2-AMINOPYRIDINE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

O-AMINOPYRIDINE

OTHER NAMES

C5-H6-N2, H2NC5H4N, alpha-aminopyridine, 2-pyridinamine, "2 aminopyridine",
, amino-2-pyridine, alpha-pyridinamine,2-pyridylamine, "o aminopyridine", "amino 2 pyridine"

PROPER SHIPPING NAME

AMINOPYRIDINES (o-, m-, p,)
AMINOPYRIDINES

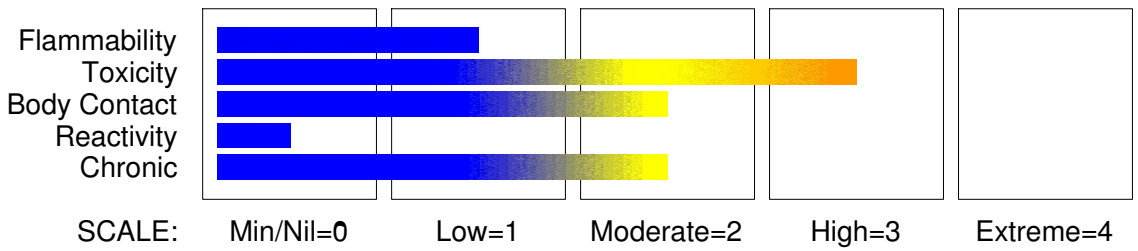
PRODUCT USE

Manufacture of pharmaceuticals especially antihistamines.

SUPPLIER

Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.
technical@sdfine.com
Telephone: 91- 22- 24959898
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Inhalation) Category 4
Acute Toxicity (Oral) Category 2
Eye Irritation Category 2B
Respiratory Irritation Category 3
Skin Corrosion/Irritation Category 3
Skin Sensitizer Category 1

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H335 H300 H332 H316 H320 H317
May cause respiratory irritation
Fatal if swallowed
Harmful if inhaled
Causes mild skin irritation
Causes eye irritation
May cause allergic skin reaction

PRECAUTIONARY STATEMENTS

Prevention

Avoid breathing dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well ventilated area.
Contaminated clothing should not be allowed out of the workplace.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Wash contaminated clothing before reuse.
If skin irritation occurs, seek medical advice/attention.
If skin irritation or rash occurs, seek medical advice/attention.
If eye irritation persists, get medical advice/attention.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN: Gently wash with plenty of soap and water.
Specific treatment: refer to Label or MSDS.

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IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
o- aminopyridine	504-29-0	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
· For advice, contact a Poisons Information Centre or a doctor.
· Urgent hospital treatment is likely to be needed.
· In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
· If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
· If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.
· Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
· INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
NOTE: Wear a protective glove when inducing vomiting by mechanical means.

EYE

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 a doctor, 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

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.

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· Transport to hospital, or doctor.

INHALED

· 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.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Water spray or fog.
· Alcohol stable foam.
Dry chemical powder.
Bromochlorodifluoromethane (BCF) (where regulations permit).
Carbon dioxide.

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 courses.
Cool fire exposed containers with water spray from a protected location.
DO NOT approach containers suspected to be hot.
If safe to do so, remove containers from path of fire.
Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

Combustible.
Moderate fire hazard when exposed to heat, flame or oxidisers.
Decomposes on heating and produces toxic fumes of carbon monoxide (CO) and nitrogen oxides (NOx).

Personal Protective Equipment

Breathing apparatus.
Gas tight chemical resistant suit.
Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

Clean up all spills immediately.
Environmental hazard - contain spillage.
Avoid breathing vapours and contact with skin and eyes.

continued...

Control personal contact by using protective equipment.
Remove all ignition sources.
Wipe up and absorb small quantities with vermiculite or other absorbent material.
Use dry clean up procedures and avoid generating dust.
Place in suitable containers for disposal.

MAJOR SPILLS
Clear area of personnel and move upwind.
Pollutant - contain spillage.
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 courses.

