

4-Aminopyridine SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

- * Product Name: 4-Aminopyridine
- * Catalog Number: S5028
- * CAS Number: 504-24-5
- * IUPAC Name: 4-Pyridinamine

Relevant identified uses and uses advised against

- * Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
- * Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

- * Company: Selleck Chemicals
- * TollFree: +1 877 796-6397
- * Tel: +1 832 582-8158
- * Fax: +1 832 582-8590

Emergency telephone number

- * Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

- Acute toxicity (oral): Category 1. H300
- Acute toxicity (dermal): Category 3. H311
- Skin irritation: Category 2. H315
- Serious eye irritation: Category 2. H319
- Specific target organ toxicity (single exposure): Category 3. H335
- Specific target organ toxicity (single exposure): Category 1. H370
- Specific target organ toxicity (repeated exposure): Category 1. H372
- Acute aquatic toxicity: Category 2. H401
- Chronic aquatic toxicity: Category 2. H411

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word

Danger

Hazard statement(s)	H300: Fatal if swallowed H311: Toxic in contact with skin H315: Causes skin irritation H319: Causes serious eye irritation H335: May cause respiratory irritation H370: Causes damage to organs H372: Causes damage to organs through prolonged or repeated exposure H401: Toxic to aquatic life H411: Toxic to aquatic life with long lasting effects
Precautionary statement(s)	None.
Prevention	P260: Do not breathe dust/fume/gas/mist/vapors/spray. P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P262: Do not get in eyes, on skin, or on clothing. P264: Wash hands thoroughly after handling. P264+P265: Wash hands thoroughly after handling. Do not touch eyes. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
Response	P301+P316: IF SWALLOWED: Get emergency medical help immediately. P302+P352: IF ON SKIN: wash with plenty of water. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351: IF IN EYES: Rinse cautiously with water for several minutes. P308+P316: IF exposed or concerned: Get emergency medical help immediately. P316: Get emergency medical help immediately. P319: Get medical help if you feel unwell. P321: Specific treatment (see information on this label and safety datasheet)). P330: Rinse mouth. P332+P317: If skin irritation occurs: Get medical help. P337+P317: If eye irritation persists: Get medical help. P338: Remove contact lenses, if present and easy to do. Continue rinsing. P361+P364: Take off immediately all contaminated clothing and wash it before reuse. P362+P364: Take off contaminated clothing and wash it before reuse. P391: Collect spillage.
Storage	P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up.
Disposal	P501: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: 4-Aminopyridine

CAS Number: 504-24-5

PubChem CID: 1727

Molecular formula: C₅H₆N₂

Molecular weight: 94.11 g/mol

IUPAC name: pyridin-4-amine

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: Move to fresh air. Keep at rest in a position comfortable for breathing. Seek medical attention if symptoms persist.

Skin contact: Wash with plenty of soap and water. Remove contaminated clothing. Seek medical attention if irritation develops.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting unless directed by medical personnel. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide (CO₂), alcohol-resistant foam.

Unsuitable: None known.

5.2 Specific hazards arising from the substance or mixture

Wear positive pressure self-contained breathing apparatus and special protective clothing. Move container from fire area if you can do so without risk. Fight fire from maximum distance possible. Control runoff water with dikes and prevent material from scattering.

The material may burn but will not ignite easily. To extinguish use dry chemical, carbon dioxide, water spray, fog, or foam. (EPA, 1998)

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Special protective equipment for firefighters: Wear self contained breathing apparatus for fire fighting if necessary.

If material on fire or involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Use water in flooding quantities as fog. Use foam, dry chemical, or carbon dioxide. Keep run-off water out of sewers and water sources. /Aminopyridines/

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

Flash point: 328 °F (USCG, 1999)

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

WARNING: Highly toxic — only trained personnel should handle spills.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

Excerpt from ERG Guide 153 [Substances - Toxic and/or Corrosive (Combustible)]:

IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.

FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Personal precautions: Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas.

Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number P008, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Contaminated packaging: Dispose of as unused product.

A potential candidate for rotary kiln incineration at a temperature range of 820 to 1,600 °C and residence times of seconds for liquids and gases, and hours for solids. A potential candidate for fluidized bed incineration at a temperature range of 450 to 980 °C and residence times of seconds for liquids and gases, and longer for solids.

