



3,5-Lutidine

Safety Data Sheet

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

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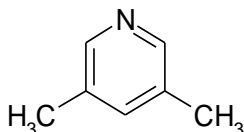
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

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 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: HAZARD(S) IDENTIFICATION

2.1. Classification of the substance or mixture

GHS-US classification

Eye damage/irritation: Category 1

Skin corrosion/irritation: Category 1B

Flammable Liquid: Category 3

Acute toxicity dermal: Category 4

Acute toxicity oral: Category 3

Acute toxicity inhalation: Category 3

2.2. Label Elements

GHS-US labeling

Hazard Pictogram (GHS-US)



Hazard Pictogram:, GHS 02, GHS 05, GHS 06



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Signal Word: Danger!

HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS

- H318: Causes serious eye damage.
- H314: Causes severe skin burns and eye damage.
- H226: Flammable liquid and vapour.
- H312: Harmful in contact with skin.
- H301: Toxic if swallowed.
- H331: Toxic if inhaled.

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.
- P260: Do not breathe dust or mists.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- 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.
- P271: Use only outdoors or in well ventilated area.
- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do not induce vomiting.
- 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 water for extinction.
- P310: Immediately call a POISON CENTER or doctor/physician.
- 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+P352: IF ON SKIN: Wash with plenty of soap and water.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- 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.
- P405: Store locked up.
- 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 1B Flammable Liquid: Category 3 Acute toxicity dermal: Category 4 Acute toxicity oral: Category 3 Acute toxicity inhalation: Category 3

SECTION 4: First aid measures

4.1. DESCRIPTION OF FIRST AID MEASURES

- **Skin Contact:** Wash exposed area twice with soap and water. The exposed area should be examined by medical personnel if irritation or pain persists after the area has been washed.



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- **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. Keep affected person warm and at rest. GET MEDICAL ATTENTION.
- **Ingestion:** If swallowed, contact physician or poison control center immediately. Give oxygen if respiration is shallow. GET MEDICAL ATTENTION. Do not give anything by mouth to an unconscious person.

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

- **Acute:** Methylpyridine derivatives such as lutidines are generally irritating to skin, eyes and mucous membranes. Vapors may be irritating to the respiratory tract. These materials are readily absorbed through the skin and may be considered toxic via oral, dermal and inhalation routes. Extended exposure (e.g., from saturated clothing) may lead to severe skin irritation and/or systemic poisoning. Symptoms may include headache, dizziness, nausea, nervousness, weakness, narcosis, sleeplessness, loss of appetite and possibly loss of consciousness. Symptoms seen after ingestion or inhalation overexposures are expected to be essentially the same as those listed previously. Ingestion is not likely to be a primary route of exposure.
- **Delayed Effects:** None known.

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

- **Thermal Exposure:** Not applicable.
- **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:* Water, fog, Foam, Carbon dioxide, Dry chemical

5.2. Special hazards arising from the substance or mixture:

- **Hazardous Products of Combustion:** Toxic fumes may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).
- **Potential for Dust Explosion:** Not applicable.
- **Special Flammability Hazards:** Severe explosion hazard in the form of vapor (within flammability limits) when exposed to heat, flame, static discharge.

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 firefighting procedures may be used.
- Flammability Classification : Category 3.

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: Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures. Leather shoes that have been saturated must be discarded.

6.2. Environmental precautions:

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

6.3. Containment Techniques and Clean-up Procedures:

- Remove all ignition sources.
- Ventilate the area of spill or leak.
- Wear protective equipment during clean-up.
- For small spills, use suitable absorbent material and collect for later disposal.
- For large spills, the area may require diking to contain the spill. Material can then be collected (eg., suction) 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.
- Special Reporting Requirements: Not applicable.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- Precautions for Unique Hazards: Not applicable.



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- 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.
- Avoid contact with skin and eyes.
- Avoid inhalation of vapour or mist.
- Keep away from sources of ignition - No smoking.
- Take measures to prevent the build up of electrostatic charge.
- Special Handling Equipment: Not applicable.
- Avoid contact with incompatible materials.
- Use in a well ventilated place/Use protective clothing commensurate with exposure levels.
- Use non-sparking tools.

Storage

- Store at ambient temperature in a well ventilated place
- Keep only in original container.
- Keep securely closed when not in use.
- Maintain dry, ventilated conditions for storage.
- Protect containers against physical damage.
- Outside or detached storage is preferable.
- Inside storage should be in standard flammable liquids storage room or cabinet.
- Keep away from strong acids and oxidizing agents.
- Dangerous Incompatibility Reactions: Avoid contact with strong acids and oxidizing agents.
- Incompatibilities with Materials of Construction: None known

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:

- Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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.
- **Eye/face protection**
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
- **Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
- **Body Protection**
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
- **Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use (US) or type ABEK (EN 14387) respirator cartridges as a backup to enginee protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
- **Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains
- **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.

