



Gamma Picoline **Safety Data Sheet**

According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

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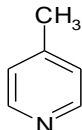
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

PRODUCT NAME	: Gamma Picoline
CAS RN	: 108-89-4
EC#	: 203-626-4
SYNONYMS	: Gamma-methyl pyridine, Gamma-Picoline, P- Picoline
SYSTEMATIC NAME	: 4-Methylpyridine, 4-Picoline (8CI), Pyridine, 4-methyl-
MOLECULAR FORMULA	: C ₆ H ₇ N
STRUCTURAL FORMULA	



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

Relevant identified uses

Gamma Picoline is used as an intermediate in the pharmaceutical industry and agrochemical industry.

Uses advised against: None

Details of the supplier of the safety data sheet

Jubilant Ingrevia Limited

FACTORY & REGISTERED OFFICE: Jubilant Ingrevia Limited, Bhartiagram, Gajraula, District: Amroha, Uttar Pradesh-244223, India.
T: +91-5924-267437 and +91-5924-267438 .

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 number

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: HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

GHS-US classification

Flammable Liquid: Category 3

Acute Toxicity Oral: Category 4

Acute Toxicity Dermal: Category 3

Acute Toxicity Inhalation: Category 4

Serious eye damage/irritation: Category 2

Specific target organ toxicity: Category 3

(After single exposure)

Skin corrosion/irritation: Category 2

Label Elements

Hazard Pictogram: GHS 02, GHS 06

Signal Word: Danger!



HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS

- H226: Flammable liquid and vapour.
- H302: Harmful if swallowed.
- H311: Toxic in contact with skin.
- H332: Harmful if inhaled.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.



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- H315: Causes skin irritation.

PRECAUTIONARY STATEMENTS

- P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P233: Keep container tightly closed.
- P240: Ground/bond container and receiving equipment.
- P241: Use explosion-proof electrical/ventilating/light/.../equipment.
- P242: Use only non-sparking tools.
- P243: Take precautionary measures against static discharge.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P264: Wash hands thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
- P271: Use only outdoors or in a well-ventilated area.
- P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P370+378: In case of fire, use for extinction appropriate media specified by the manufacturer/supplier or the competent authority - if water increases risk.
- P301+312: 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.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P363: Wash contaminated clothing before reuse.
- P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P332+313: If skin irritation occurs: Get medical advice/attention.
- P361: Remove/Take off immediately all contaminated clothing.
- P362: Take off contaminated clothing and wash before reuse.
- P305+351+338: IF IN EYES: Rinse continuously 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.
- P405: Store locked up.
- P501: Dispose of contents/container to local/regional/national/international regulations.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Chemical	CAS #	Purity	GHS-US classification
Gamma Picoline	108-89-4	~99%	Flammable Liquid: Category 3 Acute Toxicity Oral: Category 4 Acute Toxicity Dermal: Category 3 Acute Toxicity Inhalation: Category 4 Serious eye damage/irritation: Category 2 Specific target organ toxicity SE: Category 3 (Skin corrosion/irritation: Category 2)

Mixtures

- Not applicable

SECTION 4: FIRST AID MEASURES

Description of first aid measures.

4.1.1 *Route of exposure:* Inhalation, skin, eye and ingestion.

4.1.2 *Advice*

- Rinse eyes cautiously with water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Seek medical attention.
- Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

- **Acute effects:**
Eyes: Redness, pain, burns, loss of vision.



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Skin: Pain, redness, burns. Behavioral somnolence observed in test animals. Neurotoxicity indication in rats via dermal adsorption.

Ingestion: Abdominal pain, burning sensation, diarrhea, shock or collapse, sore throat or vomiting. may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Exposure can cause gastrointestinal disturbance.

Inhalation: Sore throat, cough, burning sensation, shortness of breath, labored breathing, headache, nausea and vomiting.

- **Chronic effects:**

May affect liver function (reversible increased liver weight), blood clotting factors, decrease in red blood cells. Damage to liver and kidney.

Indication of any immediate medical attention and special treatment needed

- **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. Monitor for respiratory distress. Apply artificial respiration if not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Toxic vapours may be released on thermal decomposition including nitrogen oxides, carbon monoxide and cyanide.
- **Ingestion:** If swallowed call a poison center if you feel unwell. Rinse mouth. Do NOT induce vomiting by use of emetics. Seek medical attention.

