SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 11, 2017

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1.Identification

1.1GHS Product identifier

Product name	2-Aminopyridine

1.2Other means of identification

Product number	-
Other names	2-Pyridylamine

1.3Recommended use of the chemical and restrictions on use

Identified uses	For industry use only.
Uses advised against	no data available

2.Hazard identification

2.1Classification of the substance or mixture

Acute toxicity - Oral, Category 3

Acute toxicity - Dermal, Category 4

Skin irritation, Category 2

Eye irritation, Category 2

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

2.2GHS label elements, including precautionary statements

Pictogram(s)	

Signal word	Danger
Hazard statement(s)	H301 Toxic if swallowed H312 Harmful in contact with skin H315 Causes skin irritation H319 Causes serious eye irritation H411 Toxic to aquatic life with long lasting effects
Precautionary statement(s)	
Prevention	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection. P273 Avoid release to the environment.
Response	P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/… P321 Specific treatment (see ... on this label). P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P312 Call a POISON CENTER/doctor/…if you feel unwell. P362+P364 Take off contaminated clothing and wash it before reuse. P332+P313 If skin irritation occurs: Get medical advice/attention. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention. P391 Collect spillage.
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to ...

2.3Other hazards which do not result in classification

none

3.Composition/information on ingredients

3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-Aminopyridine	2-Aminopyridine	504-29-0	none	100%

4.First-aid measures

4.1Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Give a slurry of activated charcoal in water to drink. Refer for medical attention .

4.2Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact Symptoms: Irritation eyes, nose, throat; headache, dizziness; excitement; nausea; high blood pressure; respiratory distress; lassitude (weakness, exhaustion); convulsions; stupor Target Organs: central nervous system, respiratory system (NIOSH, 2016)

4.3Indication of immediate medical attention and special treatment needed, if necessary

IN CASES OF ACCIDENTAL SKIN CONTACT, PROMPT, THOROUGH SKIN CLEANSING & CLOTHING CHANGE ARE NECESSARY.

5.Fire-fighting measures

5.1Extinguishing media

Suitable extinguishing media

Extinguishant: Carbon dioxide, dry chemical, alcohol foam

5.2Specific hazards arising from the chemical

This chemical is combustible.

5.3Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3Methods and materials for containment and cleaning up

Cover with 9:1 mixture of sand and soda ash. After mixing, transfer into a paper carton, stuffed with ruffled paper. Burn ... in furnace with afterburner and scrubber.

7.Handling and storage

7.1Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs, strong oxidants and strong acids.IN GENERAL MATERIALS ... TOXIC AS STORED OR WHICH CAN DECOMP INTO TOXIC COMPONENTS ... SHOULD BE STORED IN COOL, WELL-VENTILATED PLACE, OUT OF ... SUN, AWAY FROM AREAS OF HIGH FIRE HAZARD, & SHOULD BE PERIODICALLY INSPECTED & MONITORED. INCOMPATIBLE MATERIALS SHOULD BE ISOLATED.

8.Exposure controls/personal protection

8.1Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 0.5 ppm (2 mg/cu m).

Biological limit values

no data available

8.2Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable

laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state	white to yellow flakes
Colour	White leaflets or large colorless crystals
Odour	Characteristic odor
Melting point/ freezing point	220° C(dec.)(lit.)
Boiling point or initial boiling point and boiling range	204-210° C(lit.)
Flammability	Combustible SolidCombustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	92° C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	BASE
Kinematic	no data available

viscosity	
Solubility	In water:Slightly soluble. 1-5 g/100 mL at 19 °C
Partition coefficient n-octanol/water (log value)	log Kow= 0.48
Vapour pressure	0.8 mm Hg at 25° C (NIOSH, 2016)
Density and/or relative density	1.107g/cm3
Relative vapour density	3.25 (Air= 1)
Particle characteristics	no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

Stable under recommended storage conditions.

10.3Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air.2-AMINOPYRIDINE neutralizes acids in exothermic reactions to form salts plus water. May be incompatible with isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides. May generate hydrogen, a flammable gas, in combination with strong reducing agents such as hydrides. Reacts with oxidizing agents .

10.4Conditions to avoid

no data available

10.5Incompatible materials

Strong oxidizers

10.6Hazardous decomposition products

DANGEROUS; WHEN HEATED TO DECOMP IT EMITS HIGHLY TOXIC FUMES OF /NITROGEN OXIDES/.

11.Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 0.2 g/kg

- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12.Ecological information

12.1Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2Persistence and degradability

AEROBIC: An aerobic biological screening study, which utilized a 10 mg/l yeast extract and an Aeric Ochraqualf soil for inocula, indicated that 2-aminopyridine is not readily biodegradable(1). At 28°C and a pH of 7, less than 1% of an initial 17 ppm of 2-aminopyridine was mineralized within 30 days as evidenced via the release of inorganic nitrogen(1). In addition, an acclimated aerobic soil grab sample study demonstrated slow biodegradation of 2-aminopyridine(2). 2-Aminopyridine was added to Fincastle silt loam (Aeric Ochraqualf) with a pH of 6.7 and incubated at 25°C(2). Within 64 days, 59.5% of the available nitrogen was released to inorganic forms(2). Sterilized controls lost 14.9% of the starting material to volatilization; but, did not release inorganic nitrogen(2). A screening test, which utilized 5 ml garden soil suspensions with glucose, yeast extract and mineral salts, compared aerobic and anaerobic biodegradation of 2-aminopyridine(3). 2-Aminopyridine completely degraded in greater than 96 days under both aerobic and anaerobic conditions(3). A 0% BOD was reported using 100 mg/l 2-aminopyridine in 30 mg/l sludge in 4 weeks(4).

12.3Bioaccumulative potential

A BCF of 3.0-7.7 and <5.1-25 at a concentration of 0.1 and 0.01 mg/l, respectively, was measured for 2-aminopyridine(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is low.

12.4Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for 2-aminopyridine can be estimated to be 45(SRC). According to a classification scheme(2), this estimated Koc value suggests that 2-aminopyridine is expected to have very high mobility in soil. However, the pKa of 2-aminopyridine is 6.86(3), indicating that this compound will partially exist in the protonated form in the environment and cations generally adsorb to organic carbon and clay more strongly than their neutral counterparts.

12.5Other adverse effects

no data available

13.Disposal considerations

13.1Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information

14.1UN Number

ADR/RID: UN2671	IMDG: UN2671	IATA: UN2671

14.2UN Proper Shipping Name

ADR/RID: AMINOPYRIDINES (o-, m-, p,)
IMDG: AMINOPYRIDINES (o-, m-, p,)
IATA: AMINOPYRIDINES (o-, m-, p,)

14.3Transport hazard class(es)

ADR/RID: 6.1	IMDG: 6.1	IATA: 6.1

14.4Packing group, if applicable

ADR/RID: II	IMDG: II	IATA: II

14.5Environmental hazards

ADR/RID: yes	IMDG: yes	IATA: yes

14.6Special precautions for user

no data available

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

no data available

15.Regulatory information

15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
2-Aminopyridine	2-Aminopyridine	504-29-0	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

16.Other information

Information on revision

Creation Date	Aug 11, 2017

Revision Date	Aug 11, 2017

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/