SRP: The scientific literature for the use of contact lenses by industrial workers is inconsistent. The benefits or detrimental effects of wearing contact lenses depend not only upon the substance, but also on factors including the form of the substance, characteristics and duration of the exposure, the uses of other eye protection equipment, and the hygiene of the lenses. However, there may be individual substances whose irritating or corrosive properties are such that the wearing of contact lenses would be harmful to the eye. In those specific cases, contact lenses should not be worn. In any event, the usual eye protection equipment should be worn even when contact lenses are in place.

If material not on fire and not involved in fire: Keep sparks, flames, and other sources of ignition away. Keep material out of water sources and sewers. /Aminopyridines/

Personnel protection: Avoid breathing dusts, and fumes from burning material. Keep upwind. ... Avoid bodily contact with the material. ... Do not handle broken packages unless wearing appropriate personal protective equipment.

/Aminopyridines/

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

For more Preventive Measures (Complete) data for 4-AMINOPYRIDINE (6 total), please visit the HSDB record page.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Keep unnecessary people away; isolate the hazardous area and deny entry. Stay upwind. Do not touch spilled material; stop leak if possible without risk. Use water spray to reduce vapors.

Small spills: absorb with sand or other noncombustible absorbent material and place into containers for later disposal.

Small dry spills: with clean shovel place material into clean, dry container and cover; move containers from spill area.

Large spills: dike far ahead of spill for later disposal. (EPA, 1998)

Keep container tightly closed in a dry and well-ventilated place.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

OSHA PEL: Not established.

ACGIH TLV: Not established.

NIOSH REL: Not established.

No occupational exposure limit values are established for this substance.

Use the lowest feasible exposure level (ALARA principle).

8.1.2 Appropriate engineering controls

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear chemical safety goggles.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Use NIOSH-approved dust/mist respirator (N95 or higher) if ventilation is inadequate.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- a) Appearance: Pyridine, 4-amino- is a white crystalline material with no odor. Used as an avicide, an intermediate and as a fixer for some textile dyes. (EPA, 1998) It has been approved by the FDA for use as a treatment for multiple sclerosis.
- b) Odor: Odorless
- c) Odor threshold: No data available
- d) pH: No data available
- e) Melting point/freezing point: 318 °F (EPA, 1998)
- f) Initial boiling point and boiling range: 524.3 °F at 760 mmHg (EPA, 1998)
- g) Flash point: 328 °F (USCG, 1999)
- h) Evaporation rate: No data available
- i) Flammability (solid, gas): No data available
- j) Upper/lower flammability or explosive limits: No data available
- k) Vapor pressure: 0.00034 [mmHg]
- l) Vapor density: No data available
- m) Relative density: 1.2607 at 77.54 °F (USCG, 1999) - Denser than water; will sink
- n) Water solubility: In water, 112 g/L at 20 °C
- o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): 0.3
- p) Auto-ignition temperature: No data available
- q) Decomposition temperature: No data available
- r) Viscosity: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: No data available

9.2 Other information

Topological Polar Surface Area (TPSA): 38.9 Å²
Complexity: 48

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.
Avoid strong oxidizing agents, strong acids, and strong bases.

10.5 Incompatible materials

Strong oxidizing agents, Strong acids, Acid chlorides, Acid anhydrides

10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x).

See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

No acute toxicity data available.

Skin corrosion/irritation:

Causes skin irritation (H315).

Serious eye damage/eye irritation:

Causes serious eye irritation (H319).

Respiratory or skin sensitization:

No data available.

Germ cell mutagenicity:

No data available.

Carcinogenicity:

No data available.

Reproductive toxicity:

No data available.

Specific target organ toxicity (single exposure):

H370, H372

Specific target organ toxicity (repeated exposure):

No data available.

Aspiration hazard:

No data available.

11.2 Additional information

Carcinogen classification:

No indication of carcinogenicity to humans (not listed by IARC).

Exposure routes:

Inhalation (T52, T14) ; oral (T52, T14) ; dermal (T52, T14) ; intravenous (T52, T14)

Orally-administered dalfampridine is rapidly and completely absorbed from the gastrointestinal tract.