Shut off all possible sources of ignition and increase ventilation.
No smoking or naked lights within area.
Contain spill with sand, earth or vermiculite.
Use dry clean up procedures and avoid generating dust.
Collect recoverable product into labelled containers for recycling.
Absorb remaining product with sand, earth or vermiculite.
Collect, using a spark-free shovel, and seal in labelled drums for disposal.
If contamination of drains or waterways occurs, advise emergency services.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	X	+	X	0	+

+: May be stored together
O: May be stored together with specific preventions
X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
Use good occupational work practice.
Avoid breathing vapours and contact with skin and eyes.
Wear protective clothing and gloves when handling containers.
Avoid all ignition sources.
When handling, DO NOT eat, drink or smoke.
Avoid contact with incompatible materials.
Use in a well-ventilated area.
Avoid physical damage to containers.
Keep containers securely sealed when not in use.
Always wash hands with soap and water after handling. Work clothes should be laundered separately.
Launder contaminated clothing before re-use.

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SUITABLE CONTAINER

Packaging as recommended by manufacturer.
· Check that containers are clearly labelled.
Plastic drum.
Metal drum.
Glass container.
Polyethylene or polypropylene container.

STORAGE INCOMPATIBILITY

Avoid storage with strong oxidising agents,
strong acids and sodium nitrate.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.
Store in original containers.
Store away from sources of heat or ignition / naked lights.
Store in a cool, dry and well-ventilated area.
Store away from incompatible materials.
Store away from foodstuff containers.
Protect containers against physical damage.
Keep containers securely sealed.
Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• o- aminopyridine: CAS:504- 29- 0 CAS:102769- 74- 4 CAS:29212- 31- 5 CAS:45505- 67- 7

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
o- aminopyridine		5 [Unch]

MATERIAL DATA

Exposure at or below the TLV-TWA is thought to prevent systemic poisoning.

PERSONAL PROTECTION




EYE

· Chemical goggles.
· Full face shield.

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· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Rubber gloves.
Impervious gloves.
PVC gloves.
Safety footwear.

OTHER

· Overalls.
· P.V.C. apron.
· Barrier cream.
· Skin cleansing cream.
· Eye wash unit.

Contaminated clothing should be removed immediately and not reused until properly cleaned

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	AK P1 Air- line*	- -	AK PAPR- P1 -
50 x ES	Air- line**	AK P2	AK PAPR- P2
100 x ES	-	AK P3	-
		Air- line*	-
100+ x ES	-	Air- line**	AK PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult site your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating	0.25- 0.5 m/s (50- 100 f/min.)

continued...

from tank (in still air).	
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless or off-white leaflets or large crystals with a characteristic odour. Soluble in water, alcohol, acetone, benzene, ether, and hot petroleum ether.

PHYSICAL PROPERTIES

Solid.
Mixes with water.

Molecular Weight: 94.12	Boiling Range (°C): 204 (sublimes).
Melting Range (°C): 57- 58	Specific Gravity (water=1): >1
Solubility in water (g/L): Miscible	pH (as supplied): Not applicable
pH (1% solution): Not available.	Vapour Pressure (kPa): low
Volatile Component (%vol): Not available.	Evaporation Rate: Not applicable
Relative Vapour Density (air=1): 3.25	Flash Point (°C): 68

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Lower Explosive Limit (%): Not applicable.
Autoignition Temp (°C): Not available.
State: Divided solid

Upper Explosive Limit (%): Not applicable.
Decomposition Temp (°C): Not available
Viscosity: Not available

log Kow: -0.22

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Presence of incompatible materials.
Presence of heat source and ignition source.
Stable under normal storage conditions.
Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be seriously damaging to the health of the individual; animal experiments indicate that ingestion of less than 40 gram may be fatal.
Considered an unlikely route of entry in commercial/industrial environments.
In animals, near lethal doses of aminopyridines produce increased excitability to sound and touch and cause contraction of the smooth muscle and increased blood pressure.
Aminopyridines may exert an inotropic and chronotropic action on the heart.

