

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1
Creation Date: July 15, 2024
Revision Date: January 04, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Cyanogen

1.2 Other means of identification

Product number LINS001233
Other names CYANOGEN; Ethanedinitrile; Prussite

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

Gases under pressure: Compressed gas
Flammable gases, Category 1A, Flammable gas
Acute toxicity - Category 3, Inhalation
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

Danger

Hazard statement(s)

H220 Extremely flammable gas
H331 Toxic if inhaled
H410 Very 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.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

Response

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P391 Collect spillage.

Storage

P410+P403 Protect from sunlight. Store in a well-ventilated place.
P403 Store in a well-ventilated place.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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
Cyanogen	Oxalonitrile	460-19-5	207-306-5	≈ 99%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. No mouth-to-mouth artificial respiration. Refer for medical attention. See Notes.

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. 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 with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

Vapor irritates eyes and causes giddiness, headache, fatigue, and nausea if inhaled. (USCG, 1999)

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

Immediate first aid: Remove patient from contact with the material. Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Cyanide and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Solid streams of water may be ineffective. Use "alcohol" foam, dry chemical or carbon dioxide. Cyanogen, liquefied

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Unburned vapors are highly toxic. Behavior in Fire: Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back. Containers may explode in fire, releasing the highly toxic gas. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with dry powder, carbon dioxide. In case of fire: keep cylinder cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: gas-tight chemical protection suit including self-contained breathing apparatus. Ventilation. Remove all ignition sources. NEVER direct water jet on liquid.

6.2 Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: gas-tight chemical protection suit including self-contained breathing apparatus. Ventilation. Remove all ignition sources. NEVER direct water jet on liquid.

6.3 Methods and materials for containment and cleaning up

Releases may require isolation or evacuation. Eliminate all ignition sources. Stop or control the leak if this can be done without undue risk. Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form nonflammable mixtures. Approach release from upwind. Control runoff and isolate discharged material for proper disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. 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. Cool. Store in a cool, dry, well-ventilated location. Isolate from acids. Outside or detached storage is preferred.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 5 ppm as STEL. MAK: 11 mg/m³, 5 ppm; peak limitation category: II(2); skin absorption (H); pregnancy risk group: D

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

Cold-insulating gloves.

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

Cyanogen is a colorless gas with an odor of almonds. Freezes at -28°C and boils at -20.7°C. Shipped as a liquid confined under its vapor pressure. The gas is heavier than air and a flame can travel back to the source of leak very easily. Prolonged exposure to fire or intense heat may cause the containers to violently rupture and rocket. Used to make other chemicals, as a fumigant, and as a rocket propellant.

Colour

Colorless gas; burns with purple tinged flame

Odour

Almond-like odor, which is acrid and pungent in lethal concentrations

Melting point/freezing point

-34.4°C

Boiling point or initial boiling point and boiling range

-6.1° F at 760 mm Hg (USCG, 1999)

Flammability

Flammable Gas

Lower and upper explosion limit/flammability limit

LOWER: 6.6%; UPPER: 32%

Flash point

Flammable gas

Auto-ignition temperature

no data available

Decomposition temperature

no data available

pH

no data available

Kinematic viscosity

no data available

Solubility

1 % (NIOSH, 2016)

Partition coefficient n-octanol/water

log Kow = 0.07

Vapour pressure

4310mmHg at 25°C

Density and/or relative density

1.076g/cm³

Relative vapour density

1.8 (AIR= 1)

Particle characteristics

no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

On combustion, forms toxic gases including hydrogen cyanide, carbon monoxide and nitrogen oxides. Reacts with strong oxidants. This generates fire and explosion hazard. Reacts with acids. This produces highly toxic gases such as hydrogen cyanide.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Flammable gas. The gas is heavier than air and may travel along the ground; distant ignition possible. Colorless, flammable, highly toxic gas. It can react explosively with strong oxidants (dichlorine oxide, fluorene, oxygen, ozone). When heated to decomposition or on contact with acids, acid fumes, water or steam it will react to produce deadly hydrogen cyanide gas and oxides of nitrogen [Sax, 9th ed., 1996, p. 945].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Contact /with dichlorine oxide/ causes ignition or explosion.

10.6 Hazardous decomposition products

When heated to decomposition ... it will ... produce highly toxic fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- 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

The substance is irritating to the eyes and respiratory tract. Rapid evaporation of the liquid may cause frostbite. The substance may cause effects on the central nervous system. This may result in respiratory failure and collapse. Exposure far above the OEL could cause death.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

SECTION 12: Ecological information

12.1 Toxicity

- 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

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

An estimated BCF of 3.2 was calculated in fish for cyanogen(SRC), using a log Kow of 0.07(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), provided the compound is not metabolized by the organism(SRC).

12.4 Mobility in soil

The Koc of cyanogen is estimated as 8.3(SRC), using a log Kow of 0.07(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that cyanogen is expected to have very high mobility in soil.

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: UN1026 (For reference only, please check.) IMDG: UN1026 (For reference only, please check.) IATA: UN1026 (For reference only, please check.)

14.2 UN Proper Shipping Name

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

14.3 Transport hazard class(es)

ADR/RID: 2.3 (For reference only, please check.) IMDG: 2.3 (For reference only, please check.) IATA: 2.3 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: (For reference only, please check.) IMDG: (For reference only, please check.) IATA: (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
Oxalonitrile	Oxalonitrile	460-19-5	207-306-5
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			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2024
Revision Date January 04, 2025

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

Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. The odour warning when the exposure limit value is exceeded is insufficient. Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

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.