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

1.1. Identification
PRODUCT NAME: 3-Acetylpyridine
CAS RN: 350-03-8
EC#: 206-496-7
SYNONYMS: 3-Acetopyridine, 3-Acetylpyridine, 3-Pyridyl methyl ketone
SYSTEMATIC NAME: 4-Methylpyridine, 4-Picoline (8CI), Pyridine, 4-methyl-
MOLECULAR FORMULA: C\textsubscript{7}H\textsubscript{7}NO

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
3-Acetylpyridine is used as an intermediate in the pharmaceutical industry for the manufacture of Imatinib Mesylate which is used in the treatment of chronic myeloid leukemia, Metyrapone which is used for diagnosing pituitary functioning, Telithromycin which is a ketolide antibiotic, Ridogrel which is classified as an antiplatelet therapy etc. It is also used for the synthesis of Pyridine-3-acetic acid which is used for the synthesis of Risedronate which is a drug used for osteoporosis. It is also used to make sunscreen compositions. It may also be used as a flavorant in food and perfumery.

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
Acute toxicity Oral: Category 3
Skin corrosion / irritant: Category 2

2.2. Label Elements
GHS-US labeling

Hazard Pictogram: GHS 06
Signal Word: Danger!

HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS
- H301: Toxic if swallowed.
- H315: Causes skin irritation.

PRECAUTIONARY STATEMENTS
- 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.
- P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P303: Rinse mouth.
- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
3-Acetylpyridine
Safety Data Sheet
generated according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

- P332+P313: If skin irritation occurs: Get medical advice/attention.
- P352: Take off contaminated clothing and wash before reuse.
- P405: Store locked up.
- 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

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS #</th>
<th>Purity</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Acetylpyridine</td>
<td>350-03-8</td>
<td>&gt; 98%</td>
<td>Acute toxicity Oral: Category 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin corrosion / irritant: Category 2</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

Key symptoms

- **Acute effects:**
  - **Eyes:** Irritation, redness, pain, burns, loss of vision.
  - **Skin:** Irritation, pain, redness, burns. Behavioral somnolence observed in test animals.
  - **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, heaviness and weakness of the arms and legs. Continued exposure may progress to convulsions and death.

- **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. 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.
- **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

Extinguishing media

*Appropriate extinguishing media:* Dry chemical powder, chemical foam, and alcohol resistant foam. Water may also be used. Water sprays may be effective. Water sprays can be effective in reducing 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 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.

Jubilant Life Sciences Limited
3-Acetylpyridine
Safety Data Sheet
according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

• 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.
• 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.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters
• Exposure Limits Values

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>OSHA-Final PELs</th>
<th>NIOSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Acetyl Pyridine</td>
<td>None listed</td>
<td>None listed</td>
<td>None listed</td>
</tr>
</tbody>
</table>

Exposure Limits (International):
• OSHA Vacated PELs: 3-Acetylpyridine: No OSHA Vacated PELs are listed for this chemical.

Derived No-Effect-Levels (DNEL) / Predicted No-effect-concentration (PNEC)
• DNEL and PNEC data 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.
• 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).
3-Acetylpyridine
Safety Data Sheet
according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

- Hands: Nitrile rubber applied on knitted cotton for mechanical stress. Because this glove is used only for mechanical protection, the minimum breakthrough time and thickness are not relevant to safety.

**For short-term exposure (splash protection):**
- Nitrile rubber gloves.
- Minimum breakthrough time / gloves: 30 min
- Minimum thickness / gloves 0.3 mm

**For long-term exposure:**
- Butyl rubber gloves.
- Minimum breakthrough time / gloves: > 8 h
- Minimum thickness / gloves 0.5 mm

