SAFETY DATA SHEET

SULFAMIC ACID (TECHNICAL, 99.5%)

CAS No.: 5329-14-6

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

Sulfamic Acid (Technical, 99.5%)
Amidosulphonic acid; Sulfamic acid; Amidosulfuric acid
CAS: 5329-14-6

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Descaling agent for boilers, cooling towers, kettles and metal surfaces; industrial cleaning agent; chemical intermediate; pH adjuster. Also used as a chemical intermediate, in electroplating, and as an analytical reagent precursor in addition to descaling applications. For industrial and institutional cleaning use.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

Emergency phone number

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Acute Tox. 4	Acute oral toxicity, Category 4, H302
Skin Irrit. 2	Skin irritation, Category 2, H315
Eye Dam. 1	Serious eye damage, Category 1, H318
STOT SE 3	Respiratory tract irritation, single exposure, Category 3, H335

GHS label elements, including precautionary statements

GHS: Warning

Hazard statements

Acute Tox. 4: H302 – Harmful if swallowed.
Skin Irrit. 2: H315 – Causes skin irritation.
Eye Dam. 1: H318 – Causes serious eye damage.
STOT SE 3: H335 – May cause respiratory irritation.

Precautionary statements

P261: Avoid breathing dust.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/eye protection/face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352: IF ON SKIN: Wash with plenty of water.
P310: Immediately call a POISON CENTER/doctor.
P501: Dispose of contents/container in accordance with local regulations.

Other hazards which do not result in classification

Aqueous solutions are strongly acidic (1% solution pH approx. 1.2) and may corrode common metals in the presence of moisture.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Sulphamic acid (Amidosulphonic acid)
Grade: Technical, 99.5% min. purity.

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 5329-14-6	Sulphamic acid — Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Dam. 1: H318; STOT SE 3: H335 – Warning	≥ 99% (technical grade)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation

Remove the person affected from the area of exposure to fresh air and keep at rest. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.

By skin contact

Remove contaminated clothing immediately. Wash affected skin with plenty of soap and water for at least 15 minutes. Seek medical attention if irritation persists.

By eye contact

Rinse eyes immediately with plenty of lukewarm water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek immediate medical attention.

By ingestion/aspiration

Rinse mouth with water. Do not induce vomiting. Give plenty of water to drink if the person is conscious. Seek immediate medical attention; show this SDS to the physician.

Most important symptoms/effects, acute and delayed

Acute and delayed effects are indicated in sections 2 and 11.

Indication of immediate medical attention and special treatment needed, if necessary

Not relevant

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Water spray, carbon dioxide (CO2), dry chemical powder, foam – use extinguishing media suitable for surrounding fire.
Unsuitable: None known specifically.

Specific hazards arising from the chemical

Non-combustible solid. On strong heating, decomposes releasing oxides of sulphur (SOx) and oxides of nitrogen (NOx), which are toxic and irritant. Containers may rupture on exposure to fire due to pressure build-up.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus (SCBA) and full protective/chemical-resistant clothing when fighting fires involving this product.

Additional provisions

If safe to do so, remove exposed containers or cool with water spray from a safe distance. Prevent fire-fighting water from entering drains or watercourses; contain and collect for disposal.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Evacuate unnecessary personnel. Avoid raising dust. Ensure adequate ventilation. Use appropriate personal protective equipment (see section 8).

For emergency responders

Wear full protective equipment including respiratory protection for large spills. Prevent entry into drains, sewers and watercourses.

Environmental precautions

Prevent product from entering drains, sewers, surface water and soil. Neutralize acidic runoff with lime or soda ash before disposal, where locally permitted.

Methods and materials for containment and cleaning up

For small spills: sweep/vacuum up carefully (avoid dust generation) and place in a suitable labelled container for disposal. For large spills: contain with inert absorbent (sand, vermiculite), collect, and dispose of as per section 13. Wash residual area with water.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Avoid contact with skin, eyes and clothing. Avoid generation and inhalation of dust. Do not eat, drink or smoke while handling. Provide adequate ventilation.

B. Technical recommendations for the prevention of fires and explosions

Non-combustible; standard precautions for handling acidic solids apply. Keep away from strong bases, oxidizers, chlorites and cyanides/sulfides (risk of toxic gas evolution).

C. Technical recommendations on general occupational hygiene

Wash hands and exposed skin thoroughly after handling and before eating, drinking or smoking. Launder contaminated clothing before reuse.

D. Technical recommendations to prevent environmental risks

Prevent uncontrolled discharge to drains or watercourses. Bund/contain storage and dosing areas as appropriate for the scale of use.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage temperature	Ambient (5–30°C recommended)
Maximum time	24 months in original sealed packaging

B. General conditions for storage

Store in a cool, dry, well-ventilated area away from direct sunlight, moisture, strong bases, oxidizers and metals. Keep containers tightly closed. Keep away from incompatible materials (see section 10.5).

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

No specific occupational exposure limit has been established for this product/grade. Available on request.

Appropriate engineering controls

Use local exhaust ventilation where dust may be generated. General ventilation is normally adequate for routine handling of solid/dissolved product.

