
Legend:	1. Value obtained from Europe ECHA Registered Subs specified data extracted from RTECS - Register of Tox		nined from manufacturer's SDS. Unless otherwis
SULFURIC ACID	Occupational exposures to strong inorganic acid mists WARNING: For inhalation exposure <u>ONLY</u> : This substa		C as Group 1: CARCINOGENIC TO HUMANS
PHOSPHORIC ACID	phosphoric acid (85%) for acid mists, aerosols, vapours Data from assays for genotoxic activity in vitro suggest 6.5. Cells from the respiratory tract have not been exar direct exposure to inhaled acidic mists, just as mucous hydrochloric acid. In considering whether pH itself indu with the human stomach, in which gastric juice may be in which the pH of urine can range from <5 to > 7 and r <i>in vitro</i> in that, <i>in vivo</i> , only a portion of the cell surface homeostasis may be maintained more readily than in v The material may produce severe irritation to the eye c produce conjunctivitis. The material may produce severe skin irritation after pr This form of dermatitis is often characterised by skin re Histologically there may be intercellular oedema of the contact is unlikely, given the severity of response, but r	mined in this respect. Mucous secre plays an important role in protectin ices genotoxic events in vivo in the i at pH 1-2 under fasting or noctuma normally averages 6.2. Furthermore is subjected to the adverse condition ritro. causing pronounced inflammation. R rolonged or repeated exposure, and adness (erythema) thickening of the spongy layer (spongiosis) and intra	tion may protect the cells of the airways from g the gastric epithelium from its auto-secreted espiratory system, comparison should be made I conditions, and with the human urinary bladder , exposures to low pH in vivo differ from exposur ns, so that perturbation of intracellular epeated or prolonged exposure to irritants may may produce a contact dermatitis (nonallergic). epidermis. cellular oedema of the epidermis. Prolonged
	Asthma-like symptoms may continue for months or eve condition known as reactive airways dysfunction syndrr compound. Main criteria for diagnosing RADS include to of persistent asthma like cumptome within minutes to be	ome (RADS) which can occur after	exposure to high levels of highly irritating
SULFURIC ACID & PHOSPHORIC ACID	include a reversible airflow pattern on lung function test and the lack of minimal lymphocytic inflammation, with disorder with rates related to the concentration of and o is a disorder that occurs as a result of exposure due to reversible after exposure ceases. The disorder is chara	nours of a documented exposure to its, moderate to severe bronchial hy out eosinophilia. RADS (or asthma) duration of exposure to the irritating high concentrations of irritating sub	he irritant. Other criteria for diagnosis of RADS perreactivity on methacholine challenge testing, following an irritating inhalation is an infrequent substance. On the other hand, industrial bronch stance (often particles) and is completely
	include a reversible airflow pattern on lung function tes and the lack of minimal lymphocytic inflammation, with disorder with rates related to the concentration of and o is a disorder that occurs as a result of exposure due to	nours of a documented exposure to this, moderate to severe bronchial hy out eosinophilia. RADS (or asthma) duration of exposure to the irritating high concentrations of irritating sub acterized by difficulty breathing, cou	he irritant. Other criteria for diagnosis of RADS perreactivity on methacholine challenge testing, following an irritating inhalation is an infrequent substance. On the other hand, industrial bronchi stance (often particles) and is completely
PHOSPHORIC ACID PHOSPHORIC ACID &	include a reversible airflow pattern on lung function tes and the lack of minimal lymphocytic inflammation, with disorder with rates related to the concentration of and o is a disorder that occurs as a result of exposure due to reversible after exposure ceases. The disorder is chara	nours of a documented exposure to this, moderate to severe bronchial hy out eosinophilia. RADS (or asthma) duration of exposure to the irritating high concentrations of irritating sub acterized by difficulty breathing, cou	he irritant. Other criteria for diagnosis of RADS perreactivity on methacholine challenge testing, following an irritating inhalation is an infrequent substance. On the other hand, industrial bronchi stance (often particles) and is completely
PHOSPHORIC ACID PHOSPHORIC ACID & WATER	include a reversible airflow pattern on lung function tes and the lack of minimal lymphocytic inflammation, with disorder with rates related to the concentration of and o is a disorder that occurs as a result of exposure due to reversible after exposure ceases. The disorder is chara No significant acute toxicological data identified in litera	nours of a documented exposure to the interpret of the interpret of the interpret out eosinophilia. RADS (or asthma) duration of exposure to the irritating high concentrations of irritating sub acterized by difficulty breathing, cou- ature search.	he irritant. Other criteria for diagnosis of RADS perreactivity on methacholine challenge testing, following an irritating inhalation is an infrequent substance. On the other hand, industrial bronchi stance (often particles) and is completely gh and mucus production.
PHOSPHORIC ACID PHOSPHORIC ACID & WATER Acute Toxicity	include a reversible airflow pattern on lung function tes and the lack of minimal lymphocytic inflammation, with disorder with rates related to the concentration of and d is a disorder that occurs as a result of exposure due to reversible after exposure ceases. The disorder is chara No significant acute toxicological data identified in litera	nours of a documented exposure to ts, moderate to severe bronchial hy out eosinophilia. RADS (or asthma) duration of exposure to the irritating high concentrations of irritating sub acterized by difficulty breathing, cou ature search. Carcinogenicity	he irritant. Other criteria for diagnosis of RADS perreactivity on methacholine challenge testing, following an irritating inhalation is an infrequent substance. On the other hand, industrial bronchi stance (often particles) and is completely gh and mucus production.
PHOSPHORIC ACID & PHOSPHORIC ACID & WATER Acute Toxicity Skin Irritation/Corrosion Serious Eye	include a reversible airflow pattern on lung function tes and the lack of minimal lymphocytic inflammation, with disorder with rates related to the concentration of and o is a disorder that occurs as a result of exposure due to reversible after exposure ceases. The disorder is chara No significant acute toxicological data identified in litera	nours of a documented exposure to this, moderate to severe bronchial hy out eosinophilia. RADS (or asthma) duration of exposure to the irritating high concentrations of irritating sub acterized by difficulty breathing, cou ature search. Carcinogenicity Reproductivity	the irritant. Other criteria for diagnosis of RADS perreactivity on methacholine challenge testing, following an irritating inhalation is an infrequent substance. On the other hand, industrial bronchi stance (often particles) and is completely gh and mucus production.

