

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 23, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name Cyanazine

1.2 Other means of identification

Product number CCPD100245

Other names -

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

Acute toxicity - Category 4, Oral

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Warning

Hazard statement(s) H302 Harmful if swallowed

H410 Very 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.

P273 Avoid release to the environment.

Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P391 Collect spillage.

Storage

none

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
---------------	---------------------------	------------	-----------	---------------

Cyanazine	Cyanazine	21725-46-2	244-544-9	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.

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

Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2016)

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

Skin decontamination: Skin contamination should be treated promptly by washing with soap and water. Contamination of the eyes should be treated immediately by prolonged flushing of the eyes with large amounts of clean water. If dermal or ocular irritation persists, medical attention should be, obtained without delay.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: SMALL FIRE: Dry chemical, CO2 or water spray. LARGE FIRE: Dry chemical, CO2, alcohol-resistant foam or water spray. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. 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. (ERG, 2016)

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. For electric vehicles or equipment, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. (ERG, 2016)

5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do NOT wash away into sewer. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Do NOT wash away into sewer. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

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

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

Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Cool. Dry.Keep from domestic animals, particularly cattle.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

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 safety spectacles.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Cyanazine is a colorless crystals. Non corrosive when dry. Used as a selective systemic herbicide.
Colour	White crystals
Odour	no data available
Melting point/freezing point	167°C
Boiling point or initial boiling point and boiling range	442.4°C at 760 mmHg
Flammability	Not combustible. Liquid formulations containing organic solvents may be flammable.
Lower and upper explosion limit/flammability limit	no data available
Flash point	221.4°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Solubility at 25 deg C (g/l) in: benzene, 15; chloroform, 210; ethanol, 45; hexane, 15.
Partition coefficient n-octanol/water	log Kow= 2.22
Vapour pressure	5.03E-08mmHg at 25°C
Density and/or relative density	1.341 g/cm3
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on heating. This produces toxic and corrosive fumes of hydrogen chloride (see ICSC 0163), nitrogen oxides and cyanides.

10.2 Chemical stability

Very stable to heat and UV light. Stable between pH 5 and 9, but hydrolyzed by strong acids and alkalis.

10.3 Possibility of hazardous reactions

A triazine derivative.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition, it emits very toxic fumes of /hydrogen chloride, nitrogen oxides and hydrogen cyanide/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 288 mg/kg
- Inhalation: no data available
- Dermal: LD50 Rat percutaneous >1200 mg/kg

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

Cancer Classification: Group C Possible Human Carcinogen

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

Animal tests show that this substance possibly causes malformations in human babies.

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 Pimephales promelas (Fathead minnow) 16.3 mg/l/96 hr @ 18 deg C (95% confidence interval 14.2-18.0 mg/l), wt 0.9 g. Static bioassay without aeration, pH 7.2-7.5, water hardness 40-50 mg/l as calcium carbonate and alkalinity of 30-35 mg/l. /Technical material 100%
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: The half-life of 2.0 ppm of cyanazine in samples of Regina Heavy Clay soil (70% clay, 25% silt and 5% sand) was determined under various laboratory soil moisture and temperature conditions(1). The half-life at 34% soil moisture content varied from 19 to 3 days at temperatures of 5 and 30 degrees C, respectively; at 8% moisture content and 20 degrees C, the half-life was greater than 200 days (1). In field experiments, the half-life of cyanazine, initially applied at approximately 5.5 lbs/acre, was approximately 30 days; after 56 days, less than 10% of the cyanazine remained(1). In the lab and field experiments, the degradation of cyanazine occurred more rapidly than metribuzin and atrazine(1). The degradation of cyanazine was measured under field conditions over a four year period and under different tillage treatments(2). Approximately 8 percent of cyanazine, initially applied at 5.5-8.8 lbs/acre, remained 2 and 4 weeks after application under no-till and conventional tilling conditions, respectively(2). Approximately 19 and 24 percent of cyanazine, initially present at 250 umol/kg, remained after 42 days in a silt loam soil that was amended with ryegrass and cornmeal, respectively; 36 percent of the applied cyanazine remained in unamended soil and soil amended with poultry litter(3). Three metabolites of cyanazine were observed (in decreasing order): hydroxy cyanazine, cyanazine amide and deethyl cyanazine(3). In a cyanazine metabolite study, cyanazine amide and de-isopropylated atrazine were detected as soil degradation products(4); it was proposed that hydrolysis preceded microbial degradation to yield the de-isopropylated atrazine(4). Persistence studies over a 20-week period at varying temperatures (5, 20, 35 and 50 deg C) found that cyanazine degraded within 10 weeks at 5 deg C and within 5 weeks at the higher temperatures(5); the initial observed half-lives at the higher temperatures were 1.5-2.0 weeks(5); it has been suggested that degradation of cyanazine at -10 deg C is not very likely(6). A half-life of 6 days was observed in a cornfield study in Quebec, Canada(7).

12.3 Bioaccumulative potential

Using a system developed by R. Metcalf, (14)C-ring-labeled cyanazine was introduced into an aquatic model ecosystem. After 35 days, analyses of the components were conducted. In addition to unchanged cyanazine, N-deethylcyanazine, cyanazine amide, N-deethylcyanazine amide, and three unknowns were found in the water. Radioactivity did not increase in the food chain of algae to mosquitoes to fish (a decrease from 1.3 to 0.05 ppm was observed), indicating that this compound does not concentrate through the food chain.

12.4 Mobility in soil

An experimentally determined Koc of 200 has been reported (soil type not given)(1). A Koc of 182 was measured in a silty soil(2). Using soil TLC, an intermediate mobility was measured in a silty clay loam (Rf of 0.39) and a high mobility was measured in a sandy loam (Rf of 0.74)(3); the avg Koc for these two soils was reported as 372(4). A Koc of 97 was measured for a silt loam soil from a corn field(5); in field studies using this soil (0.70% organic carbon), a max of 0.04% of surface application was lost through subsurface tile drains(5). In field studies, cyanazine did not leach below a 0.20 m depth in a sandy loam soil(6) or below a 0.30 m depth in a silt loam soil(7). However, cyanazine leached through 0.90 m of a soil composed of 29% clay, 49% silt and 22% sand(8). Cyanazine is reversibly adsorbed to soil particles(9); adsorption increases with increased organic matter content, decreasing soil water and decreasing pH(9). The adsorption of cyanazine by microbial biomass has been observed(10). According to a classification scheme(11), the measured Koc values suggest that cyanazine is expected to have moderate to high mobility in soil(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: UN2588 (For reference only, please check.) IMDG: UN2588 (For reference only, please check.) IATA: UN2588 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: PESTICIDE, SOLID, TOXIC, N.O.S. (For reference only, please check.) IMDG: PESTICIDE, SOLID, TOXIC, N.O.S. (For reference only, please check.) IATA: PESTICIDE, SOLID, TOXIC, N.O.S. (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: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (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
Cyanazine	Cyanazine	21725-46-2	244-544-9
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

SECTION 16: Other information

Information on revision

Creation Date	July 15, 2019
Revision Date	April 23, 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

- 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

If the substance is formulated with solvents also consult the ICSCs of these materials. Carrier solvents used in commercial formulations may change physical and toxicological properties.

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

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.