



3,4-Lutidine

Safety Data Sheet

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

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3,4-Lutidine

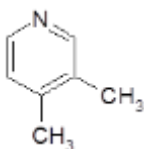
Safety Data Sheet

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

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

1.1. Product identifier

Product identification : 3,4-Lutidine
 CAS RN : 583-58-4
 EC# : 209-511-5
 Trade name : 3,4-Lutidine
 Systematic Name : 3,4-Dimethylpyridine
 Synonyms : 3,4-Dimethylpyridine, 3,4-Lutidine, Pyridine, 3,4-dimethyl-
 Molecular Formula : C₇H₉N
 Structural Formula:



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

1.2.1. Relevant identified uses

3,4-Lutidine is used as an intermediate in the manufacture of Pentazocine, Phenazocine (opioid analgesic drugs) and Norpentazocine.

Uses advised against: None

1.3. 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 & +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: Hazards identification

2.1. Classification of the substance or mixture

Classification according to GHS US Classification

Flammable Liquid: Category 3	H226
Acute toxicity (oral), Category 4	H302
Acute toxicity dermal: Category 2	H310
Acute toxicity inhalation: Category 3	H331
Skin corrosion/irritation: Category 2	H315
Eye damage/irritation: Category 2	H319
STOT(Single exposure): Category 3	H335

2.2. label elements

GHS US Classification

Label elements according to GHS US Classification

Pictograms:



GHS 02-Flammable GHS06-Toxic



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Signal word: Danger!

Hazard and precautionary statements:

Hazard Statements

- H226: Flammable liquid and vapour.
- H302: Harmful if swallowed.
- H310: Fatal in contact with skin.
- H331: Toxic if inhaled.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.

PRECAUTIONARY STATEMENTS

- P260: Do not get in eyes, or skin, or in clothing.
- 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.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P271: Use only outdoors or in a well-ventilated area.
- 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/lightning/.../equipment.
- P242: Use only non-sparkling tools.
- P243: Take precautionary measures against static discharge.
- P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330: Rinse mouth.
- P302+P350: IF ON SKIN: Gently wash with plenty of soap and water.
- P332+P313: If skin irritation occurs: Get medical advice/attention.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P361: Remove/Take off immediately all contaminated clothing.
- P363: Wash contaminated clothing before reuse.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
- P337+P313: If eye irritation persists: Get medical advice/attention.
- P370+P378: In case of fire: Use...for extinction.
- P403+P235: Store in a well ventilated place. Keep cool.
- P403+P233: Store in a well ventilated place. Keep container tightly closed.
- P405: Store locked up.
- P501: Dispose of contents/container to local/regional/national/international 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 ingredients

Substance	CAS No.	EINECS No.	Purity	GHS US Classification
3,4-Lutidine	583-58-4	209-511-5	>98%	Flammable Liquid: Category 3 Acute toxicity (oral), Category 4 Acute toxicity dermal: Category 2 Acute toxicity inhalation: Category 3 Skin corrosion/irritation: Category 2 Eye damage/irritation: Category 2 STOT(Single exposure): Category 3

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

- **Eye Contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
- **Skin Contact:** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.



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- **Inhalation:** Remove from exposure, lie down. Move to fresh air. If not breathing, give artificial respiration. Obtain medical attention.
- **Ingestion:** Clean mouth with water. Get medical attention. Most important symptoms and effects

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

- **Symptoms/injuries after inhalation:** May cause respiratory irritation.
- **Symptoms/injuries after skin contact:** Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin. Causes skin irritation.
- **Symptoms/injuries after eye contact:** Causes serious eye irritation.
- **Symptoms/injuries after ingestion:** Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

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

- Treat symptomatically..

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

- **Suitable extinguishing media:** dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂).
- **Unsuitable extinguishing media:** Do not use a heavy water stream.

5.2. Special Protective Equipment and Precautions For Fire Fighter.

- Fire fighters must wear Self Contained Breathing Apparatus (SCBA) and full protective clothing.
- Report any run-off of firewaters contaminated with this chemical as per local and federal procedures applicable.

5.3. Unusual fire and explosion hazard:

- **Fire hazard:** Flammable liquid and vapour.
- **Explosion hazard :** May form flammable/explosive vapour-air mixture

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures.

