

3,5-Lutidine

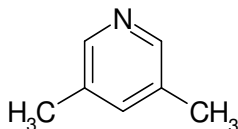
Safety Data Sheet

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

SECTION 1: Identification

1.1. Identification

PRODUCT NAME : 3,5-Lutidine
CAS RN : 591-22-0
EC# : 209-708-6
SYNONYMS : 3,5-Dimethylpyridine; Pyridine, 3,5-dimethyl-
SYSTEMATIC NAME : 3,5-Dimethylpyridine
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

3,5-Lutidine is used as an intermediate in the Pharmaceutical and Agrochemical industry. It may be used for the manufacture of Omeprazole, which is widely used as a proton pump inhibitor. It may be used as a solvent and catalyst.

Uses advised against: None

1.3. Details of the supplier of the safety data sheet

Jubilant Life Sciences Limited

FACTORY & REGISTERED OFFICE: Jubilant Life Sciences Ltd., 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 Life Sciences Ltd., 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.jubl.com

1.4. Emergency telephone number

Emergency number : +91-9997022412; +91-9359674864

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Eye damage/irritation: Category 1
Skin corrosion/irritation: Category 2
Flammable Liquid: Category 3
Acute toxicity dermal: Category 4
Acute toxicity oral: Category 4

2.2. Label Elements

Hazard Pictogram: GHS 05, GHS 02, GHS 06

Signal Word: Danger!



HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS

- H318: Causes serious eye damage.
- H315: Causes skin irritation.
- H226: Flammable liquid and vapour.
- H312: Harmful in contact with skin.
- H302: Harmful if swallowed.



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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.
- P264: Wash hands thoroughly after handling.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P270: Do not eat, drink or smoke when using this product.
- P303+361+353: 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.
- P362: Take off contaminated clothing and wash before reuse.
- P310: Immediately call a POISON CENTER or doctor/physician.
- P321: Specific treatment (see ... on this label).
- P332+P313: If skin irritation occurs: Get medical advice/attention.
- P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
- P302+352: IF ON SKIN: Wash with soap and water.
- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P322: Specific measures (see ... on this label).
- P363: Wash contaminated clothing before reuse.
- P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330: Rinse mouth.
- P403+235: Store in a well ventilated place. Keep cool.
- P501: Dispose of contents/container to local/regional/national/international regulations.

SECTION 3: Composition/information on ingredients

Chemical	CAS #	Purity	GHS-US classification
3,5-Lutidine	591-22-0	~98%	Eye damage/irritation: Category 1 Skin corrosion/irritation: Category 2 Flammable Liquid: Category 3 Acute toxicity dermal: Category 4 Acute toxicity oral: Category 4

SECTION 4: First aid measures

4.1. Description of first aid measures

Key symptoms

- **Acute effects:**
 - 3,5-Lutidine is harmful if swallowed and inhaled. Symptoms of general pyridine bases include dizziness, weakness, headache, nausea, loss of appetite and unconsciousness. It is toxic in contact with skin and causes skin, eyes and respiratory tract irritation. Direct contact with unprotected skin can result in dermal adsorption of the test material and potentially serious systemic toxicity, including death.
- **Chronic effects:**
 - May affect liver function and target organs.

FIRST AID:

- **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.



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SECTION 5 : FIRE-FIGHTING MEASURES

5.1. Extinguishing media

- *Appropriate extinguishing media:* Dry chemical powder, carbon dioxide, and alcohol resistant foam. Water may also be used. 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 Protective Equipment and Precautions for Fire Fighter:

- 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) 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.

Unusual fire and explosion hazard:

- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide, Carbon di-oxide, cyanides and hydrogen chloride.
- High vapor concentration may result in an explosion hazard.
- When heated to decomposition, it emits highly toxic fumes of Hydrogen chloride.
- Vapors are heavier than air. May travel considerable distance from source and flashback.

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

SECTION 7: HANDLING AND STORAGE

7.1. 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.
- Use non-sparking tools.

