Safety Data Sheet

As per Globally Harmonized System (GHS)

Product Identification: Picolinic acid 0024Gj Ghs08 Div.03 sds Picolinic acid

Date of issue: March 29, 2024

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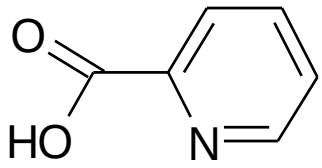
SECTION 1.: IDENTIFICATION

PRODUCT NAME	Picolinic Acid
CAS RN	98-98-6
EC#	202-719-7
SYSTEMATIC NAME	2-Pyridinecarboxylic acid, Picolinic acid-
SYNONYMS	2-Carboxypyridine, 2-Pyridinecarboxylic acid, alpha- Pyridinecarboxylic acid
MOLECULAR FORMULA	$C_6H_5NO_2$
STRUCTURAL FORMULA	



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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

Product Uses:

- Picolinic acid is used as an intermediate in the pharmaceutical industry for the manufacture of cefaclor (a semi synthetic antibiotic), Azasetron (prophylaxis against postoperative emesis), methyprylon (used for insomnia and daytime tension) etc. in the agrochemical industry for the manufacture of prohexadione. It acts as a chelating agent of elements such as chromium, zinc, manganese, copper, iron, and molybdenum in the body. It is involved in phenylalanine, tryptophan, and alkaloids production, and for the quantitative detection of calcium. This forms a complex with zinc, may facilitate the passage of zinc through the gastrointestinal wall and into the circulatory system. .

SECTION 2: HAZARDS IDENTIFICATION

Classification of Substance

GHS CLASSIFICATION

Acute Toxicity Oral: Category 4

Serious eye damage/eye irritation: Category 1

Hazard Pictogram: GHS 05**,** GHS 07

Signal Word: Danger!

Label Elements

HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS

- H302: Harmful if swallowed.
- H318: Causes serious eye damage.

PRECAUTIONARY STATEMENTS

- P270: Do not eat, drink or smoke when using this product.
- P264: Wash hands thoroughly after handling.
- P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330: Rinse mouth.
- P305+P351+P338: If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310: Immediately call a POISON CENTER or doctor/physician.
- P501: Dispose of contents/container to local/regional/national/international regulations.

SECTION 3: COMPOSITION / INFORMATION ON INGERDIENTS

Sr.No.	Chemical	CAS #	EC#	Purity
1	Picolinic acid	98-98-6	203-626-4	> 98%

SECTION 4: FIRST AID MEASURES

Description of First aid measures:

- **Eyes**: If in eyes rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Seek medical attention.
- **Skin:** Immediately take off all contaminated clothing. Wash thoroughly with water for at least 15 minutes. Wash contaminated clothes before reuse. Seek immediate medical attention.
- **Inhalation**: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if you feel unwell.
- **Ingestion**: If swallowed call a poison center if you feel unwell. Rinse mouth. Do NOT induce vomiting by use of emetics. Seek medical attention.

Most important symptoms and effects, both acute and delayed:

Key symptoms

Acute effects:

- Picolinic acid is irritating to skin. It causes serious eye irritation and may cause respiratory irritation. It is irritating to tissues of the mucous membranes and upper respiratory tract. . It is harmful if swallowed.

Chronic effects:

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

Indication of any immediate medical attention and special treatment needed

- Treat symptomatically.

SECTION 5 : FIRE-FIGHTING MEASURES

Extinguishing media:

- *Appropriate extinguishing media*: Dry chemical powder, carbon dioxide, and alcohol resistant foam. Water spray can be effective in cooling down the fire-exposed containers and knocking down the vapours. Water jets may be used to flush spills away and dilute the same to non-flammable mixtures fog or alcohol-resistant foam by directing streams to the periphery of the fires to prevent spread.

Special Protective Equipment and Precautions for Fire Fighter:

- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide and cyanide.
- High vapor concentration may result in an explosion hazard.
- Vapors are heavier than air. May travel considerable distance from source and flashback.

Unusual fire and explosion hazard:

- Evacuate the area and fight fires from a safe distance.
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions or as per locally valid procedures.
- Fire-fighters must wear Self Contained Breathing Apparatus (SCBA).
- Report any run-off of firewater's contaminated with this chemical as per local and federal procedures applicable.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Minor Spills

- Clean up all spills immediately following relevant Standard Operating Procedures.
- Avoid breathing vapors and contact with skin and eyes.
- Shut off leak source if possible.

- Shut off all possible sources of ignition.
- Wear protective clothing, boots, impervious gloves and safety glasses.
- Wipe up.
- Decontaminate all equipment.

