

## 2,3-Lutidine

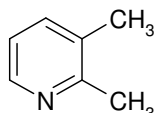
### Safety Data Sheet

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

#### SECTION 1: Identification

##### 1.1. Identification

PRODUCT NAME : 2,3-Lutidine  
CAS RN : 583-61-9  
EC# : 209-514-1  
SYNONYMS : 2,3-Dimethylpyridine, AI3-24280,  
EINECS : 209-514-1  
SYSTEMATIC NAME : 2,3-Dimethylpyridine, 2,3-Lutidine (8Cl), Pyridine, 2,3- dimethyl-  
MOLECULAR FORMULA : C<sub>7</sub>H<sub>9</sub>N  
STRUCTURAL FORMULA



##### 1.2. of the substance or mixture and uses advised against

###### 1.2.1. Relevant identified uses

- 2,3-Lutidine is used as an intermediate in the pharmaceutical and agrochemical industry.

**Uses advised against:** None

##### 1.3. Details of the supplier of the safety data sheet

**FACTORY:** Jubilant Life Sciences Ltd., Unit -1, Plot No. P1-L1 within jubilant sector, Specific SEZ for Chemicals at Plot No.-5, Vilayat GIDC, Tal. Vagra, Dist. Bharuch-392012 Gujarat, India, Tel.:+91-2641-281500, 281507 Fax: +91-2641-281515

**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](mailto:support@jubl.com) - [www.jubl.com](http://www.jubl.com)

##### 1.4. Emergency telephone number

Emergency number : +91-9925236834 & +91-2641-281666

#### SECTION 2: Hazard(s) identification

##### 2.1. Classification of the substance or mixture

###### GHS-US classification

Serious eye damage/eye irritation: Category 2A.  
Flammable Liquid: Category 3

##### 2.2. Label Elements

**Hazard Pictogram:**GHS 02, GHS 07

**Signal Word:**Warning!



###### **HAZARD AND PRECAUTIONARY STATEMENTS:**

###### HAZARD STATEMENTS

- H319: Causes serious eye irritation.
- H226: Flammable liquid and vapor.

###### PRECAUTIONARY STATEMENTS

- P264: Wash hands thoroughly after handling.
- P280: Wear protective gloves/clothing and eye/face protection.
- P210: Keep away from heat/sparks/open flame— No smoking.
- P233: Keep container tightly closed.
- P240: Ground /bond container and receiving equipments.



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- P241: Use explosion-proof electrical/ventilating/ lighting/equipment.
- P242: Use only non-sparking tools.
- P243: Take precautionary measures against static discharge.
- P270: Do not eat, drink or smoke when using this product.
- P305+P351+P338: IF IN EYES: Rinse cautiously 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.
- P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
- P370+P378: In case of fire, use appropriate media as specified by the manufacturer for extinction.
- P403+P235: 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

Sr.No.	Chemical	CAS #	EC#	Purity
1	2,3-Lutidine	583-61-9	209-514-1	>98%

#### SECTION 4: First aid measures

##### 4.1. Description of first aid measures

###### Key symptoms

- **Acute effects:**

It is irritating to eyes and respiratory system. It may be harmful if swallowed, inhaled or absorbed through skin. Irritation to eyes can, redness, pain, burns, loss of vision. High concentrations are extremely destructive to tissues of eyes. Skin irritation can, pain, redness, burns. Ingestion may lead to 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 can cause sore throat, cough, burning sensation, shortness of breath, labored breathing, headache, nausea and vomiting. Exposure can cause headache, dizziness. High concentrations are extremely destructive to tissues of the mucous membranes and upper respiratory tract.

- **Chronic effects:**

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

###### FIRST AID:

- **Eyes:** If in eyes rinse cautiously with water for at least 15 minutes. 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.
- **Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult give oxygen. 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.

#### SECTION 5 : FIRE-FIGHTING MEASURES

**Flash Point:** 53°C

**Flammability:** Flammable liquid Category 3

###### Extinguishing media

- *Appropriate extinguishing media:* Dry chemical powder, carbon dioxide, and alcohol resistant foam. Do not use water jet or fog (spray) to extinguish. Water 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).
- Chemical is water-soluble. Report any run-off of firewater's contaminated with this chemical as per local and federal procedures applicable.
- Report any run-off of fire waters contaminated with this chemical as per local and federal procedures applicable.



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#### Unusual fire and explosion hazard

- 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.

#### 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.

##### 7.2. 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.

#### SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

##### 8.1. Control parameters

###### Exposure Limits Values

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
2,3-Lutidine	None listed	None listed	None listed

###### Exposure Limits (International):

- Not available.