SECTION 5 : FIRE-FIGHTING MEASURES

Extinguishing media

- *Appropriate extinguishing media:* Dry chemical powder, carbon dioxide, and alcohol resistant foam. Water may be in effective. Water sprays 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 hazards arising from the substance or mixture

- 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.

Advice for firefighters

- Evacuate the area and fight fires from a safe distance.
- Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Do not breathe vapors.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Always stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
- 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) and full protective clothing. The chemical is harmful in contact with skin.
- Report any run-off of fire waters 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.
- Use non-sparking tools.

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.



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- Inform authorities in event of contamination of any public sewers, drains or water bodies.

SECTION 7: HANDLING AND STORAGE

Precautions 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.

Storage

- Store at ambient temperature in dry and well ventilated place.
- Store away from incompatible materials.
- Keep only in original container.
- Keep securely closed when not in use.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

• Exposure Limits Values

Chemical name	ACGIH TLV	OSHA PEL
Gamma Picoline	Not available	Not available

Exposure Limits (International):

- AIHA WEEL = 2 ppm (skin) as 8-hr TWA; 5 ppm as 15 minute STEL
- USSR: 5 mg/m³

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.

General Hygiene and general comments:

- Wash hands and face after working with substance.
- Immediately change contaminated clothing.
- Apply skin **protective barrier cream**.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

• Information on basic physical and chemical properties.

Sr.No.	Parameter	Typical value
1.	Appearance	Yellow liquid
2.	Odor	Characteristic
3.	Odor Threshold	< 1 ppm
4.	pH	9.4
5.	Melting point/Freezing point	2.4°C(Melting point)



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6.	Boiling Point	144-145 °C
7.	Flash point	39°C closed cup
8.	Evaporation rate (n-BuAc=1)	Not available
9.	Flammability (Liquid)	Flammable
10.	Upper/lower flammability or Explosive limits	1.3%-8.7%
11.	Vapor pressure	1.3 kPa at 20 °C
12.	Vapor density (air=1)	3.2
13.	Relative density	0.96@20° C
14.	Solubility	Miscible, 1.00E+06 mg/L Temp: 25 °C (in water)
15.	Partition coefficient : n-(Octonol / water)	1.22
16.	Auto-ignition temperature	> 500°C
17.	Decomposition temperature	Not available
18.	Viscosity	Not available
19.	Explosive property	No
20.	Oxidizing property	No

SECTION 10: STABILITY AND REACTIVITY

- **Stability:** Stable under specified storage condition.
- **Conditions to avoid:** Hygroscopic. Keep away from heat, sparks, flame, high temperature and incompatible chemicals.
- **Incompatible chemicals:** Acids and acid chlorides, oxidizing materials like hydrogen peroxide and sulphuric acid and Chloroformates.
- **Hazardous decomposition:** Thermal decomposition may produce Cyanide, nitrogen oxides and carbon monoxide.
- **Hazardous Polymerization:** Not reported.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

a) **Acute toxicity**

Gamma Picoline causes irritation in contact with skin and eyes. It is harmful in contact with skin. It is harmful if swallowed and if inhaled.

RTECS#: UT5425000

LD50/LC50

Acute Oral Ld50	440 mg/kg
Acute Dermal Ld50 :(Rabbit)	270 uL/kg
Acute Inhalation Lc50:	4000mg/m ³
Acute Inhalation Rat Lc ₁₀	1000ppm/4H
Intraperitoneal Rat Ld50	163mg/kg
Intraperitoneal Mouse Ld50	335mg/kg
Standard Draize Test (Rabbit)	20mg/24H
Open Irritation Test (Rabbit)	480 mg

b) **Skin corrosion/irritation**

Causes skin irritation.

c) **Serious eye damage/irritation**

Causes eye irritation.

d) **Respiratory or skin sensitization**

Causes irritation to respiratory system.



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e) Germ cell mutagenicity

Genotoxic activity was absent (i.e., DNA lesions were not induced and mutagenic activity was not induced) when tested using the following tests: DNA single-strand breaks measurement in V79 cells, HGPRT gene mutation assay in V79 cells, and Ames Salmonella/ microsome test.

f) Carcinogenicity

Not listed by NTP, IARC and OSHA.

Not present on the EU CMR list.

