

1. IDENTIFICATION

Product Name	Sulphamic acid solution
Other Names	Aminosulfonic acid solution; Sulfamic acid solution; Sulphamic acid Liquid; Sulphamic acid, 15% solution
Uses	Sulphonating agent; pH control; hard-water scale removal; bleaching paper/pulp and textiles.
Chemical Family	No Data Available
Chemical Formula	Unspecified
Chemical Name	Sulfamic acid, aqueous solution
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details


For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Schedule 6

Globally Harmonised System

Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)		
Hazard Categories	Corrosive to Metals - Category 1 Skin Corrosion/Irritation - Category 1C Serious Eye Damage/Irritation - Category 1		
Pictograms			
Signal Word	Danger		
Hazard Statements	H290	May be corrosive to metals.	
	H314	Causes severe skin burns and eye damage.	
Precautionary Statements	Prevention	P260	Do not breathe mist/vapour/spray.
		P280	Wear protective gloves/eye protection/face protection.
	Response	P303 + P361 + P353	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
		P310	Immediately call a POISON CENTER or doctor/physician.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P390	Absorb spillage to prevent material damage.
		P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
		P363	Wash contaminated clothing before reuse.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	Storage	P406	Store in corrosive resistant container with a resistant inner liner.
		P405	Store locked up.
	Disposal	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Sulfamic acid	H3NO3S	5329-14-6	10 - <30 %
Water	H2O	7732-18-5	Balance %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed IF SWALLOWED: Rinse mouth, then drink a glass of water. Do NOT induce vomiting. Immediately call a Poison

	Centre or doctor/physician.
Eye	IF IN EYES: Immediately flush eyes with running water (continuously) for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Immediately call a Poison Centre or doctor/physician. Remove contact lenses if present and easy to do. Continue flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes.
Skin	IF ON SKIN (or hair): Remove contaminated clothing and shoes immediately. Flush skin and hair with running water for at least 15 minutes. For minor skin contact, avoid spreading material on unaffected skin. In case of gross contamination, drench contaminated clothing and skin with plenty of water before removing clothes. Immediately call a Poison Centre or doctor/physician. Wash contaminated clothing and shoes before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a Poison Centre or doctor/physician. Apply resuscitation if victim is not breathing - Do not use direct mouth-to-mouth method if victim ingested or inhaled the substance; use alternative respiratory method or proper respiratory device; Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically. Keep victim calm and warm - Obtain immediate medical care. Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Avoid getting water inside containers.
Flammability Conditions	Non-combustible; however, following evaporation of the water component, the residual material may burn if ignited.
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction - Do not use water jets.
Fire and Explosion Hazard	Containers may explode when heated. Contact with metals may evolve flammable hydrogen gas.
Hazardous Products of Combustion	Fire or heat will produce irritating, toxic and/or corrosive gases, including oxides of Nitrogen and oxides of Sulfur.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may be toxic and/or corrosive and may pollute waterways.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) and chemical splash suit. Fully-encapsulating, gas-tight suits should be worn for maximum protection. Structural firefighter's uniform is NOT effective for this material.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	2X

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources. Do not touch or walk through spilled material. Do not breathe vapours and prevent contact with eyes, skin and clothing.
Clean Up Procedures	Absorb with earth, sand or other non-combustible material and transfer to a suitable, properly labelled container for disposal (see SECTION 13).
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas.
Decontamination	Neutralise residues with lime or soda ash. Wash area down with excess water.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.
Personal Precautionary Measures	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Do not breathe mist/vapours/aerosols and prevent contact with eyes, skin and clothing. Do not ingest. Wear protective gloves/protective clothing/eye protection/face protection (see SECTION 8). Corrosive to metals: Absorb spillage to prevent material damage (see SECTION 6).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed; Check regularly for leaks. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10). Store locked up.
Container	Keep only in the original container, corrosive resistant container or container with a resistant inner liner.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	<ul style="list-style-type: none">- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists. Recommended: Suitable particulate/mist respirator (refer to AS/NZS 1715 & 1716).- Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Chemical goggles, face-shield.- Hand protection: Wear protective gloves. Recommended: Elbow-length, impervious gloves.- Skin/body protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended: Overalls, splash apron or equivalent chemical-impervious outer garment, rubber boots.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Remove contaminated clothing and shoes immediately and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Liquid
Odour	No information available.
Colour	Colourless to light yellow
pH	<1
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	~100 °C
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	Miscible with water
Specific Gravity	~1.06
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available

Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; however, following evaporation of the water component, the residual material may burn if ignited.
Reactions That Release Gases or Vapours	Fire or heat will produce irritating, toxic and/or corrosive gases, including oxides of Nitrogen and oxides of Sulfur.
Release of Invisible Flammable Vapours and Gases	Contact with metals may evolve flammable hydrogen gas.

