Date of Compilation : April 04, 2012

Date of Revision : February 21, 2024

Revision due date : January 2027

Revision Number : 14

Version Name : 0022Gj Ghs14 Div.03 sds 4-Cyanopyridine

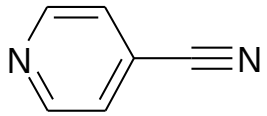
Supersedes date : June 22, 2023

Supersedes version : 0022Gj Ghs13 Div.03 sds 4-Cyanopyridine

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

1.1 Product identifier

Product identification	: 4-Cyanopyridine
CAS RN	; 100-48-1
EC#	: 202-856-2
Trade name	: 4-Cyanopyridine
Systematic Name	:4-Pyridinecarbonitrile, Isonicotinonitrile
Synonyms	:4-Pyridinenitrile, Isonicotinic acid nitrile, gamma-Cyanopyridine.
Molecular Formula	:$C_6H_4N_2$
Structural Formula:	



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

1.2.1. Identified uses:

4-Cyanopyridine is used as an intermediate in pharmaceutical industry for preparation of 4-DMAP and isoniazid etc.

Uses advised against: **None**

1.3 Details of the supplier of the safety data sheet

FACTORY & REGISTERED OFFICE: Jubilant Ingrevia Limited., Bhartiagram, Gajraula, District: Amroha, Uttar Pradesh-244223, India T +91-5924-252353 to 252360 Contact Department-Safety: Ext. 7424 F +91-5924-252352

HEAD OFFICE: Jubilant Ingrevia Limited., Plot 1-A, Sector 16-A,Institutional Area, Noida, Uttar Pradesh, 201301 - India
T +91-120-4361000 - F +91-120-4234881 / 84 / 85 / 87 / 95 / 96 support@jubl.com - www.jubilantingrevia.com

1.4 Emergency telephone

For Chemical Emergency ONLY (in the case of fire, leak, spill, exposure or accident) Call
Chemtrec: 1-800-424-9300 (US), 1-703-527-3887 (Outside U.S.)
Chemtrec (India) : 000-800-100-7141
For ALL other emergencies call Emergency Control Room Gajraula at 99970 22412

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance

GHS US Classification

Combustible liquid: Category 4	H227
Acute Toxicity Oral: Category 4	H302
Serious eye damage/irritation: Category 2	H319

2.2 Label elements

GHS US Classification

Pictograms:

GHS 07-Exclamation

Signal word: *Warning*!

HAZARD AND PRECAUTIONARY STATEMENTS

HAZARD STATEMENTS

- H227: Combustible liquid.
- H302: Harmful if swallowed.
- H319: Causes serious eye irritation.

PRECAUTIONARY STATEMENTS

- P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking.
- P264: Wash hands thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P370+378: In case of fire: Use water for extinction.
- P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330: Rinse mouth**.**
- P302+352: IF ON SKIN: Wash with soap and water.
- P321: Specific treatment (see … on this label).
- P332+313: If skin irritation occurs: Get medical advice/attention.
- P362: Take off contaminated clothing and wash before reuse.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+P313: If eye irritation persists: Get medical advice/attention.
- P403+P235: Store in a well ventilated place. Keep cool.
- P501: Dispose of the container as per local norms and regulations.

2.3 Other Hazards

- Substance is not classified as PBT nor as vPvB. For further details see section 12.

SECTION 3: COMPOSITION / INFORMATION ON INGERDIENTS

Substance	CAS No.	EINECS No.	Purity	GHS US Classification
4-Cyanopyridine	100-48-1	202-856-2	> 98%	Combustible liquid: Category 4 Acute Toxicity Oral: Category 4 Serious eye damage/irritation: Category 2

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Skin Contact: Wash with soap and water. Get medical attention if irritation develops or persists.
Eye Contact: Rinse eyes immediately with large amounts of water for at least 15 minutes, occasionally lifting the eyelids. GET MEDICAL ATTENTION.
Inhalation: Remove from exposure area to fresh air immediately. If breathing has stopped, give artificial respiration. GET MEDICAL ATTENTION.
Ingestion: If swallowed, do not induce vomiting. Get prompt medical attention. Do not give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

- ***Acute effects:***
  Can cause eye irritation, including redness and tearing.

