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SDS No: 730
Version: V.0.0.4

Sulfamic Acid

Telford Industries
Safety Data Sheet according to WHS and ADG requirements

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

Product Identifier

Product name	Sulfamic Acid
Chemical Name	Sulfamic Acid
Synonyms	Aminosulfonic acid; Sulphamic acid
Proper shipping name	SULPHAMIC ACID
Chemical formula	H_3NSO_3
Other means of identification	Not Available

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

Relevant Identified Uses	Used for cleaning metals and ceramics; standard in alkalimetry; nitrite removal in dyeing; stabilisation of chlorine and hypochlorite for swimming pools; sulfonating agent; organic synthesis; pH control; hard water scale removal; electroplating. Laboratory reagent.

Details of the supplier of the safety data sheet

Company Name	**Telford Industries**
Address	**7 Valentine Street Kewdale WA 6105 Australia**
Telephone	**+61 8 9353 2053**
Website	**https://www.telfordindustries.com.au/**
Email	**info@telfordindustries.com.au**

Emergency telephone number

Association/Organisation	**Not Available**
Emergency telephone numbers	**1800 429 628**
Other Emergency telephone numbers	**1800 HAZMAT**

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

Poisons Schedule	**S6**
Classification	Long-term Hazard To The Aquatic Environment - Category 3, Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 2A

Label Elements

GHS label elements	
SIGNAL WORD	**WARNING**

Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P264	Wash exposed skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321	Specific treatment (see First Aid Measures on Safety Data Sheet).
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.

Precautionary statement(s) Storage

P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

CAS No	% [weight]	Name
5329-14-6	100	Sulphamic Acid

SECTION 4 FIRST AID MEASURES

Description of first aid measures

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 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 or hair contact occurs: ➢ Immediately flush body and clothes with large amounts of water, using safety shower if available. ➢ Quickly remove all contaminated clothing, including footwear. ➢ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ➢ Transport to hospital, or doctor.
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 at once. ➢ Urgent hospital treatment is likely to be needed. ➢ If swallowed do NOT induce vomiting. ➢ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ➢ Observe the patient carefully. ➢ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ➢ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ➢ Transport to hospital or doctor without delay.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
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.

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.

Supportive care involves the following:

- Withhold oral feedings initially.
- If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN:

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

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 & Barceloux: Medical Toxicology]

SECTION 5 FIREFIGHTING MEASURES

Extinguishing Media

- Water spray or jet
- Foam
- Carbon dioxide

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.

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.
Fire/Explosion Hazard	➢ The material is not readily combustible under normal conditions. ➢ Not considered to be a significant fire risk. Decomposition may produce toxic fumes of: ➢ nitrogen oxides (NOx) ➢ sulfur oxides (SOx) Heating with nitrates or nitrites can result in a violent reaction.
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 contact with skin and eyes. ➢ Control personal contact with the substance, by using protective equipment. ➢ Use dry clean up procedures and avoid generating dust. ➢ Place in a suitable, labeled container for waste disposal. ➢ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
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. ➢ Consider evacuation (or protect in place). ➢ Collect recoverable product into labelled containers for recycling. ➢ Neutralize/decontaminate residue (see Section 13 for specific agent). ➢ 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

Safe handling	➢ Avoid all personal contact, including inhalation. ➢ Wear protective clothing when risk of exposure occurs. ➢ <u>When handling DO NOT eat, drink or smoke.</u> ➢ Keep containers securely sealed when not in use. ➢ Work clothes should be laundered separately. Use good occupational work practice. ➢ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained

Other Information	➢ Store in original containers. ➢ Store in a cool, dry, well-ventilated area. ➢ Store away from incompatible materials and foodstuff containers. ➢ Protect containers against physical damage and check regularly for leaks. ➢ Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable Container	➢ **DO NOT** use aluminium or galvanised containers ➢ 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	Sulfamic acid: ➢ reacts violently with chlorine, nitric acid, fuming nitric acid, strong bases, hypochlorous acid, strong oxidising agents, sulfides, cyanides or when heated with nitrates, nitrites ➢ is strongly acidic in aqueous solution ➢ hydrolyses to ammonium bisulfate at elevated temperatures ➢ is incompatible with alkaline oxides, aliphatic amines, alkanolamines, amides, ammonia, epichlorohydrin, organic anhydrides, isocyanates, metal nitrates/ nitrites, oxidisers, vinyl acetate, common metals and their alloys, water

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Not Available

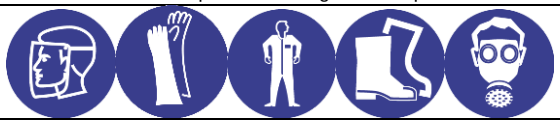
EMERGENCY LIMITS

Ingredient	Material Name	TEEL-1	TEEL-2	TEEL-3
sulfamic acid	Sulfamic acid	9.5 mg/m3	100 mg/m3	630 mg/m3