Storage

- Store in a cool, well ventilated place
- Store in a flame proof area
- Store away from incompatible materials.
- Keep only in original container.
- Keep securely closed when not in use.



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SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

• Exposure Limits Values

Chemical name	ACGIH	OSHA- Final PELs	NIOSH
3,5-Lutidine	None listed	None listed	None listed

Exposure Limits (International):

- Not available.

8.2. 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.

8.3. 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.
- **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:

- Immediately change contaminated clothing.
- Apply skin protective barrier cream.
- Wash hands and face after working with the substance.
- Under no circumstances eat or drink at the workplace.
- Do not inhale substances, work under hood.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties.

Sr.No.	Parameter	Typical value
1.	Appearance	Colorless to pale yellow liquid
2.	Odor	Characteristic
3.	Odor Threshold	Not Available
4.	pH	Alkaline
5.	Melting point/Freezing point	- 9.0°C
6.	Boiling Point	169-173 °C
7.	Flash point	53°C closed cup
8.	Evaporation rate (n-BuAc=1)	Not available
9.	Flammability	Flammable
10.	Upper/lower flammability or Explosive limits	Not available
11.	Vapor pressure	1.5 mm Hg at 20 °C
12.	Vapor density (air=1)	3.2
13.	Relative density	0.94@20° C



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14.	Solubility	Slightly soluble, 3.3g/100 ml H ₂ O at 20 °C
15.	Partition coefficient : n-(Octanol / water)	1.90 (estimated)
16.	Auto-ignition temperature	Flammable
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 normal temperature and pressure, solidifies below 11°C.
- **Conditions to avoid:** Keep away from heat, sparks, flame, high temperature and incompatible chemicals, dust generation. Not compatible with strong oxidizing agents, strong reducing agents, strong acids.
- **Incompatible chemicals:** Strong oxidizing agents, strong reducing agents, strong acids.
- **Hazardous decomposition:** Thermal decomposition may produce carbon monoxide and oxides of nitrogen, carbon dioxide & Hydrogen chloride, hydrogen cyanide and irritating and toxic fumes.
- **Hazardous Polymerization:** Not reported.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

a) Acute toxicity

- 3,5-Lutidine is harmful if swallowed and inhaled. Symptoms of general pyridine bases include dizziness, weakness, headache, nausea, loss of appetite and unconsciousness. It is toxic in contact with skin and causes skin, eyes and respiratory tract irritation. Direct contact with unprotected skin can result in dermal adsorption of the test material and potentially serious systemic toxicity, including death.

RTECS#: Not listed.

LD50/LC50:

Acute Oral Toxicity:

- Oral Rat LD₅₀ between 300 - 400 mg/kg

Acute Dermal Toxicity:

- 2 female rats dosed at 2000 mg/kg (undiluted) test material under semi-occluded patch. Both animals died within 45 min. (unpublished data)
- Dermal Rat LD₅₀<2000 mg/kg.
- 2 rabbits dosed with 0.5 ml of neat test material for 4 hours. Both rabbits had dark chemical burns at the test sites and were euthanized immediately. No additional animals were dosed.
- Corrosive in contact with skin and eyes.
- **Sensitization**
- Local Lymph Node Assay (LLNA) identifies 3,5-Lutidine as a moderate skin sensitizer.

Acute inhalation toxicity:

- Data not available. May be considered toxic if inhaled.
 - a) **Skin corrosion/irritation**
 - Causes severe skin burns.
 - b) **Serious eye damage/irritation**
 - Causes serious eye irritation and eye damage.
 - c) **Respiratory or skin sensitization**
 - It may causes respiratory tract irritation It may cause gastrointestinal irritation with nausea, vomiting and diarrhea. It is toxic in contact with skin
 - d) **Germ cell Mutagenicity**
 - No data is available.
 - e) **Carcinogenicity**
 - Not listed by NTP, IARC and OSHA.
 - Not present on the EU CMR list.
 - According to information presently available 3,5-Lutidine is not found to be carcinogenic.
 - f) **Reproductive toxicity**
 - No data is available.