B. Respiratory protection

Not normally required under normal conditions of use with adequate ventilation. For dust-generating operations, use a particulate (dust) respirator (e.g., FFP2/N95).

C. Specific protection for the hands

Chemical-resistant gloves (e.g., nitrile, PVC or neoprene) recommended for prolonged or repeated contact.

D. Eye and face protection

Chemical safety goggles recommended; face shield for operations with splash risk.

E. Bodily protection

Chemical-resistant apron/protective clothing recommended for operations with splash risk; safety footwear.

F. Additional emergency measures

Emergency eyewash station and safety shower should be available in the work area.

Environmental exposure controls

Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid (crystalline powder/granules)
Appearance	White crystalline solid
Color	White
Odor	Odorless
Odour threshold	Not relevant
Volatility	
Boiling point at atmospheric pressure	Not applicable (decomposes before boiling)
Vapour pressure at 20°C	Negligible
Evaporation rate	Not relevant (solid)
Product Description	
Density / Relative density at 20°C	2.15 g/cm³
Bulk density	approx. 900–1100 kg/m³
pH (1% aqueous solution, 20°C)	approx. 1.18 (strongly acidic)
Solubility in water at 20°C	approx. 176–213 g/L (moderately soluble; increases with temperature)
Partition coefficient n-octanol/water	Not applicable (ionic solid)
Decomposition temperature	approx. 205°C (decomposes, does not have a sharp melting point)
Melting point/freezing point	approx. 205°C (with decomposition)
Flammability	
Flash Point	Non-applicable (non-flammable solid)
Flammability (solid)	Not classified as flammable
Autoignition temperature	Not relevant
Lower / Upper flammability limit	Not relevant

** Not relevant / not applicable due to the physical nature of the product.*

Other information

Explosive properties	Not explosive
Oxidising properties	Not oxidising
Corrosive to metals	May be corrosive to common metals in aqueous solution over time
Molecular weight	97.09 g/mol

10. STABILITY AND REACTIVITY

Reactivity

Stable under recommended storage conditions. Reacts with strong bases (neutralization, exothermic), nitrites (risk of hazardous decomposition), and oxidizing agents.

Chemical stability

Chemically stable under normal conditions of storage, handling and use.

Possibility of hazardous reactions

Reaction with nitrites/nitrous acid can generate nitrogen gas and heat. Reaction with hypochlorites/chlorine-releasing compounds may generate toxic gases (NCl3). Avoid mixing with such materials.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Stable	Avoid strong heating (>200°C, decomposition)	No special sensitivity	Hygroscopic; keep container closed

Incompatible materials

Strong Bases	Nitrites
Strong Oxidizers	Hypochlorites/Chlorine

Hazardous decomposition products

On strong heating/decomposition, releases oxides of sulphur (SO2/SO3) and oxides of nitrogen (NOx).

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)
May cause gastrointestinal irritation, nausea and vomiting if swallowed in quantity.

B. Inhalation (acute effect)
Dust may cause irritation of the nose, throat and respiratory tract.

C. Contact with skin and eyes (acute effect)
Causes skin irritation. Causes serious eye damage/severe irritation.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)
Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data.

E. Sensitizing effects
Not classified as a skin or respiratory sensitizer based on available data.

F. Specific target organ toxicity (STOT) – single exposure
May cause respiratory irritation (dust).

G. Specific target organ toxicity (STOT) – repeated exposure
Classification criteria are not met based on available data.

H. Aspiration hazard
Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Species
Sulphamic acid CAS: 5329-14-6	LD50 oral (rat): 3160 mg/kg	Rat
	LD50 dermal (rabbit): >2000 mg/kg (practically non-toxic)	Rabbit

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment based on available data; acidic solutions may transiently affect pH of receiving water.

Toxicity

Acute Toxicity	Species	Genus
LC50 (fish): >100 mg/L (96h), practically non-toxic	Not specified	Fish
EC50 (Daphnia): >100 mg/L (48h)	Daphnia magna	Crustacean

Persistence and degradability

Readily biodegrades/hydrolyzes in the environment; sulphamic acid slowly hydrolyzes to ammonium bisulfate in aqueous solution.

Bioaccumulative potential

Low bioaccumulation potential expected (log Kow not applicable – ionic solid).

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not relevant (ionic solid)	Not relevant	No	Partially soluble/mobile in moist soil (dissociates)

Results of PBT and vPvB assessment

Non-applicable – not assessed as a PBT/vPvB substance.

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Neutralize with lime, soda ash or other suitable alkaline material before disposal, in accordance with local regulations. Dispose of via a licensed hazardous/chemical waste contractor. Do not discharge directly to drains or watercourses without neutralization/dilution as permitted by local Pollution Control Board norms.

Refer to national and local regulations on waste management (Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended).

14. TRANSPORT INFORMATION

This product is not classified as a dangerous good for transport under ADR/RID, IMDG, or IATA/ICAO regulations in its supplied form/concentration.

14.1 UN number	Not applicable – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H302: Harmful if swallowed.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and labelling data for the substance/CAS number referenced in Section 1.

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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