##### 8.2. Exposure controls



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#### 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:

- 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	Clear, colorless liquid.
2	Odor	Characteristic odor
3	Odor Threshold	Not available
4	Melting point	-17°C
5	Boiling point	161°C
6	Flash point	53°C
7	Evaporation rate (n-BuAc=1)	Not available
8	Explosive limits	Not Available
9	Vapor pressure	Not Available
10	Vapor density (air=1)	3.7
11	Specific gravity (water=1)	0.9500 gm/cm <sup>3</sup>
12	Solubility (g/100ml)	2.60E+05 mg/l @ 17°C (experimental)
13	pH	Alkaline
14	Log Pow (octanol/water)	1.90
15	Auto-ignition temperature	530 °C
16	Decomposition temperature	Not available
17	Viscosity	Not available
18	Molecular Weight	107.16
19	pKa (@25°C)	6.57 (experimental)
20	Koc	88.38
21	Flammable material	Yes
22	Oxidizer	No
23	Corrosive material	No
24	Explosive material	No

#### SECTION 10: STABILITY AND REACTIVITY

- **Stability:** Stable under normal temperature and pressures.
- **Conditions to avoid:** Incompatible materials, ignition sources, excess heat, strong acids, strong oxidants, exposure to moist air or water.
- **Incompatible chemicals:** Strong oxidizing agents, acids



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- **Hazardous decomposition:** thermal decomposition may produce carbon monoxide, carbon dioxides, oxides of nitrogen, irritating & toxic fumes.
- **Hazardous Polymerization:** Not reported.

#### SECTION 11: TOXICOLOGICAL INFORMATION

##### 11.1. Information on toxicological effects

- **Acute toxicity**
  - 2,3-Lutidine is irritating to skin and respiratory system. It causes serious eye irritation also.
  - **RTECS#:** Not listed.
  - **LC50/LD50:** Not available.
    - a) **Skin corrosion/irritation**
      - No data is available.
    - b) **Serious eye damage/irritation**
      - Causes serious eye irritation.
    - c) **Respiratory or skin sensitization**
      - No data is available.
    - 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 2,3-Lutidine is not found to be carcinogenic.
    - f) **Reproductive toxicity**
      - No data is available.
    - 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:

###### Ecotoxicity:

It may be chronically toxic to fish and other aquatic organisms.

- Fish 96-hr LC50 = 98.632 mg/l (Predicted).
- Fish 14-day LC50 = 175.840 mg/l (Predicted).
- Daphnia 48-hr LC50 = 104.959 mg/l (Predicted).

##### 12.2. Persistence and degradability

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

##### 12.3. Bio accumulative potential

- BCF = 5.785
- Log Kow = 1.9

Based on the Log Kow and Bioconcentration factor value it is expected to have negligible potential to concentrate in fatty tissue of fish and aquatic organisms relative to its surroundings.

##### 12.4. Mobility in soil

- Koc=88.38. Moderate absorption in soil.
- Henry's Law constant: 6.307E-006 atm-m<sup>3</sup>/mole.



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- Log Kow=1.90. Low potential to bio accumulate.

#### 12.5. Other adverse effects.

- **Environment Fate:**

Based on environmental modeling, it is estimated to be persistent in the environment and is expected to be found predominantly in soil. It is also expected to be found in water but not in sediment. It has low potential to bio accumulate and does not biodegrade readily. 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/RID	UN 1993	Flammable liquid, N.O.S (2,3-Lutidine)	3	III
Maritime Transport	IMDG	UN 1993	Flammable liquid, N.O.S (2,3-Lutidine)	3	III
Air Transport	IATA	UN 1993	Flammable liquid, N.O.S (2,3-Lutidine)	3	III
Hazard Label		Flammable			

#### Environmental hazards:

- It is expected that this chemical is not a marine pollutant and is not Harmful to the Aquatic environment.

#### SECTION 15: REGULATORY INFORMATION

- **European Union Information**

#### Classification as per CLP Regulation 1272/2008:

- **Hazards Class and Category:** Flamm.Liq.Cat.3, Eye Irrit.Cat.2
- **Hazard Statements:** H226; H319

Chemical Inventory Lists:	Status
TSCA:	Present
EINECS:	209-514-1
Canada(DSL/NDSL):	Listed/NDSL
Japan:	5-712
Korea:	Not listed



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Australia:	Present
China: IECSC	Not listed

#### US information

- **TSCA**  
CAS# 583-61-9 is listed on the TSCA inventory.
- **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 depletors.  
This material does not contain any Class 2 Ozone depletors.
- **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# 583-61-9 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.

#### SECTION 16: OTHER INFORMATION

##### a) Compilation information of safety data sheet

Date of compilation : May 24, 2012  
Chemical : 2,3-Lutidine  
CAS # :583-61-9  
File Name : 0005Bh Ghs12 Div.3 sds 2,3-Lutidine  
Revision Number : 12  
Date of Issue : December 18, 2015  
Revision Due Date : November, 2017  
Supersedes date : August 19, 2015

##### (a) 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 Programm.



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- 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.
- 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, Authorisation and Restriction of Chemicals.
- CLP = Classification, Labelling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonised System.
- ADR = Accord européen 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.

#### (b) 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)