

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Highly toxic; do not ingest or inhale. Irritating to skin, eyes, and the respiratory system.	

Section I. Chemical Product and Company Identification

Chemical Name	4-Aminopyridine		
Catalog Number	A0414	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	gamma-Aminopyridine		
Chemical Formula	NH ₂ C ₅ H ₄ N		
CAS Number	504-24-5	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
4-Aminopyridine	504-24-5	Min. 99.0 (GC,T)	Not available.	Rat LD ₅₀ (oral) 21mg/kg Rat LD ₅₀ (intraperitoneal) 6500mg/kg Mouse LD ₅₀ (intraperitoneal) 10mg/kg Man LD _{LO} (oral) 590µg/kg

Section III. Hazards Identification

Acute Health Effects	Highly toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. Cover the irritated skin with an emollient. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, administer artificial respiration. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂).		
Fire Hazards	No specific information is available regarding the flammability of this compound in the presence of various materials.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No additional information is available regarding the risks of explosion.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemicals, CO ₂ , water spray or foam. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Highly toxic solid. Irritating material. In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and exercise caution. Use a shovel to put the material into a convenient waste disposal container. Consult federal, state, and/or local authorities for assistance on disposal.
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Section VII. Handling and Storage

Handling and Storage Information	HIGHLY TOXIC. IRRITANT. Handle with caution and minimize exposure. Keep away from heat and sources of ignition. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. DO NOT breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, acids.
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Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
	
Exposure Limits	Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	White crystalline powder.	Solubility	Soluble in alcohol, benzene, and ether.
Specific Gravity	Not available.		
Molecular Weight	94.12	Partition Coefficient	Not available.
Boiling Point	273°C (523.4°F)	Vapor Pressure	Not available.
Melting Point	160 to 162°C	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	No odor.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, strong acids, acid chlorides, and acid anhydrides.

Section XI. Toxicological Information

RTECS Number	US1750000
Routes of Exposure	Eye contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD ₅₀ (oral) 21mg/kg Rat LD ₅₀ (intraperitoneal) 6500mg/kg Mouse LD ₅₀ (intraperitoneal) 10mg/kg Man LD _{Lo} (oral) 590µg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Highly toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	4-Aminopyridine may be released to the environment via effluents at sites where it is produced or used as an intermediate for antihistamines and other pharmaceuticals. With a pKa of 9.17, 4-aminopyridine and its conjugate acid will exist in alkaline environmental media in varying proportions that are pH dependent. The conjugate acid should predominate under acidic conditions. Cations generally do not volatilize. A Henry's Law constant of 2.81X10 ⁻⁹ atm-cu m/mole at 25°C indicates that volatilization of 4-aminopyridine from environmental waters and moist soil should not be an important fate process. Yet, 4-aminopyridine may evaporate from dry surfaces, especially when present in high concentration such as in spill situations. In aquatic systems, 4-aminopyridine is not expected to bioconcentrate. A low Koc indicates 4-aminopyridine should be highly mobile in soil. However, 4-aminopyridine may undergo a covalent chemical bonding with humic materials which can result in its chemical alteration to a latent form and prevent leaching. If released to water, covalent bonding with humic materials in the water column and sediments may result in significant partitioning from the water column. Biodegradation is expected to be slow in both aerobic and anaerobic soil and water. Reported biodegradation half-lives of 4-aminopyridine in soil range from 90 to 960 days. In the atmosphere, 4-aminopyridine is expected to exist almost entirely in the vapor phase and reactions with photochemically produced hydroxyl radicals should be important (estimated half-life of 8 hours). 4-Aminopyridine may be physically removed from air by (rainfall and dissolution in clouds, etc.); however, the short atmospheric residence time of 4-aminopyridine suggests that wet desposition is of limited importance. The most probable human exposure would be occupational exposure, which may occur through dermal contact or inhalation at workplaces where 4-aminopyridine is produced or used. Non-occupational exposures may include the ingestion of baked potatoes. (SRC)

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state, and local regulations when disposing of this substance.
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Section XIV. Transport Information

DOT Classification	DOT CLASS 6.1: Toxic material.
PIN Number	UN2671
Proper Shipping Name	Aminopyridines
Packing Group (PG)	II
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	Not available.
EINECS Number (EEC)	207-987-9
EEC Risk Statements	R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed.
Japanese Regulatory Data	Not available.

Continued on Next Page**Emergency phone number (800) 424-9300**

Section XVI. Other Information**Version 1.0****Validated on 5/4/1998.****Printed 1/10/2005.****Notice to Reader**

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

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