T_{max}, immediate release form = 1 hour;

T_{max}, extended release form = 3.5 hours;

C_{max}, 10 mg extended release = 17.3 - 21.6 ng/mL;

Relative bioavailability of 10 mg extended-release tablets compared to aqueous oral solution = 96%

Signs and symptoms of exposure:

Local irritation on contact with the skin, mucous membranes and cornea. Symptoms following ingestion include vomiting, Weakness, dizziness, disorientation, hyperexcitability, tremors, periorbital paresthesias and tonic-clonic

seizures may be noted (T36, T52, T14).

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

LD50; Species: /Anas platyrhynchos/ (Mallard) male, age 3-4 mos; oral 4.36 mg/kg (95% confidence limits: 3.36 - 5.66 mg/kg)

LD50; Species: /Anas platyrhynchos/ (Mallard) male, age 3-4 mos; oral 5.19 mg/kg (95% confidence limits: 4.00 - 6.73 mg/kg)

LC50; Species: Coturnix coturnix (Quail) adult, captive breeding colony; chemical incorporated into food 479 ppm for 28 days (95% confidence interval: 354-645 ppm)

LC50; Species: Coturnix coturnix (Quail) adult, captive breeding colony; chemical incorporated into food >316 ppm for 40 days

For more Ecotoxicity Values (Complete) data for 4-AMINOPYRIDINE (26 total), please visit the HSDB record page.

/BIRDS and MAMMALS/ ... Non-target species including mammals are equally sensitive to the toxicity of avitrol. In mammals, avitrol produces symptoms like epileptic seizures. Doses near LD50 exert a usual sequence of symptoms including hyperexcitability, salivation, tremors, muscle incoordination, convulsion, and cardiac and respiratory failure. Most of these symptoms are associated with hypercholinergic activity. In general, onset of signs occurs within 10-15 min and death occurs within 15 min to 4 hr. ... Predators such as raptors, foxes, hawks, cats and dogs die from secondary poisoning after feeding on the dead or dying birds. Secondary poisoning has also been found in endangered birds, including red-tailed hawks and peregrine falcons, as they died by ingesting the remains of pigeons and other birds poisoned with avitrol.

4-Aminopyridin

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Log P (n-octanol/water): 0.3

Low potential for bioaccumulation (Log P < 3).

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

This substance is classified as hazardous to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION

14.1 UN number

UN 2671

14.2 UN proper shipping name

Aminopyridines

14.3 Transport hazard class(es)

Consult official transport regulations (DOT/IATA/IMDG) for hazard classification.

IMO classification: Class 6.1

DOT label: Poison

14.4 Packing group

Consult official transport regulations (DOT/IATA/IMDG) for packing group assignment.

14.5 Environmental hazards

Marine pollutant: Yes (classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. REGULATORY INFORMATION

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

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered (REACH Active)

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute (short-term) health hazard

Chronic (long-term) health hazard

Environmental hazard

Massachusetts Right To Know Components:

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

Pennsylvania Right To Know Components:

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

New Jersey Right To Know Components:

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

California Prop. 65 Components:

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: 4-Pyridinamine
- New Jersey Worker and Community Right to Know Act: The New Jersey Worker and Community Right to Know Act requires public and private employers to provide information about hazardous substances at their workplaces. (N.J.S.A. 34:5A-1 et. seq.)
- CERCLA Reportable Quantities: Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 1000 lb or 454 kg. The toll free number of the NRC is (800) 424-9303.
- TSCA Requirements: Section 8(a) of TSCA requires manufacturers of this chemical substance to report preliminary assessment information concerned with production, exposure, and use to EPA as cited in the preamble in 51 FR 41329. Effective date: 1/6/05; Reporting date: 3/7/05.
- RCRA Requirements: P008: As stipulated in 40 CFR 261.33, when 4-aminopyridine, as a commercial chemical product or manufacturing chemical intermediate or an off-specification commercial chemical product or a manufacturing chemical intermediate, becomes a waste, it must be managed according to federal and/or state hazardous waste management and handling requirements.

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/09

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.