Ingredient	Original IDLH	Revised IDLH
sulfamic acid	Not Available	Not Available

MATERIAL DATA

Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
Personal Protection	
Eye and Face protection	➢ Safety glasses with imperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure. ➢ Chemical goggle. whenever there is a danger of the material coming in contact with the eyes;

	goggles must be properly fitted. ➢ Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes. ➢ Alternatively a gas mask may replace splash goggles and face shields.
Skin protection	See Hand protection below
Hands/feet protection	➢ Elbow length PVC gloves ➢ 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.
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.
Thermal hazards	Not Available

Respiratory protection

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

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	White crystalline (or brownish grey for technical grades), odourless solid. Non-hygroscopic. Soluble in water

Physical state	Solid	**pH as a Solution**	1.18 (1% solution @ 25 °C)
Odour	Not Available	**Molecular Weight (g/mole)**	97.1
Odour threshold	Not Available	**Flammability**	Not Applicable
Relative density (water=1)	2.13 – 2.15	**Upper Explosive Limit (%)**	Not Applicable
Colour	White	**Lower Explosive Limit (%)**	Not Applicable
pH (as supplied)	Not Applicable	**Vapour pressure (kPa)**	Not Available
Melting point/Freezing point (°C)	205	**Solubility in water (g/L)**	Miscible
Initial boiling point and boiling range (°C)	Not Available	**Vapour density (Air = 1)**	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	➢ Unstable in the presence of incompatible materials. ➢ Contact with alkaline material liberates heat. ➢ 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	Inhalation of sulfamic acid may cause bloody spit, difficulty breathing, low blood pressure, headache, dizziness, bluish skin color and lung congestion. Acidic corrosives produce respiratory tract irritation with coughing, choking and mucous membrane damage.
Ingestion	The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. Ingestion of sulfamic acid may cause vomiting, diarrhoea and a drop in blood pressure. The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". Ingestion of acidic corrosives may produce circumoral burns with a distinct discolouration of the mucous membranes of the mouth, throat and oesophagus.
Skin Contact	The material can produce chemical burns following direct contact with the skin. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Concentrated solutions may cause chemical burns. The effects of sulfamic acid on the skin appear to be limited to the effects of low pH. Concentrations of greater than 20% of sulfamic acid may injure the skin.
Eye	The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. Direct eye contact with acid corrosives may produce pain, lachrymation, photophobia and burns.
Chronic	Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. 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.

Product Name	TOXICITY	IRRITATION
sulfamic acid	Dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit): 20 mg - moderate
	Oral (rat) LD50: ca.1450 mg/kg[1]	Eye (rabbit): 250 ug / 24 h - SEVERE
		Skin (human): 4 % / 5 days (I) - mild
		Skin (rabbit): 500 mg / 24 h - SEVERE

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*

sulfamic acid	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

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 available but does not fill the criteria for classification*
✓ *– Data required to make classification available*
⊘ *– Data Not Available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
sulfamic acid	LC50	96	Fish	=14.2mg/L	1
sulfamic acid	EC50	96	Algae or other aquatic plants	115.1499mg/L	3

sulfamic acid	EC50	384	Crustacean	6.40973mg/L	3
sulfamic acid	NOEC	840	Crustacean	0.15mg/L	2
Legend:	*Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - 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*				

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
sulfamic acid	HIGH	HIGH

Bio accumulative potential

Ingredient	Bioaccumulation
sulfamic acid	LOW (Log KOW = -4.3438)

Mobility in Soil

Ingredient	Mobility
sulfamic acid	LOW (KOC = 6.124)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product/Packaging disposal	➢ Containers may still present a chemical hazard / danger when empty. ➢ Return to supplier for reuse/recycling if possible. ➢ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ➢ In all cases disposal to sewer may be subject to local laws and regulations. ➢ 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. ➢ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO
HAZCHEM	2X

Land transport (ADG)

UN Number	2967	
UN proper shipping name	SULPHAMIC ACID	
Transport Hazard class(es)	Class	8
	Sub Risk	Not Applicable
Packing group	III	
Environmental Hazard	Not Applicable	
Special precautions for user	Special provisions	Not Applicable
	Limited quantity	5 kg

Air transport (ICAO-IATA / DGR)

UN Number	2967	
UN proper shipping name	SULPHAMIC ACID	
Transport Hazard class(es)	ICAO/IATA Class	8
	ICAO/IATA Sub Risk	Not Applicable
Packing group	III	
Environmental Hazard	Not Applicable	
Special precautions for user	Special provisions	Not Applicable
	Cargo Only Packing Instructions	Not Available
	Cargo Only Maximum Qty/Pack	Not Available
	Passenger and Cargo Packing Instructions	860
	Passenger and Cargo Maximum Qty/Pack	25 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Y845
	Passenger and Cargo Limited Maximum Qty / Pack	5 kg

Sea transport (IMDG-Code / GGVSee)

UN Number	2967	
UN proper shipping name	SULPHAMIC ACID	
Transport Hazard class(es)	IMDG Class	8
	IMDG Sub Risk	Not Applicable
Packing group	III	
Environmental Hazard	Not Applicable	
Special precautions for user	EMS, Fire	F-A
	EMS, Spillage	S-B

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

SULFAMIC ACID (5329-14-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

Australia Hazardous Substances Information System - Consolidated List

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y

Legend:	*Y = All ingredients are on the inventory* *N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

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

Name	**CAS No**		
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		

END OF SDS