Chemical Safety Data Sheet MSDS / SDS

Cyanazine SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Cyanazine

CAS: 21725-46-2

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

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

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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Cyanazine
Common names and synonyms:	Cyanazine
CAS number:	21725-46-2
EC number:	244-544-9
Concentration:	100%

SECTION 4: First aid measures

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 .

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)

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

Skin decontamination: Skin contamination should he 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: Firefighting measures

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)

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)

Special protective actions for fire-fighters

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

SECTION 6: Accidental release measures

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.

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.

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

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.

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

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

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.

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

Reactivity

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

Chemical stability

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

Possibility of hazardous reactions

A triazine derivative.

Conditions to avoid

no data available

Incompatible materials

no data available

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

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

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).

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.

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).

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

UN Number

ADR/RID: UN2588 (For reference only, please check.)
IMDG: UN2588 (For reference only, please check.)
IATA: UN2588 (For reference only, please check.)

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.)

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.)

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.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

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.

(PICCS)

Not Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Not Listed.

SECTION 16: Other information

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.