10. STABILITY AND REACTIVITY

General Information	May be corrosive to metals.
Chemical Stability	Stable under normal conditions of use.
Conditions to Avoid	Keep away from heat and sources of ignition.
Materials to Avoid	Incompatible/reactive with alkalis, chlorine, cyanide, hypochlorite, hypochlorous acid, metals, sulfur.
Hazardous Decomposition Products	Fire or heat will produce irritating, toxic and/or corrosive gases, including oxides of Nitrogen and oxides of Sulfur.
Hazardous Polymerisation	Will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	<ul style="list-style-type: none"> - Acute toxicity: Corrosive on ingestion; Swallowing may cause nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract. - Skin corrosion/irritation: Corrosive to skin; Causes severe skin burns. - Eye damage/irritation: Corrosive to eyes; Causes serious eye damage. - Respiratory/skin sensitisation: No information available. - Germ cell mutagenicity: Sulfamic acid is considered non-mutagenic. - Carcinogenicity: No information available. - Reproductive toxicity: Sulfamic acid is considered non-embryotoxic (no data available for effects on fertility). - STOT (single exposure): Inhalation of mists or aerosols may cause respiratory tract irritation. - STOT (repeated exposure): Sulfamic acid is considered of low repeated-dose toxicity. - Aspiration toxicity: No information available.
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Acute**Ingestion**

Acute toxicity (Oral):
COMPONENT: Sulfamic acid (CAS No. 5329-14-6):
- LD50, Rat: 3,160 mg/kg

Carcinogen Category

None

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Sulfamic acid is harmful to aquatic life with long lasting effects.

Persistence/Degradability

Sulfamic acid is an inorganic substance, which is stable in the environment.

Mobility

Sulfamic acid is inorganic and well soluble in water. Thus, adsorption to organic matter is not expected and the substance is considered mobile in the environment.

Environmental Fate

Prevent entry into drains and waterways.

Bioaccumulation Potential

The high water solubility inorganic substance indicates that there is no body lipid storage potential or potential for bioaccumulation via the food chain.

Environmental Impact

No Data Available

13. DISPOSAL CONSIDERATIONS**General Information**

Dispose of contents/container in accordance with local/regional/national regulations.

Special Precautions for Land Fill

Decontamination and destruction of containers should be considered.

14. TRANSPORT INFORMATION**Land Transport (Australia)**

ADG Code

Proper Shipping Name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Contains Sulfamic acid)

Class

8 Corrosive Substances

Subsidiary Risk(s)

No Data Available

EPG

37 Toxic And/Or Corrosive Substances Non-Combustible

UN Number

3264

Hazchem

2X

Pack Group

III

Special Provision

No Data Available

Land Transport (Malaysia)

ADR Code

Proper Shipping Name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Contains Sulfamic acid)

Class

8 Corrosive Substances

Subsidiary Risk(s)

No Data Available

EPG

37 Toxic And/Or Corrosive Substances Non-Combustible

UN Number

3264

Hazchem

2X

Pack Group

III

Special Provision No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Contains Sulfamic acid)
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available
EPG 37 Toxic And/Or Corrosive Substances Non-Combustible
UN Number 3264
Hazchem 2X
Pack Group III
Special Provision No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Contains Sulfamic acid)
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available
ERG 154 Substances - Toxic and/or Corrosive (Non-Combustible)
UN Number 3264
Hazchem 2X
Pack Group III
Special Provision No Data Available

Sea Transport

IMDG Code

Proper Shipping Name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Contains Sulfamic acid)
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available
UN Number 3264
Hazchem 2X
Pack Group III
Special Provision No Data Available
EMS F-A, S-B
Marine Pollutant No

Air Transport

IATA DGR

Proper Shipping Name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Contains Sulfamic acid)
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available
UN Number 3264
Hazchem 2X
Pack Group III
Special Provision No Data Available

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification

Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION**General Information** No Data Available**Poisons Schedule (Aust)** Schedule 6**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code Not Assessed**National/Regional Inventories**

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	SUACIL1000, SUACIL1500, SUACIL1510, SUACIL1600, SUACIL1610, SUACIL1700
Revision	2
Revision Date	08 Aug 2016
Key/Legend	< Less Than > Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere

CAS Chemical Abstracts Service (Registry Number)
cm² Square Centimetres
CO₂ Carbon Dioxide
COD Chemical Oxygen Demand
deg C (°C) Degrees Celcius
EPA (New Zealand) Environmental Protection Authority of New Zealand
deg F (°F) Degrees Farenheit
g Grams
g/cm³ Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH₂O Inch of Water
K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or **L** Litre
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH₂O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Health and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight