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Version Name : 0006Gj Ghs17 Div.03 sds 2,6-Lutidine

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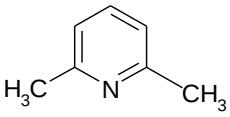
SECTION 1: IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1. Identification

PRODUCT NAME : 2,6-Lutidine
CAS RN : 108-48-5
EC# : 203-587-3
SYNONYMS : 2,6-Dimethylpyridine; alpha, alpha'-Dimethylpyridine; alpha, alpha'-Lutidine
SYSTEMATIC NAME : 2,6-Dimethylpyridine, 2,6-Lutidine, Pyridine, 2,6-dimethyl-
MOLECULAR FORMULA : C_7H_9N
STRUCTURAL FORMULA



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

- 2,6-Lutidine is used as a chemical intermediate in the production of pharmaceuticals, resins, dyestuffs, rubber accelerators and insecticides.

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

Flammable Liquid: Category 3	H226	Flammable liquid and Vapor
Acute Toxicity Oral: category 4	H302	Harmful if swallowed
Skin Corrosion/irritant: Category 2	H315	Causes skin irritation.
Serious eye damage/eye irritant: category 2A	H319	Causes serious eye irritation.

2.2. Label Elements

GHS-US labeling
Hazard Pictogram (GHS-US)

Hazard Pictogram: GHS 02, GHS 07
Signal Word: Warning!

HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS

- H226: Flammable liquid and Vapor.
- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H319: Causes serious eye 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/lighting/.../ equipment.

- P242: Use only non-sparking tools.
- 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.
- 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 water for extinction.
- P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330: Rinse mouth.
- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
- P332+P313: If skin irritation occurs: Get medical advice/attention.
- P362: Take off contaminated clothing and wash before reuse.
- 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.
- P405: Store locked up.
- P501: Dispose of contents/container to local/regional/national/international regulations.

2.3. Other hazards

No additional information available

SECTION3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical	CAS #	Purity	GHS-US classification	
2,6-Lutidine	108-48-5	~99%	Flammable Liquid: Category 3	H226
			Acute Toxicity Oral: category 4	H302
			Skin Corrosion/irritant: Category 2	H315
			Serious eye damage/eye irritant: category 2A	H319

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

- **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 methods 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.

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

- ***Acute effects:***

Eyes: Irritation, redness, pain, burns, loss of vision. High concentrations are extremely destructive to tissues of eyes.

Skin: Irritation, pain, redness, burns.

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. Exposure can cause headache, dizziness. High concentrations are extremely destructive to tissues of the mucous membranes and upper respiratory tract.

- ***Chronic effects:***

It can cause coughing, chest pains, difficulty in breathing and gastrointestinal disturbances.

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

- Notes to Physician: Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media.

- *Appropriate extinguishing media*: Dry chemical powder, carbon dioxide, and alcohol resistant foam.Water spray 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 mixturesfog 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.
- 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.

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

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.

Conditions for safe storage, including any incompatibilities

- Store at ambient temperature in a dry and ventilated place.
- Store in a flame proof area.
- Store away from incompatible materials.
- Keep securely closed when not in use.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

- **Exposure Limits Values**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
2,6-Lutidine	None listed	None listed	None listed

Exposure Limits (International):

- Not available.

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 as describe below
  In full contact:
  Glove Material: Viton
  Layer thickness: 0.70 mm
  Breakthrough Time: >480 min
  In splash contact:
  Glove Material: butyl rubber
  Layer thickness: 0.70 mm
  Breakthrough Time: >30 min

  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.

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	Colorless to yellow oily liquid
2	Odor	characteristic
3	Odor Threshold	Not available
4	Melting point	- 6 °C
5	Boiling point	143-145 °C at 760mm Hg
6	Flash point	33^0C closed cup
7	Evaporation rate (n-BuAc=1)	Not available
8	Explosive limits	Not available
9	Vapor pressure	5.65 mm Hg @ 25 °C
10	Vapor density (air=1)	3.7
11	Specific gravity (water=1)	0.923@20^0 C
12	Solubility (g/100ml)	3.00 x 10^{05} mg/l @ 34 °C, freely soluble.
13	pH	Not Available
14	Log Pow (octonol/water)	1.68
15	Auto-ignition temperature	Not available
16	Decomposition temperature	Not available
17	Viscosity	Not available

21	Flammability	Yes
22	Oxidizer	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:** Acids chloroformates, acids chlorides, strong oxidizing agents.
- **Hazardous decomposition:** Thermal decomposition may produce carbon monoxide and oxides of nitrogen, carbon dioxide & nitrogen, Hydrogen chloride, hydrogen cyanide and irritating and toxic fumes.
- **Hazardous Polymerization**: Not reported.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

a) Acute toxicity

- High concentrations of 2,6-Lutidine are extremely destructive to tissues of the mucous membranes and upper respiratory tract, eyes.