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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	- 6.6°C
6.	Boiling Point	172.7 °C
7.	Flash point	53°C
8.	Evaporation rate (n-BuAc=1)	Not available
9.	Flammability	Flammable
10.	Upper/lower flammability or Explosive limits	Not available
11.	Vapor pressure	0.2314 kPa at 25 °C
12.	Vapor density (air=1)	3.2
13.	Relative density	0.944 @20° C
14.	Solubility	Slightly soluble, 33g/L H ₂ O at 20 °C Soluble in ethanol, diethyl ether.
15.	Partition coefficient : n-(Octanol / water)	1.78
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 condition conditions of temperature and pressure.
- **Possibility of hazardous reactions:** Hazardous Polymerization: Not reported.
- **Conditions to avoid:** Any ignition source, including static discharge.
- **Incompatible chemicals:** Avoid contact with strong acids and oxidizing agents.
- **Hazardous decomposition:** Toxic fumes may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).

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 50-500 mg/kg

Acute Dermal Toxicity:

- Dermal Rat LD₅₀<2000 mg/kg.
- Corrosive in contact with skin and eyes.

Acute Inhalation Toxicity:

Inhalation Rat LC50 > 1.16 - < 2.97 mg/L air after a 4 h exposure in male and female rats.

b) Skin corrosion/irritation

Causes severe skin burns and eye damage.

c) Serious eye damage/irritation

Causes serious eye irritation and eye damage.

d) Respiratory or skin sensitization

Inconclusive

e) Germ cell Mutagenicity



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Negative

- f) **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.
- 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

12.1. Toxicity

Ecotoxicity:

- Fathead minnow LC50 (96 hr): 155.33 mg/L (Predicted Fathead minnow LC50 (96 hr) from Consensus method)
- Daphnia magna LC50 (48 hr): 11.79 mg/L (Predicted Daphnia magna LC50 (48 hr) from Consensus method)
- T. pyriformis IGC₅₀ (48 hr): 396.80 mg/L (Predicted T. pyriformis IGC50 (48 hr) from Consensus method)

12.2. Persistence and degradability

- Readily biodegradable

12.3. Bio accumulative potential

- No data available

12.4. Mobility in soil

- Rapidly degradable in soil

12.5. Other adverse effects.

- **Environment Fate:**
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

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 international, national, regional, state or local laws.
- Do NOT dump into any sewers, on the ground, or into any body of water.

SECTION 14: TRANSPORT INFORMATION

- This substance is considered to be Hazardous for transport by Air/Rail/Road and Sea and thus regulated by IATA/US DOT/IMO/IMDG.

S.No	Agency	UN Number	Proper Shipping name	Hazard Class	Packing Group
Land Transport	DOT	UN 2929	Toxic liquid, flammable, organic, n.o.s. (3,5-Lutidine)	6.1(3)	II
Maritime Transport	IMDG	UN 2929	Toxic liquid, flammable, organic, n.o.s. (3,5-Lutidine)	6.1(3)	II
Air Transport	IATA	UN 2929	Toxic liquid, flammable, organic, n.o.s. (3,5-Lutidine)	6.1(3)	II

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Hazard Label	TOXIC LIQUID FLAMMABLE 6.1 (3)	 
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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. 1B; Flammable Liquid: Cat. 3; Acute toxicity dermal: Cat. 4; Acute toxicity oral: Cat. 3, Acute Inhalation toxicity: Cat. 3
- **Hazard Statements:** H318; H226; H314; H312; H301, H331

Chemical Inventory Lists:	Status
TSCA:	Listed
EINECS:	209-708-6
Canada(DSL/NDL):	Listed/NDL
Japan:	5-712
Korea:	Listed (KE-11844)
Australia:	Listed
China: IECSC	Listed

US information

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): 3,5-Lutidine not listed

SARA 302/304 : 3,5-Lutidine not listed

SARA 311/312 : See section 2 for more information

California Prop. 65: 3,5-Lutidine not listed

CAA (Clean Air Act): 3,5-Lutidine not listed

CWA (Clean Water Act): 3,5-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: 3,5-Lutidine not listed

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 Ghs14 Div.3 sds 3,5-Lutidine
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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.



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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/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 = 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.
- ICAO = International Civil Aviation Organization.
- US DOT= US Department of Transportation.
- 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)