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- g) **STOT-single exposure**
 - No data is available.
- h) **STOT- repeated exposure**
 - No data available.
- i) **Aspiration Hazards**
 - No data available.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity:

- It has estimated that Pyridine, 3,5-dimethyl- is not chronically toxic to fish. It is important to note that these results do not suggest that Pyridine, 3,5-dimethyl- will not be toxic to all aquatic organisms. Some aquatic organisms, such as daphnids, may be more sensitive to both acute and chronic exposures to Pyridine, 3,5-dimethyl-.

Persistence and degradability

- It has estimated that Pyridine, 3,5-dimethyl- 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, 75 days, exceeds the EPA criteria of ≥ 2 months (and ≤ 6 months). Therefore, Pyridine, 3,5-dimethyl- is estimated to be persistent in the environment.

Bio accumulative potential

- BCF = 6.9
- Log Kow= 1.90(Low potential to bioaccumulate)

Based on the Log Kow and Bioconcentration factor value it is expected estimates that Pyridine, 3,5-dimethyl- is not expected to bioaccumulate in the food chain because it does not exceed the BCF criteria.

Mobility in soil

- Log Koc= 86.58 (estimated). Negligible absorption in soil.
- Henry's Law Constant: 2.990E-006 atm-m³/mole. Non- volatile from aqueous bodies.
- Log Kow= 1.90. Low potential to bioaccumulate.

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 is estimated to be persistent in the environment. From values of BCF= 6.9, it is not expected to bioaccumulate and does not undergo 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

13.1. Waste treatment methods

- 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 reinstates.

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/RIC	UN 2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. (3,5-Lutidine)	3(8)	III
Maritime Transport	IMDG	UN 2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. (3,5-Lutidine)	3(8)	III
Air Transport	IATA	UN 2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. (3,5-Lutidine)	3(8)	III



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Hazard Label	FLAMMABLE LIQUID CORROSIVE 3(8)		
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Environmental hazards:

- Marine pollutant: No

SECTION 15: REGULATORY INFORMATION

European Union Information

Classification as per CLP Regulation 1272/2008:

Hazards Class and Category: Eye damage/irritation: Cat. 1; Skin corrosion/irritation: Cat. 2; Flammable Liquid: Cat. 3; Acute toxicity dermal: Cat. 4; Acute toxicity oral: Cat. 4

- **Hazard Statements:** H318; H226; H315; H312; H302

Chemical Inventory Lists:	Status
TSCA:	Present
EINECS:	209-708-6
Canada(DSL/NDSL):	Listed/NDSL
Japan:	5-712
Korea:	Present
Australia:	Not listed
China: IECSC	Present

US information

Health & Safety Reporting List

- None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

- None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

- None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

- None of the chemicals in this material have a SNUR under TSCA.

SARA

- **Section 302 (RQ)**

- None of the chemicals in this material have an RQ.

Section 302 (TPQ)

- None of the chemicals in this product have a TPQ.

Section 313

- No chemicals are reportable under Section 313.

Clean Air Act:

- This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

- None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

- None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

- CAS# 591-22-0 is not present on state lists from CA, PA, MN, MA, FL, or NJ

California No Significant Risk Level:

- None of the chemicals in this product are listed.

WGK (Water Danger/Protection)

- CAS# 591-22-0: No information available.

WHMIS Classification:

- Class E: Corrosive Material.



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- Class B, Division 3: Combustible Liquid.
- Class D, Division 1, Subdivision B: Toxic Material.

SECTION 16: OTHER INFORMATION

a) Compilation information of safety data sheet

Date of compilation	: October 19, 2012
Chemical	: 3,5-Lutidine
CAS #	: 591-22-0
File Name	: 0008Gj Ghs08 Div.3 sds 3,5-Lutidine
Revision Number	: 08
Date of Issue of SDS	: December 16, 2015
Revision Due Date	: November, 2017
Supersedes date	: 21 August, 2015

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

- CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009
- DIR 67/548/EWG, last modification by DIR 2009/2/EC
- REG (EC) no. 1907/2006, last modification by REG (EC) Nr. 453/2009

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)