- Use personal protective equipment.
- Avoid breathing vapours, mist or gas.
- Ensure adequate ventilation.
- Remove all sources of ignition.
- Evacuate personnel to safe areas.
- Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Warn unnecessary personnel to move away.
- Stop leak if you can do it without risk.
- Isolate the hazard area and deny entry to unnecessary and unprotected personnel

6.2. Environmental precautions.

- Clean up all spills immediately following relevant Standard Operating Procedures.
- Inform authorities in event of contamination of any public sewers, drains or water bodies.
- Wipe up.
- 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.

6.3. Methods and material for containment and cleaning up.

- ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Stop leak if without risk.
- Ventilate the area.
- Absorb with an inert material and put the spilled material in an appropriate waste disposal container.
- Use clean non-sparking tools to collect absorbed material.

6.4. Reference to other sections.



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- For more information, please refer to section 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- Keep away from heat and sources of ignition.
- Use explosion-proof equipment.
- Use only non-sparking tool when handling this product.
- Ground all equipment containing material.
- Take measures to prevent buildup of electrostatic charge.
- Keep container dry. Handle and open container with care.
- Wear suitable protective clothing, gloves and eye/face protection.
- Keep away from sources of ignition.
- Do not breathe vapor or mist. Do not ingest.
- Wash thoroughly after handling.
- Ground and secure containers when dispensing or pouring product.
- Avoid contact with incompatible materials.
- Avoid contact with skin and eyes.
- 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.

7.2. Conditions for safe storage, including any incompatibilities

- Keep containers tightly closed at ambient temperature in a dry & well-ventilated place
- Store and use away from heat, sparks, open flame, or any other ignition source.
- Keep away from incompatibles.
- Containers that are opened must be carefully resealed and kept upright to prevent leakage.
- Avoid prolonged storage periods.
- Keep only in original container.

7.3. Specific end use(s)

- 3,4-Lutidine is used as an intermediate in the manufacture of Pentazocine, Phenazocine (opioid analgesic drugs) and Norpentazocine.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters:

8.1.1 Exposure Limits Values

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
3,4-Lutidine	None listed	None listed	None listed

8.1.2 Exposure 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

8.2.1 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.

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.
- Hands:** Wear appropriate protective gloves to prevent skin exposure.
The protective gloves to be used must comply with the specifications of EC directives 89/686/EEC and the resultant standard EN374.
- Eyes:** Safety goggles/ Chemical Safety glasses and Face shield.
- Clothing:** Boots and clothing to prevent contact.



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- **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.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties.

Sr.No.	Parameter	Typical value
1.	Appearance	Colorless to pale Yellow liquid.
2.	Odor	Characteristic odor.
3.	Odor Threshold	Not available
4.	pH	Alkaline
5.	Melting point/Freezing point	(-) 12.0°C. @ 760.00 mm Hg
6.	Boiling Point	163-164°C
7.	Flash point	47°C
8.	Evaporation rate (n-BuAc=1)	Not available
9.	Flammability	Flammable
10.	Upper/lower flammability or Explosive limits	Not available
11.	Vapor pressure	1.24 mmHg
12.	Vapor density (air=1)	3.7
13.	Relative density	0.954 gm/cm ³
14.	Solubility	47 gm/l water (20°C), Soluble in ether, acetone, Ethanol
15.	Partition coefficient : n-(Octanol / water)	1.90 (estimated)
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

- No data available

10.2. Chemical stability

- Stable under normal conditions of temperature and pressure.

10.3. Possibility of hazardous reactions

- Hazardous Polymerization: Not reported.

10.4. Conditions to avoid

- Keep away from Incompatible materials, ignition sources, excess heat, flames, sparks, strong acids, strong oxidants, exposure to moist air or water.

10.5. Incompatible materials

- Strong oxidizing agents, acids, Acid chlorides, Chloroformates

10.6. Hazardous decomposition products

- Thermal decomposition may produce carbon monoxide and oxides of nitrogen, carbon dioxide, irritating and toxic fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

a) Acute toxicity

- RTECS#: OK9800000
- LC50/LD50: Oral - Rat - 679 mg/kg
- LC50/LD50: Dermal- Rabbit - 134 mg/kg (140 µL/kg)
- LCLo-Inhalation-Rat-500ppm/4H, 2230mg/m³/4H



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- b) **Skin corrosion/irritation**
 - Causes skin irritation.
- c) **Serious eye damage/irritation**
 - Causes serious eye irritation.
- d) **Respiratory or skin sensitization**
 - No data is available.
- e) **Germ cell Mutagenicity**
 - No data is available.
- f) **Carcinogenicity**
 - Not listed by NTP, IARC and OSHA.
 - Not present on the EU CMR list.
 - According to information presently available, 3,4-Lutidine is not found to be carcinogenic.
- g) **Reproductive toxicity**
 - No data is available.
- h) **STOT-single exposure**
 - May cause respiratory irritation.
- i) **STOT-repeated exposure**
 - No data available.
- j) **Aspiration Hazards**
 - No data available.