Major Spill

- Alert Emergency Responders and tell them location and nature of hazard.
- Shut off all possible sources of ignition and increase ventilation.
- Wear protective clothing, full boots, impervious gloves, safety glasses and Self Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
- Clear area of personnel and move upwind.
- Stop leaks if possible.
- Prevent, by any means available, spillage from entering drains or water and watercourses.
- Collect recoverable product into labeled containers for recycling, recovery or disposal.
- Contain spill with sand, earth or vermiculite.
- Spread area with lime or absorbent material, and leave for at least 1 hour before washing.
- Clean up all tools and equipment.
- Inform authorities in event of contamination of any public sewers, drains or water bodies.

SECTION 7: HANDLING AND STORAGE

Precaution for Safe Handling

- Do not breathe vapor or mist.
- Wear protective gloves/clothing and eye/face protection.
- Wash thoroughly after handling.
- Ground and secure containers when dispensing or pouring product.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Launder contaminated clothing before re-use.
- If on skin or hair, IMMEDIATELY remove all contaminated clothing and rinse/shower with plenty of water.
- Use in a well-ventilated place/Use protective clothing commensurate with exposure levels.

Conditions for safe storage, including any incompatibilities

- Store at ambient temperature in a well-ventilated place.
- Store away from incompatible materials.
- Keep securely closed when not in use.
- Store in the original container as much as possible.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Limits Values

Chemical name	STEL (ppm)	NIOSH	ACGIH	OSHA
Picolinic acid	Not available	Not available	Not available	Not available

Exposure Limits (International):

- **OSHA Vacated PELs**: Picolinic acid: No OSHA Vacated PELs are listed for this chemical.

Exposure controls

Appropriate Engineering Controls:

- Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. Local ventilation is usually preferred. Ensure that eyewash stations and safety showers are close to the workstation location.

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.
- **Hands:** Wear appropriate protective gloves to prevent skin exposure.
- **Eyes:** Safety goggles/ Chemical Safety glasses and Face shield.
- **Clothing:** Boots and clothing to prevent contact.
- **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.

For emergency situations, wear a positive pressure, pressure-demand, full face piece self-contained breathing apparatus (SCBA) or pressure- demand supplied air respirator with escape SCBA and a fully-encapsulating, chemical resistant suit. (EPA,1998).

General Hygiene and general comments:

- Wash hands and face after working with substance.
- Immediately change contaminated clothing.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

- **Information on basic physical and chemical properties.**

Sr.No.	Parameter	Typical value
1.	Appearance	Off white to white crystalline powder
2.	Odor	Almost odorless
3.	Odor Threshold	Not available
4.	pH	3.0-4.0 (1% aqueous solution, at 20°C)
5.	Melting point/Freezing point	134-137 °C
6.	Boiling Point	Decompose at >= 160 °C
7.	Flash point	Not available
8.	Evaporation rate (n-BuAc=1)	Not available

9.	Flammability	Non Flammable
10.	Upper/lower flammability or Explosive limits	Not available
11.	Vapor pressure	0.028 Pa at 25 °C
12.	Vapor density (air=1)	Not available
13.	Relative density	0.76 g/cm³ (bulk density)
14.	Solubility	887 g/l @20°C(Soluble in water)
15.	Partition coefficient : n-(Octonol / water)	0.72
16.	Auto-ignition temperature	Study does not need to be conducted because the substance is a solid having a melting point <= 160°C
17.	Decomposition temperature	>= 160 °C
18.	Viscosity	Not available
19.	Explosive property	No
20.	Oxidizing property	No

SECTION 10: STABILITY AND REACTIVITY

- **Stability:** Stable at normal conditions of temperature and pressure**.**
- **Conditions to avoid:** Keep away from High temperature, mechanical shock, incompatible materials, ignition sources, and moisture. Store in tightly closed containers in a cool, well ventilated area away from excess heat. Avoid dust generation.
- **Incompatible materials:** Incompatible with Oxidizing agents, acids, bases, reducing agents.
- **Hazardous decomposition:** Thermal decomposition may produce carbon monoxide and oxides of nitrogen, carbon dioxide & nitrogen, hydrogen cyanide and irritating and toxic fumes.
- **Hazardous Polymerization**: Not reported.

SECTION 11: TOXICOLOGICAL INFORMATION

a) Acute toxicity

- Picolinic acid is irritating to skin. It causes serious eye irritation and may cause respiratory irritation. It is irritating to tissues of the mucous membranes and upper respiratory tract. It is harmful if swallowed.

Target organs:

- Biochemical effects (other enzymes).

