CATO Research Chemicals Inc.
3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Web: www.cato-chem.com
Tel: +86-20-81960175 Fax: +86-20-81717260 E-mail: info@cato-chem.com

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Metformin EP Impurity A

1.2 Other means of identification

Product number C4X-12201
Other names Metformin Related Compound A

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

Not classified.

2.2 GHS label elements, including precautionary statements

Pictogram(s) No symbol.
Signal word No signal word
Hazard statement(s) none
Precautionary statement(s)
Prevention none
Response none
Storage none
Disposal none

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
Metformin EP Impurity A	Cyanoguanidine	461-58-5	207-312-8	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Rinse skin with plenty of water or shower.

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.

4.2 Most important symptoms/effects, acute and delayed

no data available

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

no data available

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

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

5.2 Specific hazards arising from the chemical

Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.

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

Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. 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

Separated from strong oxidants and strong acids.

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.

Respiratory protection

Use local exhaust.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid.
Colour	White.
Odour	Odorless
Melting point/freezing point	>= 210 - <= 212 °C. Remarks:Melting point.
Boiling point or initial boiling point and boiling range	60°C/17mmHg(lit.)
Flammability	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	82°C(lit.)
Auto-ignition temperature	600 °C. Atm. press.:No reaction observed.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	SOLUBILITY IN H2O @ 13 DEG C: 2.26%; MORE SOL IN HOT H2O; SOLUBILITY IN ABS ETHANOL @ 13 DEG C: 1.26%, IN ETHER @ 13 DEG C: 0.01%; SOL IN LIQUID AMMONIA, INSOL IN BENZENE & CHLOROFORM
Partition coefficient n-octanol/water	Pow = 0.1. Temperature:20 °C.;log Pow = -1. Temperature:20 °C.
Vapour pressure	<= 0 hPa. Temperature:100 °C.
Density and/or relative density	1.4 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 gases including ammonia (see ICSC 0414). Reacts violently with strong oxidants such as ammonium nitrate. This generates fire and explosion hazard. Reacts with acids. This produces toxic gases including hydrogen cyanide. See ICSC 0492.

10.2 Chemical stability

Stable when dry

10.3 Possibility of hazardous reactions

NON-FLAMMABLE.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat - > 7 000 mg/kg bw.
- Inhalation: LC0 - rat (male/female) - > 259 mg/m³ air.
- Dermal: LD50 - rabbit (male/female) - > 2 000 mg/kg bw.

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

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: NOEC - Lepomis macrochirus - > 1 000 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 3 177 mg/L - 48 h.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 2.04 g/L - 4 d.
- Toxicity to microorganisms: TT - Pseudomonas putida - 130.6 mg/L - 18 h.

12.2 Persistence and degradability

Cyanoguanidine, at 30 mg/l, reached only 2.2% of the theoretical BOD in two weeks using a sludge inoculum(1). Biodegradation of cyanoguanidine was measured in six soils, five collected from Sri Lankan tea plantations and one grassland soil from Highfield, UK; in the near-neutral Highfield soil (pH = 6.8), 10.2 and 41.6% of the cyanoguanidine-N was mineralized after 12 and 60 days, respectively(2). In the other, more acidic soils (pH = 4.0-4.3), only a small percentage of the added cyanoguanidine-N was mineralized to ammonia and nitrate nitrogen; mineralization after 60 days was only 10-25% that of the Highland soil(2). Mineralization was correlated with soil pH but not with organic matter content or total nitrogen(2). Cyanoguanidine, at 20 mg/l was added to flooded sediments; complete degradation was reported within 34-44 weeks for aerobic conditions, while under anaerobic conditions two-thirds of the initial concentration was degraded within 60 weeks(3).

12.3 Bioaccumulative potential

BCF values of <0.3 and <3.1 were measured for cyanoguanidine at 2 and 0.2 mg/l, respectively, in carp(1). According to a classification scheme(2), these BCF values suggest that bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of cyanoguanidine is estimated as approximately 6(SRC), using a measured log Kow of -1.15(1) and a regression-derived equation(2,SRC). According to a recommended classification scheme(3), this estimated Koc value suggests that cyanoguanidine has very high mobility in soil(SRC). However, when leaching of cyanoguanidine following mineral fertilization, slurry manuring and decomposition under simulated ground water conditions (silty loam, pH 6.5) was measured in lysimeters(4). After mineral feeding, only 0.6-0.9% of the cyanoguanidine applied in 5 years was leached with the highest leaching rate occurring in October (with 5.6% leached of the added amount)(4).

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: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

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
Cyanoguanidine	Cyanoguanidine	461-58-5	207-312-8
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			Not 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 August 08, 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

In solution the substance decomposes above 80°C yielding ammonia (see ICSC 0414).

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

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