- ***Chronic effects:***
  To the best of our knowledge, the chronic health effects of this product have not been fully investigated.

4.3. Indication of any immediate medical attention and special treatment needed

- **Note to Physician:** No specific indications. Treatment should be based on the judgment of the physician in response to the reactions of the patient.

SECTION 5 : FIRE-FIGHTING MEASURES

5.1. Extinguishing media

- **Appropriate Extinguishing Media**: Use water fog, alcohol resistant foam, carbon dioxide, or dry chemical.

5.2. Special hazards arising from the substance or mixture

- **Hazardous Products of Combustion:** Toxic vapors may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).
- **Potential for Dust Explosion:** No data available -- handle in a manner that prevents generation of potentially explosive dust.

- **Special Flammability Hazards:** This product is an organic solid. As such, in its finely divided form, this product has the potential to present a dust explosion hazard under certain conditions; although no dust explosion data is currently available. Handle this product in a manner that prevents dust generation and accumulation, and refer to National Fire Protection Association (NFPA) Standard 654 for further information on prevention of dust explosions.

5.3. Advice for firefighters

- **Basic Fire Fighting Guidance:** Wear self-contained breathing apparatus and full protective clothing (i.e., Bunker gear). Skin and eye contact should be avoided. Normal fire fighting procedures may be used..

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

- **Evacuation Procedures:** Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
- **Special Instructions:** See Section 8 for personal protective equipment recommendations. Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded.

6.2. Environmental precautions.

- Prevent releases to soils, drains, sewers and waterways.

6.3. Methods and material for containment and cleaning up.

- Remove all ignition sources. Ventilate the area of spill or leak. Wear protective equipment during clean-up. Material can then be collected for later disposal. After collection of material, flush area with water. Dispose of the material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws..

6.4. Reference to other sections.

- Refer to section 8 for information on selecting personal protective equipment. Refer to section 13 for information on spilled product, absorbent and clean up material disposal instructions.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- **Precautions for Unique Hazards:** Not applicable.
- **Practices to Minimize Risk:** Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material. Do not eat, drink or smoke in work areas. Prevent contact with incompatible materials. Avoid spills and keep away from drains. Handle in a manner to prevent generation of aerosols, vapors or dust clouds.
- **Special Handling Equipment:** Not applicable.

7.2. Conditions for safe storage, including any incompatibilities

- **Storage Precautions & Recommendations:** Store at ambient temperature in a dry and well ventilated place. Protect containers against physical damage. Keep away from strong acids, strong bases and oxidizing agents.
- **Dangerous Incompatibility Reactions:** Avoid strong acids, strong bases, and oxidizing agents.
- **Incompatibilities with Materials of Construction:** None known

7.3. Specific end use(s)

- No further relevant information available.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

8.1.1 Exposure Limits Values

Chemical name	*ACGIH TLV*	*OSHA PEL*	NIOSH
4-Cyanopyridine	Not established	Not established	None listed

8.1.2Exposure Limits (International):

- Not available.

8.1.3 Derived No-Effect-Levels (DNEL) / Predicted No-effect-concentration (PNEC)

- DNEL and PNEC data not available.

8.2. Exposure controls

8.2.1Appropriate Engineering Controls:

- All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided

8.2.2. Personal Protection:

- Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.
- **Eyes**: Safety goggles/ Chemical Safety glasses and Face shield. Safety glasses or chemical goggles (Standard EN166).
- **Clothing**: Boots and clothing to prevent contact. Chemical resistant clothing (Standard EN368)

- **Respirator**: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.
- **Hands**: Wear appropriate protective gloves to prevent skin exposure. Neoprene, nitrile or PVC-coated gloves (Standard EN 374).