RTECS#: TJ7344000

- **ACUTE ORAL LD50 RAT** = 2,000 mg/kg
- **ACUTE ORAL LD50 MOUSE** = 750 mg/kg

- **INTRAPERITONEAL RODENT LD50** = 360mg/kg
- **INTRAVENOUS MOUSE LD50** = 487mg/kg

b) Skin corrosion/irritation

- Not a skin irritant

c) Serious eye damage/irritation

- Causes severe eye damage.

d) Respiratory or skin sensitization

- No data available

e) Germ cell Mutagenicity

TEST	TYPE	DOSE/DURATION	REFERENCE	Pg.Vol.Year
Rodent Hamster Ovary	Specific Locus test	0.75 mmol/L/48H	MUREAV Mutation Research.(Elsevier Science Pub. B.V., POB 211, 1000 AEAmsterdam,Netherlands)	513,135,2002

f) Carcinogenicity

- Not listed by NTP, IARC and OSHA.
- Not present on the EU CMR list.
- According to information presently available Picolinic acid is not found to be carcinogenic.

g) Reproductive toxicity

- No data is available.

h) STOT-single exposure

- No data is available.

i) *STOT- repeated exposure*

- No data available.

j) Aspiration Hazards

- No data available.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity :
Ecotoxicity:

- Short-term toxicity to aquatic invertebrates: EC50 (48h):>100mg/l

Persistence and degradability

- Picolinic acid is expected to be biodegradable in aerobic and anaerobic conditions.

Bio accumulative potential

- BCF = 3.162
- Log Kow = 0.72

Based on the Log Kow and Bio concentration factor value, it is expected to have low potential to concentrate in fatty tissue of fish and aquatic organisms. Picolinic acid is expected to be found predominantly in soil and its persistence

estimate is based on its transformation in this medium. Its half-life in soil, 30 days, does not exceed the EPA criteria. Therefore, Picolinic acid is estimated not to be persistent in the environment.

Mobility in soil

- Koc=14.49. Negligible absorption in soil.
- Henry's Law constant: 9.288E-009 atm-m3/mole. Non-volatile
- Log Kow=0.72

Other adverse effects.

- **Environment Fate:**
  Based on environmental modeling, this material is expected to be found predominantly in soil. It is also expected to be found in water but not in sediment. It undergoes rapid biodegradation. Since this is an estimated result it is recommended that the material should not be disposed into the environment. The material should never be disposed into the sewage.

SECTION 13: DISPOSAL CONSIDERATIONS

- Collect in container for solid organic residues.
- Collection vessels must be clearly labelled with a systematic description of their contents. Store the vessels in a well-ventilated location. Entrust them to the appropriate authorities for disposal.
- 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/US DOT/IMO/IMDG.

Environmental hazards:

- Marine pollutant: No

SECTION 15: REGULATORY INFORMATION

European Union Information

Classification as per CLP Regulation 1272/2008:

- **Hazards Class and Category:** Acute Tox. Oral Cat.4, Eye irrit.cat.1
- **Hazard Statements:** H302; H318

Chemical Inventory Lists:	Status
TSCA:	Listed (Active)
EINECS:	202-719-7
Canada(DSL/NDSL):	Listed/DSL
Japan:	9-1077
Korea:	KE-29936
Australia:	Listed
China: IECSC	Listed
Taiwan	Listed
Philippines	Not listed

US information

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): Picolinic acid is not listed
SARA 302/304 : Picolinic acid is not listed
SARA 311/312 : See section 2 for more information
California Prop. 65: Picolinic acid is not listed
CAA (Clean Air Act): Picolinic acid is not listed
CWA (Clean Water Act): Picolinic acid is not listed

EU Information
German Water Hazard Classification: WGK 1 (Slightly hazardous to water)
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: Picolinic acid is not listed

SECTION 16: OTHER INFORMATION

Compilation information of safety data sheet
Chemical: Picolinic acid.
CAS #: 98-98-6
File Name: 0024Gj Ghs08 Div.03 sds Picolinic acid
Revision Number: 08
Date of Issue of SDS: March 29, 2024
Revision Due Date: February, 2027

(a) A key or legend to aberrations and acronyms used in the safety data sheet;

- PBT =Persistent Bio accumulative and Toxic.
- vPvB= Very Persistent and Very Bio accumulative.
- SCBA= Self Contained Breathing Apparatus.
- NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit.
- OSHA PEL=Occupational Safety and Health Administration 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 Program
- 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.
- BCF = Bio Concentration Factor.
- DNEL = Derived No Effect Level.
- PNEC = Predicted No Effect Concentration.
- TLV = Threshold Limit Value.
- ACGIH = American Conference of Governmental Industrial Hygienists.
- REACH = Registration, Evaluation .Authorization and Restriction of Chemicals.

- CLP = Classification, Labeling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonized System.
- 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.

(b) 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

Internet

- RTECS

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)