According to information presently available Gamma Picoline 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:**
- Aquatic LC50 (96h) *Cyprinodon variegatus* (sheepshead minnow) = 400 mg/L
- Aquatic LC50 (96h) *Pimephales promelas* (fathead minnow) = 403 mg/L

Based on the estimated values it is expected to be non-toxic to fish and other aquatic organisms.

Persistence and degradability

- Under anaerobic conditions, this compound is expected to be persistent.
- Gamma picoline may biodegrade fairly rapidly in aerobic soil and water.

Bioaccumulative potential

- An estimated BCF of 2 suggests the potential for bio concentration in aquatic organisms is low.
- If released into water, Gamma picoline is not expected to adsorb to suspended solids and sediment based upon the estimated Koc.

Mobility in soil

- Koc = 53.46 (estimated)
- Log Kow = 1.22 (estimated). Low potential to bioaccumulate.
- Volatilization of the neutral species from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 6.0×10^{-6} atm-cu m/mole.
- Gamma picoline has a pKa of 5.98, which indicates that this compound will partially exist in the protonated form in moist acidic soils, and cations adsorb more strongly to soils than neutral molecules.

Results of PBT and vPvB assessment

- The substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII

Other adverse effects

- Persistent Organic Pollutant : This product does not contain any known or suspected substance
- Ozone Depletion Potential : This product does not contain any known or suspected substance. The substance is not listed in the Montreal Protocol on substances that deplete the ozone layer.


SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

- Burn in a chemical incinerator equipped with an afterburner and scrubber.
- Exert extra care in igniting, as this material is flammable.
- 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 Hazardous for transport by Air/Rail/Road and Sea and thus regulated by IATA/ICAO/US DOT/IMO/IMDG.

S.No	Agency	UN Number	Proper Shipping name	Hazard Class	Packing Group
Land Transport	DOT	UN 2313	Picolines, [4-Picoline]	Flammable liquid class 3	III
Maritime Transport	IMDG	UN 2313	Picolines, [4-Picoline]	Flammable liquid class 3	III
Air Transport	IATA	UN 2313	Picolines, [4-Picoline]	Flammable liquid class 3	III
Hazard Label		Flammable Liquid Class-3			

Environmental hazards

- This chemical is not a marine pollutant.

SECTION 15: REGULATORY INFORMATION

- European/International Regulations.

Classification (as per Regulation (EC) No 1272/2008):

- Hazards Class and Category:** Flam. Liq 3; Acute Tox.4; Eye irrit.2; STOT SE 3; SkinIrrit. 2
- Hazard Statements:** H226; H302; H311; H332; H319; H335; H315

Global Chemical Inventory

Chemical Inventory Lists	Status
TSCA:	Listed (Active)
EC Inventory	Listed
Canada(DSL/NDSL):	Listed (DSL)
China Catalog of Hazardous chemicals 2015	Listed
New Zealand Inventory of Chemicals (NZIoC)	Listed
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed
Inventory of Existing and New Chemical Substances (ENCS)	Listed (5-3701)
Japan ISHL Existing Substances List (ISHL)	Listed
China: IECSC	Listed
Existing Chemicals List (KECI)	Listed (KE-25316)
Australian Inventory of Chemical Substances (AICS)	Listed
Taiwan Chemical Substance Inventory (TCSI)	Listed



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US Regulations

CERCLA Hazardous substance and Reportable Quantity: Gamma picoline not listed

SARA 313: Gamma Picoline not listed

SARA 311/312 Hazard Categories : See section 2 for more information

CWA (Clean Water Act) Gamma picoline not listed

CAA (Clean Air Act): Gamma picoline not listed

California Proposition 65: Gamma picoline not listed

EU Regulations

Water Hazard Classes (WGK): WGK 1 - slightly hazardous to water

15.2. Chemical safety assessment:

- A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted.

SECTION 16: OTHER INFORMATION

a) Compilation information of safety data sheet

Date of compilation	: March 05, 2012
Chemical	: Gamma picoline
CAS #	:108-89-4
File Name	: 0004Gj Ghs12 Div.2 sds Gamma picoline
Revision Number	: 12
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b) 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.
- 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/NDL= Domestic/Non-Domestic Substances List.
- CSR=Chemical Safety Report.
- 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, Labelling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonized System.
- ADR = Accord European relative au transport international de marchandises.
- IMDG-Code = International Maritime Code for Dangerous Goods.
- EmS = Emergency measures on Sea.
- ICAO = International Civil Aviation Organization.



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- 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.
- APCISS

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)