- **RTECS#**: OK9700000
- **Route of Administration**: - ORAL
  Species Tested: - Rodent-Rat
  Dose Data: LD_{50} - 400 mg/kg
  Toxic Effects: Details of the toxic effect not reported.
  Source: 85JCAE "Prehled Prumyslove Toxikologie; OrganickeLatky,"Marhold, J., Prague, Czechoslovakia, Avicenum, 1986 Volume (issue)/page/year: -,845,1986

- **Route of Administration**: - INHALATION
  Species Tested: - Rodent-Rat
  Dose Data: LD_{L0} – 7500 ppm/1H.
  Toxic Effects: Details of the toxic effect not reported
  Source: 85JCAE "Prehled Prumyslove Toxikologie; OrganickeLatky,"Marhold, J., Prague, Czechoslovakia, Avicenum, 1986 Volume (issue)/page/year: -,845,1986

- **Route of Administration**: - DERMAL
  Species Tested: - Rodent-guinea pig
  Dose Data: LD_{50} - 2500 mg/kg
  Toxic Effects: Details of the toxic effect not reported
  Source: 85JCAE "Prehled Prumyslove Toxikologie; OrganickeLatky,"Marhold, J., Prague, Czechoslovakia, Avicenum, 1986 Volume (issue)/page/year: -,845,1986

- **SIGNS AND SYMPTOMS OF POTENTIAL OVEREXPOSURE:** Symptoms of overexposure may include weakness, dizziness, headache, nausea, sleeplessness, loss of appetite, and unconsciousness. Symptoms of systemic poisoning may include those listed previously. The symptoms seen after ingestion are expected to be essentially the same as those listed previously.

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.

e) Germ cell Mutagenicity
- Non mutagenic

f) Carcinogenicity
- Not listed by NTP, IARC and OSHA.
- Not present on the EU CMR list.
- According to information presently available2,6-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

Toxicity

Ecotoxicity:

The Ecotoxicity of 2,6-Lutidine can be summarized on the bases of the experimental data available and estimated data.

- **Short-term toxicity to aquatic invertebrates:** LC50 (48 h) = 61mg/L. (Non Toxic)
- **Toxicity to aquatic algae and cyanobacteria**: EC50 (96h) = 43.72 mg/l . (Non Toxic)

Persistence and degradability

- **BCF** = 3.9 (Non bio accumulative in fish and aquatic organisms). (Estimated)
- 2,6-Lutidine is readily biodegradable in water

Bio accumulative potential

- BCF = 3.9(Estimated).
- Log Kow = 1.68 (Estimated).

Mobility in soil

- **Log Koc**= 1.93 (predicted). Low Sorption.
- **Henry's Law constant**: 1.04 x 10^{-05}atm-m^3/mole. Moderately volatile from aqueous bodies.
- **Log Kow** = 1.68 Low potential to bio accumulate.

Other adverse effects.

Environment Fate:

- If released to air, a vapor pressure of 5.65mm Hg at 25 deg C indicates that it will exist solely as a vapor in the ambient atmosphere.
- Vapor phase 2,6-Lutidine will be degraded in the atmosphere by reaction with photo chemically produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 6 days.
- If released to soil, it is expected to have moderate mobility based upon an estimated log Koc value.
- The pKa of 2,6-Lutidine is 6.6,which indicates that it will partially exist in the protonated form in moist soils.
- Volatilization from moist soil surfaces is expected to be an important fate process for the neutral species based upon a Henry's Law constant of 1.04 x 10^{-05}atm- cu m/ mole.
- If released into water, it is not expected to adsorb to suspended solids and sediments based upon the estimated Koc.
- Based on the environmental modeling, this material has a low potential to get absorbed in the organic matter of soil and is non-volatile from water bodies. 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 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 reinstates.

SECTION 15: REGULATORY 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/DOT	UN 1993	Flammable liquid , N.O.S (2,6-Lutidine)	3	III
Maritime Transport	IMDG	UN 1993	Flammable liquid , N.O.S (2,6-Lutidine)	3	III
Air Transport	IATA	UN 1993	Flammable liquid , N.O.S (2,6-Lutidine)	3	III

Hazard Label	**Flammable Liquid**	

Environmental hazards:

- Marine pollutant: No

SECTION 15: REGULATORY INFORMATION

European Union Information

Classification as per CLP Regulation 1272/2008:

- **Hazards Class and Category:** Flamm.Liq. Cat.3, Acute Tox.Oral Cat.4, Skin Irrit.cat.2, Eye irrit.cat.2
- **Hazard Statements:** H226; H302; H315; H319

Chemical Inventory Lists:	Status
TSCA:	Listed
EINECS:	203-587-3
Canada(DSL/NDSL):	Listed/DSL
Japan:	5-712
Korea:	Listed
Australia:	Listed
China: IECSC	Listed
Taiwan (TCSI)	Listed
New Zealand (NCIoC)	Listed
Catalog of Hazardous Chemicals(2015)	Listed

US information

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): 2,6-Lutidine not listed.
SARA 302/304 : 2,6-Lutidine not listed.
SARA 311/312 : See section 2 for more information
California Prop. 65: 2,6-Lutidine not listed.
CAA (Clean Air Act): 2,6-Lutidine not listed.
CWA (Clean Water Act): 2,6-Lutidine not listed.

EU Information

Water hazard class (WGK) 3 - severe hazard to waters
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: 2,6-Lutidine not listed.

SECTION 16: OTHER INFORMATION

Compilation information of safety data sheet

Date of compilation	: October 19, 2012
Chemical	: 2,6-Lutidine
CAS #	: 108-48-5
File Name	: 0006Gj Ghs17 Div.3 sds 2,6-Lutidine
Revision Number	: 17
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Supersedes version	: 0006Gj Ghs16 Div.3 sds 2,6-Lutidine

(a) 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.
- 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/NDSL= Domestic/Non-Domestic Substances List.
- CSR=Chemical Safety Report.
- BCF = Bio Concentration Factor.
- GHS = Globally Harmonized System.
- ADR = Accord European relative au transport international de merchandises.
- 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
- REG (EC) no. 1907/2006, last modification by REG (EC) Nr. 2015/830
- 85JCAE "Prehled Prumyslove Toxikologie; OrganickeLatky,"Marhold, J., Prague, Czechoslovakia, Avicenum, 1986 Volume (issue)/page/year: -,845,1986.

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.