EYE

Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
Pyridine, its derivatives and homologues, may produce local irritation on contact with the cornea.

SKIN

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening

continued...

of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.
Pyridine, its derivatives and homologues, may produce local irritation on contact with the skin. Absorption may produce systemic effects similar to those produced following inhalation.
Toxic effects may result from skin absorption.

INHALED
Inhalation may produce
serious health damage*.
Limited evidence exists, or practical experience predicts, that the material produces irritation of the respiratory system in a significant number of individuals following inhalation.
Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
Pyridine, its derivatives and homologues, may produce local irritation on contact with the mucous membranes. Overexposure to pyridine and some of its derivatives and homologues may produce headache, nausea, loss of consciousness, nervousness, loss of appetite, sleeplessness and narcosis.
Inhalation hazard is increased at higher temperatures.

CHRONIC HEALTH EFFECTS
On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.
There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.
Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.
No human exposure data available. For this reason health effects described are based on experience with chemically related materials.
Clinical symptoms and signs of intoxication following occupational exposure to pyridine, its homologues and derivatives include gastrointestinal disturbance with diarrhoea, abdominal pain and nausea, weakness, headache, insomnia and nervousness. Exposures less than those which produce overt clinical signs may produce varying levels of liver damage with central lobular fatty degeneration, congestion and cellular infiltration; repeated low level exposures may produce cirrhosis. The kidney is less sensitive to pyridine -induced damage than is the liver. Pyridine, like primidone, phenobarbitol and oxazepam induces liver neoplasms in mice, but not in rats, even though in rats these chemicals cause a spectrum of toxic liver lesions. The mouse, an animal with a high background rate of liver neoplasms, is particularly sensitive to the development of malignant liver neoplasms following chemical exposure. There is equivocal evidence (1) that pyridine is carcinogenic in male F344/N rats (based on an increased incidence of renal tubule neoplasms), in female rats of the same species (based on increases in mononuclear cell leukaemia), in male Wistar rats (based on an increased incidence of mono- nuclear cell leukaemia), and clear evidence of carcinogenicity (1) in male and female B6C3F1 mice (based on increased incidences of malignant hepatocellular neoplasms). 1: National Toxicology Program Technical Report Series No. 470, March 2000.

TOXICITY AND IRRITATION

TOXICITY	IRRITATION
Oral (rat) ; : LD50 200 mg/kg	Nil Reported

continued...

Inhalation (human) ; : TCLo 5 ppm/5h

Section 12 - ECOLOGICAL INFORMATION

log Pow (Verschueren 1983): - 0.22

log Kow: -0.22
BCF: 0.14
Bioacculmulation: not sig

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.
Consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Incinerate residue at an approved site.
Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

Labels Required: TOXIC
HAZCHEM: 2X

UNDG:

Dangerous Goods Class:	6.1	Subrisk:	None
UN Number:	2671	Packing Group:	II

Shipping Name:AMINOPYRIDINES (o-, m-, p,)

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	2671	Packing Group:	II
ERG Code:	6L		

Shipping name:AMINOPYRIDINES (o-, m-, p,)
AMINOPYRIDINES

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	2671	Packing Group:	II
EMS Number:	F- A, S- A		

Shipping name:AMINOPYRIDINES (o-, m-, p,)
AMINOPYRIDINES

continued...

Section 15 - REGULATORY INFORMATION

REGULATIONS

No regulations applicable
No data available for o-aminopyridine as CAS: 504-29-0, CAS: 102769-74-4, CAS: 29212-31-5 , CAS: 45505-67-7.

Section 16 - OTHER INFORMATION

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
o- aminopyridine	504- 29- 0	Xn; R22 R43

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
o- aminopyridine	504- 29- 0, 102769- 74- 4, 29212- 31- 5, 45505- 67- 7

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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