11.2 Additional Information

- Cough, Difficulty in breathing, Gastrointestinal disturbance
- To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

12.1.1 Ecotoxicity:

- Fathead minnow LC50 (96 hr): 110.54 mg/L (Predicted Fathead minnow LC50 (96 hr) from Consensus method)
- Daphnia magna LC50 (48 hr): 10.56 mg/L (Predicted Daphnia magna LC50 (48 hr) from Consensus method)

12.2. Persistence and degradability:

- Not readily biodegradable.

12.3. Bioaccumulative potential:

- BCF-8.318 (Estimated)
- Log Kow = 1.9 (Estimated)
- Bioaccumulation is unlikely

12.4. Mobility in soil (Estimated):

- Koc=88.38. Moderate mobility in soil.
- Henry law constant: 8.59E-006 atm-m³/mole
- Log Kow = 1.9 (Estimated) Low potential to bioaccumulate.
- Will likely be mobile in the environment due to its water solubility.

12.5. Results of PBT and vPvB assessment

- No data available for assessment.

12.6. Other adverse effects.

- No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods



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- 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/ARD/RID/IMO/IMDG.

S.No	Agency	UN Number	Proper Shipping name	Hazard Class	Packing Group
Land Transport	ADR/RID	UN 2929	Toxic liquid, flammable, organic N.O.S. (3, 4-Lutidine).	6.1(3)	II
Maritime Transport	IMDG	UN 2929	Toxic liquid, flammable, organic N.O.S. (3,4-Lutidine).	6.1(3)	II
Air Transport	IATA	UN 2929	Toxic liquid, flammable, organic N.O.S. (3,4-Lutidine).	6.1(3)	II
Hazard Label		Flammable		 	

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:** Flammable Liquid: Category 3, Acute toxicity (oral): Category 4, Acute toxicity dermal: Category 2, Acute toxicity inhalation: Category 3, Skin corrosion/irritation: Category 2, Eye damage/irritation: Category 2, STOT (Single exposure): Category 3
- **Hazard Statements:** H226; H302; H331; H310; H315; H319, H335

Chemical Inventory Lists:	Status
TSCA:	Listed
EC Inventory	Listed (209-511-5)
Canada(DSL/NDSL):	Listed(NDSL)
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 (MITI No. 5-712)
Japan ISHL Existing Substances List (ISHL)	Listed



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China: IECSC	Not Listed
Existing Chemicals List (KECI)	Not Listed
Australian Inventory of Chemical Substances (AICS)	Listed

US information

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

3,4-Lutidine not listed

SARA 302/304 : 3,4-Lutidine not listed

SARA 311/312 : See section 2 for more information

California Prop. 65: 3,4-Lutidine not listed

CAA (Clean Air Act): 3,4-Lutidine not listed

CWA (Clean Water Act): 3,4-Lutidine not listed

EU Information

Water hazard class (WGK): No information available

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: 3,4-Lutidine not listed

SECTION 16: OTHER INFORMATION

(a) Compilation information of safety data sheet

Date of compilation : May 23, 2012
Chemical : 3,4-Lutidine
CAS # : 583-61-9
File Name : 0007Gj Ghs11 Div.3 sds 3,4-Lutidine
Revision Number : 11
Date of Issue of SDS : February 08, 2024
Revision Due Date : January, 2027
Supersedes date : January 02, 2024

(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.
- 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 Programm.
- IARC= International Agency for Research on Cancer.
- EPA=Environmental Protection Agency.
- TSCA= Toxic Substances Control Act.
- 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.
- 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.



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

(d) List of hazard statements

Hazards Statements	
	<ul style="list-style-type: none">• H226: Flammable liquid and vapour.• H302: Harmful if swallowed.• H311: Toxic in contact with skin.• H331: Toxic if inhaled.• H315: Causes skin irritation.• H319: Causes serious eye irritation.• H335: May cause respiratory 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)