

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 26, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name Betahistine EP Impurity A

1.2 Other means of identification

Product number C4X-18381

Other names Pyridine,2-vinyl; 2-Ethenylpyridine; 2-Ethenylpyridine

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours *Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 3

Acute toxicity - Category 4, Oral

Acute toxicity - Category 3, Dermal

Skin corrosion, Sub-category 1B

Skin sensitization, Category 1

Serious eye damage, Category 1

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

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H226 Flammable liquid and vapour

H302 Harmful if swallowed

H311 Toxic in contact with skin

H314 Causes severe skin burns and eye damage

H317 May cause an allergic skin reaction

H318 Causes serious eye damage

H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P273 Avoid release to the environment.
Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower]. P370+P378 In case of fire: Use ... to extinguish. P301+P317 IF SWALLOWED: Get medical help. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P316 Get emergency medical help immediately. P321 Specific treatment (see ... on this label). P361+P364 Take off immediately all contaminated clothing and wash it before reuse. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P363 Wash contaminated clothing before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P333+P317 If skin irritation or rash occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P317 Get medical help. P391 Collect spillage.
Storage	P403+P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Betahistine EP Impurity A	2-vinylpyridine	100-69-6	202-879-8	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

Following eye contact

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

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 131P [Flammable Liquids - Toxic]: TOXIC; may be fatal if inhaled, ingested or absorbed through skin. Inhalation or contact with some of these materials will irritate or burn skin and eyes. Fire will produce irritating, corrosive and/or toxic

gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

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

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary. Monitor for shock and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal. Aromatic hydrocarbons and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Excerpt from ERG Guide 131P [Flammable Liquids - Toxic]: CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient. SMALL FIRE: Dry chemical, CO₂, water spray or alcohol-resistant foam. LARGE FIRE: Water spray, fog or alcohol-resistant foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Use water spray or fog; do not use straight streams. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2016)

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 131P [Flammable Liquids - Toxic]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion and poison hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Use powder, AFFF, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Personal protection: chemical protection suit.

6.2 Environmental precautions

Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Personal protection: chemical protection suit.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 32°C use a closed system, ventilation and explosion-proof electrical equipment. Do NOT expose to friction or shock. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants, strong acids and food and feedstuffs. Keep in the dark. Well closed. Store only if stabilized.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Component	2-vinylpyridine			
CAS No.	100-69-6			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Latvia		0,5		
	Remarks			

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

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

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid.
Colour	Colorless to light yellow.
Odour	Pungent unpleasant odor
Melting point/freezing point	-67.9 - ≤ -45.9 °C.
Boiling point or initial boiling point and boiling range	167 °C. Atm. press.: 101.3 kPa. Remarks: 2 min. after continuous condensate return.
Flammability	Flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	50 °C. Atm. press.: 101.3 kPa.
Auto-ignition temperature	≥ 453 - ≤ 456 °C. Atm. press.: 101.3 kPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = Ca. 1.17. Temperature: 20 °C.
Solubility	Very soluble in alcohol, ether, acetone
Partition coefficient n-octanol/water	log Pow = 1.54. Temperature: 25 °C.
Vapour pressure	25.3 hPa. Temperature: 20 °C. Remarks: Equivalent to 19 mm Hg.
Density and/or relative density	1 g/L. Temperature: 20 °C.
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance violently polymerizes. This generates fire or explosion hazard. May decompose explosively on shock, friction or concussion. Decomposes on heating and on burning. This produces toxic fumes of cyanide and nitrogen oxides. Reacts violently with strong oxidants.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

FIRE HAZARD IS MODERATE. VINYL PYRIDINE, STABILIZED contains additives to prevent unwanted rapid polymerization. May nevertheless polymerize exothermically if subjected to heat for prolonged periods or if contaminated. If polymerization takes place inside a closed container, the container may violently rupture. The liquid may polymerize upon contact with peroxides and with compounds partially peroxidized by exposure to the air [Bretherick 1979 p. 160]. Reacts with oxidizing agents [Handling Chemicals Safely, 1980 p. 960]. Neutralizes acids in exothermic reactions to form salts plus water. Incompatible with isocyanates, halogenated organics, phenols (acidic), epoxides, anhydrides, and acid halides. May generate hydrogen, a flammable gas, in combination with strong reducing agents such as hydrides.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

Decomposition by heat is accompanied by release of dangerous cyanide fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: LC50 - mouse - 0.46 mg/L air (analytical).
- 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

The substance may cause effects on the skin. This may result in delayed burns. The substance is severely irritating to the eyes and respiratory tract.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization.

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - *Oryzias latipes* - 6.48 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 9.48 mg/L - 48 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 50.8 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - 260 mg/L - 30 min. Remarks: Respiration rate.

12.2 Persistence and degradability

AEROBIC: 2-Vinylpyridine, present at 100 mg/l, was not biodegraded, as measured by BOD, in 4 weeks using an activated sludge inoculum at 30 mg/l and the Japanese MITI test(1).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated for 2-vinylpyridine(SRC), using a log Kow of 1.54(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of 2-vinylpyridine is estimated as 160(SRC), using a measured log Kow of 1.54(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 2-vinylpyridine is expected to have moderate mobility in soil. The pKa of 2-vinylpyridine is 4.98(4), which indicates that this compound will partially exist in the protonated form under acidic conditions. Cations adsorb more strongly to soil surfaces than neutral molecules thus adsorption of 2-vinylpyridine is expected to be greater in acidic soils(SRC).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal 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.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN3073 (For reference only, please check.) IMDG: UN3073 (For reference only, please check.) IATA: UN3073 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: VINYL PYRIDINES, STABILIZED (For reference only, please check.) IMDG: VINYL PYRIDINES, STABILIZED (For reference only, please check.) IATA: VINYL PYRIDINES, STABILIZED (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.) IMDG: II (For reference only, please check.) IATA: II (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
2-vinylpyridine	2-vinylpyridine	100-69-6	202-879-8
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.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date April 26, 2024

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



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- 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/>

Other Information

An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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