In full contact:

Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min

In splash contact:

Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Sr.No.	Parameter	Typical value
1.	Appearance	White to pale yellow solid
2.	Odor	Characteristic
3.	Odor Threshold	Not available
4.	pH	~ 6 in 10 g/L H2O @ 22°C
5.	Melting point/Freezing point	78-80°C(Melting point)
6.	Boiling Point	195-196 °C @760 mmHg
7.	Flash point	88 °C
8.	Evaporation rate (n-BuAc=1)	Not available
9.	Flammability	Combustible material
10.	Upper/lower flammability or Explosive limits	Not available
11.	Vapor pressure	Not available
12.	Vapor density (air=1)	Not available
13.	Relative density	Not available
14.	Solubility	4 g/100 ml (20 °C)(Water)
15.	Partition coefficient : n-(Octonol / water)	0.46
16.	Auto-ignition temperature	Not available
17.	Decomposition temperature	Not available
18.	Viscosity	Not available
19.	Explosive property	No
20.	Oxidizing property	No

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

- Not classified as dangerously reactive.

10.2. Chemical stability

- Stable under normal temperature & pressures.

10.3. Possibility of hazardous reactions

- Hazardous Polymerization: Will not occur.

10.4. Conditions to avoid

- Avoid static discharge and generation of dust. Avoid ignition sources, and sources of heat.

10.5. Incompatible materials

- Avoid strong acids, strong bases, and oxidizing agents.

10.6. Hazardous decomposition products

- Toxic vapors may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

a) Acute toxicity
- Acute Oral LD50: Oral LD50 (rat) = 710 mg/kg
- Acute Dermal LD50: Dermal LD50 (rabbit) > 20000 mg/kg
- Acute Inhalation: No data available

b) Skin corrosion/irritation
- May cause slight skin irritation.

c) Serious eye damage/irritation
- Causes eye irritation.

d) Respiratory or skin sensitization
- Not expected to be a sensitizer

e) Germ cell Mutagenicity
- No evidence of mutagenic effects

f) Carcinogenicity
- Not listed by NTP, IARC and OSHA.
- Not present on the EU CMR list.
- According to information presently available4-Cyanopyridine is not found to be carcinogenic.

g) Reproductive toxicity
- No evidence of reproductive effects

h) STOT-single exposure
- No data available.

i) *STOT- repeated exposure*
- No data available.

j) Aspiration Hazards
- No data available.

k) ***Primary Route(s) of Exposure:*** Skin contact and absorption, eye contact, and inhalation. Ingestion is not likely to be a primary route of exposure

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

12.1.1Ecotoxicity:
- The Ecotoxicity data is not available.

12.2. Persistence and degradability
- Readily biodegradable. Based on environmental modeling, this material is not expected to be persistent in the environment, is not expected to bioaccumulate, and is not expected to be chronically toxic to fish

12.3. Bioaccumulative potential
- No data available.

12.4. Mobility in soil
- No data available.

12.5. Results of PBT and vPvB assessment
- The substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII

12.6. Other adverse effects
- Environmental modeling predicts that this material will not present a significant toxicity risk to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment method

- Burn in a chemical incinerator equipped with an afterburner and scrubber.
- Exert extra care in igniting, as this material is combustible.
- Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws. Note that disposal regulations may also apply to empty containers and equipment rinsates.

SECTION 14: Transport information

- This substance is considered to be non hazardous for transport by Air/Rail/Road and Sea and thus not regulated by IATA/ICAO/ARD/RID/IMO/IMDG.

Mode of Transport	Agency
Land transport	ADR/RID
Maritime Transport	IMDG
Air Transport	IATA

14.1. UN number
- Not applicable

14.2. UN proper shipping name
- Not applicable

14.3. Transport hazard class(es)
- Not applicable

14.4. Packing group
- Not applicable

14.5. Environmental hazards
- This chemical is not a marine pollutant.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture.
- European/International Regulations.
- European Labelling in Accordance with EC Directives.