SECTION 12 Ecological information

Toxicity

Rowe Scientific Acid Mixture (H2SO4 / H3PO4)	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
	Endpoint	Test Duration (hr)	Species	Value	Source
	ErC50	72h	Algae or other aquatic plants	>100mg/l	2
sulfuric acid	EC50	72h	Algae or other aquatic plants	>100mg/l	2
	EC50	48h	Crustacea	42.5mg/l	1
	LC50	96h	Fish	8mg/l	1
	NOEC(ECx)	1560h	Fish	0.025mg/l	2
	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	77.9mg/l	2
phosphoric acid	EC50	48h	Crustacea	>100mg/l	2
phosphone actu	LC50	96h	Fish	67.94- 113.76mg/L	4
	NOEC(ECx)	72h	Algae or other aquatic plants	<7.5mg/l	2

water	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 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
phosphoric acid	HIGH	HIGH
water	LOW	LOW
Bioaccumulative potential		

Ingredient	Bioaccumulation
phosphoric acid	LOW (LogKOW = -0.7699)
Mobility in soil	
Ingredient	Mobility
phosphoric acid	HIGH (Log KOC = 1)

SECTION 13 Disposal considerations

Waste treatment methods				
Product / Packaging disposal	 Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Management Authority for disposal. Treat and neutralise at an effluent treatment plant. Use soda ash or slaked lime to neutralise. Recycle containers, otherwise dispose of in an authorised landfill. 			

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
HAZCHEM	2X

Land transport (ADG)

14.1. UN number or ID number	3264			
14.2. UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (contains sulfuric acid)			
14.3. Transport hazard class(es)	Class Subsidiary Hazard	8 Not Applicable		
14.4. Packing group	Ш			
14.5. Environmental hazard	Not Applicable			
14.6. Special precautions for user	Special provisions	274 1 L		

Air transport (ICAO-IATA / DGR)

14.1. UN number	3264			
14.2. UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. * (contains sulfuric acid)			
	ICAO/IATA Class	8		
14.3. Transport hazard class(es)	ICAO / IATA Subsidiary Hazard	Not Applicable		
01033(03)	ERG Code	8L		
14.4. Packing group	Ш			
14.5. Environmental hazard	Not Applicable			
14.6. Special precautions for user	Special provisions		A3 A803	
	Cargo Only Packing Instructions		855	

	Cargo Only Maximum Qty / Pack	30 L
	Passenger and Cargo Packing Instructions	851
	Passenger and Cargo Maximum Qty / Pack	1 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y840
	Passenger and Cargo Limited Maximum Qty / Pack	0.5 L

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	3264			
14.2. UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (contains sulfuric acid)			
14.3. Transport hazard class(es)	IMDG Class IMDG Subsidiary Haz	8 ard Not Applicable		
14.4. Packing group				
14.5 Environmental hazard	Not Applicable			
14.6. Special precautions for user	EMS Number Special provisions Limited Quantities	F-A, S-B 274 1 L		

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code Not Applicable

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

Product name	Group
sulfuric acid	Not Available
phosphoric acid	Not Available
water	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
sulfuric acid	Not Available
phosphoric acid	Not Available
water	Not Available

SECTION 15 Regulatory information

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

sulfuric acid 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 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 1: Carcinogenic to humans

phosphoric acid 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 5 Australian Inventory of Industrial Chemicals (AIIC)

water is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

Additional Regulatory Information

Not Applicable

National Inventory Status

National Inventory	Status		
Australia - AIIC / Australia Non- Industrial Use	Yes		
Canada - DSL	Yes		
Canada - NDSL	No (sulfuric acid; phosphoric acid; water)		
China - IECSC	Yes		
Europe - EINEC / ELINCS / NLP	Yes		
Japan - ENCS	Yes		
Korea - KECI	Yes		

National Inventory	Status	
New Zealand - NZIoC	Yes	
Philippines - PICCS	Yes	
USA - TSCA	Yes	
Taiwan - TCSI	Yes	
Mexico - INSQ	Yes	
Vietnam - NCI	Yes	
Russia - FBEPH	Yes	
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.	

SECTION 16 Other information

Revision Date	12/08/2024
Initial Date	14/03/2006

SDS Version Summary

Version	Date of Update	Sections Updated
10.1	10/07/2024	Expiration. Review and Update
11.1	12/08/2024	Hazards identification - Classification, Ecological Information - Environmental, Exposure controls / personal protection - Exposure Standard, Identification of the substance / mixture and of the company / undertaking - Use

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
- ES: Exposure Standard
- 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
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration
- AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
- EINECS: European INventory of Existing Commercial chemical Substances
- ELINCS: European List of Notified Chemical Substances
- NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECI: Korea Existing Chemicals Inventory
- NZIOC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- TSCA: Toxic Substances Control Act
- TCSI: Taiwan Chemical Substance Inventory INSQ: Inventario Nacional de Sustancias Químicas
- NCI: National Chemical Inventory
 FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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