Classification (as per Regulation (EC) No 1272/2008):
- **Hazards Class and Category**: Acute Tox.Oral Cat.4, Serious eye damage Cat.2,
- **Hazard Statements:***H302; H319*

WHMIS Classification: Class D, Division 2, Subdivision B: Irritant.
Chemical Inventory Lists:

Status	
TSCA:	Yes
EINECS:	202-856-2
Canada(DSL/NDSL):	NDSL
Japan:	5-743
Korea:	KE-29933
Australia:	Yes
New Zealand:	Present
China:	Yes
Philippines:	Yes
Switzerland:	No

New Zealand GHS Classification:6.3A, 6.4A (Approval number: HSR005803)
Japan GHS Classification:Not classified by this country.
Korea (MOL) GHS Classification:Not classified by this country.
Australia GHS Classification:Not classified by this country.
Taiwan GHS Classification:Not classified by this country.
Indonesia GHS Classification:Not classified by this country.
SARA 313:Not listed.
Reportable Quantities:Not applicable.
State Regulations:Not applicable.
Other Regulatory Listings:Not applicable.

SECTION 16: OTHER INFORMATION

a) Compilation information of safety data sheet

Date of compilation	: April 04, 2012
Chemical	: 4-Cyanopyridine
CAS #	:100-48-1
File Name	: 0022Gj Ghs14 Div.2sds 4-Cyanopyridine
Revision Number	: 14
Date of Issue of SDS	: February 21, 2024
Revision Due Date	: January, 2027
Supersedes date	: June 22, 2023

b) A key or legend to aberrations and acronyms used in the safety data sheet

- PBT =Persistent Bioaccumulative and Toxic
- vPvB= Very Persistent and Very Bioaccumulative
- SCBA= Self Contained Breathing Apparatus
- NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit OSHA PEL=Occupational Safety and Health Adminstration Permissible Exposure Limit
- OELTWA= Occupational Exposure Limit Time Weighted Averages
- IDLH= Immediately Dangerous to Life or Health
- UEL= Upper Explosive Limit
- LEL= Lower Explosive Limit
- RTECS= Registry of Toxic Effects of Chemical Substances
- NTP=National Toxicology Programm
- IARC= International Agency for Research on Cancer
- EPA=Environmental Protection Agency
- TSCA= Toxic Substances Control Act
- CERCLA= Comprehensive Environmental Response, Compensation, and Liability Act
- SARA= Superfund Amendments and Reauthorization Act
- NFPA= National Fire Protection Association
- WHIMS= Workplace Hazardous Materials Information System
- DSL/NDSL= Domestic/Non-Domestic Substances List
- CSR=Chemical Safety Report
- BCF = Bio Concentration Factor
- DNEL = Derived No Effect Level
- PNEC = Predicted No Effect Concentration
- TLV = Threshhold Limit Value
- ACGIH = American Conference of Governmental Industrial Hygienists
- REACH = Registration, Evaluation .Authorisation and Restriction of Chemicals
- CLP = Classification, Labelling and Packaging
- LD / LC = Lethal Doses / Lethal Concentration
- GHS = Globally Harmonised System
- ADR = Accord europeen relative au transport international de marchandises
- IMDG-Code = International Maritime Code for Dangerous Goods
- EmS = Emergency measures on Sea
- ICAO = International Civil Aviation Organization
- IATA/DGR= International Air Transport Association/Dangerous Goods Regulation

c) Key Literature reference and sources for data

Biographical reference and data sources

- Globally Harmonized System of Classification and Labelling of Chemicals.
- CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009.

d) List of hazard statements

Hazards Statements	H227: Combustible liquid H302: Harmful if swallowed. H319: Causes serious eye irritation.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

End of safety data sheet