**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.

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Parameter</th>
<th>Typical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Appearance</td>
<td>Clear brown liquid</td>
</tr>
<tr>
<td>2.</td>
<td>Odor</td>
<td>Characteristic</td>
</tr>
<tr>
<td>3.</td>
<td>Odor Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>4.</td>
<td>pH</td>
<td>6.5-7.5@20°C</td>
</tr>
<tr>
<td>5.</td>
<td>Melting point/Freezing point</td>
<td>12 - 13 deg C</td>
</tr>
<tr>
<td>6.</td>
<td>Boiling Point</td>
<td>220 deg C @ 760.00mm Hg</td>
</tr>
<tr>
<td>7.</td>
<td>Flash point</td>
<td>104 deg C (219.20 deg F)</td>
</tr>
<tr>
<td>8.</td>
<td>Evaporation rate (n-BuAc=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>9.</td>
<td>Flammability</td>
<td>Non Flammable</td>
</tr>
<tr>
<td>10.</td>
<td>Upper/lower flammability or Explosive limits</td>
<td>1.3%-8.7%</td>
</tr>
<tr>
<td>11.</td>
<td>Vapor pressure</td>
<td>0.003 mbar @20 deg</td>
</tr>
<tr>
<td>12.</td>
<td>Vapor density (air=1)</td>
<td>4.17</td>
</tr>
<tr>
<td>13.</td>
<td>Relative density</td>
<td>1.1020g/cm³</td>
</tr>
<tr>
<td>14.</td>
<td>Solubility</td>
<td>Soluble in hot water</td>
</tr>
<tr>
<td>15.</td>
<td>Partition coefficient : n-(Octanol / water)</td>
<td>0.49</td>
</tr>
<tr>
<td>16.</td>
<td>Auto-ignition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>17.</td>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>18.</td>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>19.</td>
<td>Explosive property</td>
<td>No</td>
</tr>
<tr>
<td>20.</td>
<td>Oxidizing property</td>
<td>No</td>
</tr>
</tbody>
</table>

### 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
3-Acetylpyridine
Safety Data Sheet
according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

a) **Acute toxicity**
   - It is toxic if swallowed. May be fatal if inhaled or absorbed through skin. Causes skin irritations. Vapor or mist is irritating to eyes, mucous membrane and upper respiratory tract.

**Chronic effects:**
- It is a neurotoxin that decreases the motor activity and causes loss of inferior olivary cells. May cause damage to the central nervous system.

**TOXICITY:**
- RTECS#: OB5425000
- **ACUTE ORAL LD50(RAT)** = 51 mg/kg
- **ACUTE ORAL LD50 (Bird)** = 178 mg/kg
- **INTRAPERITONEAL MOUSE LD50** = 182 mg/kg

a) **Skin corrosion/irritation**
   - Causes skin irritation.

b) **Serious eye damage/irritation**
   - No data available.

c) **Respiratory or skin sensitization**
   - No data available.

d) **Germ cell Mutagenicity**
   - **Type of Test**
     - Sex chromosome loss and nondisjunction
   - **Species Observed**
     - Yeast – Saccharomyces cerevisiae
   - **Dose Data**
     - 5000 ppm

 e) **Carcinogenicity**
   - Not listed by NTP, IARC and OSHA.
   - Not present on the EU CMR list.
   - According to information presently available 3-Acetylpyridine 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:**
- Bacteria: Phytobacterium phosphoreum: EC50 = 106-127 mg/L; 5,15,30 minutes; Microtox test; 15 degrees C.

**Persistence and degradability**
- No information is available.

**Bio accumulative potential**
- BCF = Not available.
- Log Kow = 0.49 (Estimated).
- Based on the Log Kow value it is expected to have low potential to bioaccumulate.

**Mobility in soil**
- Log Pow=0.49. Low potential to bioaccumulate.

**Results of PBT and vPvB assessment**
- The substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII.

**Other adverse effects**
- Environment Fate:
  - Based on environmental modeling, this material is not expected to be persistent in the environment and is not expected to bioaccumulate. It does not undergo ready biodegradability. Since this is an estimated result, necessary guidelines should be followed before disposing off the material in to the environment.

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.
3-Acetylpyridine
Safety Data Sheet
according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

- 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 reagents.

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.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Agency</th>
<th>UN Number</th>
<th>Proper Shipping name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Transport</td>
<td>ADR/RIC</td>
<td>UN 2810</td>
<td>Toxic liquid, organic, N.O.S(3-Acetylpyridine).</td>
<td>6,(6.1)</td>
<td>III</td>
</tr>
<tr>
<td>Maritime Transport</td>
<td>IMDG</td>
<td>UN 2810</td>
<td>Toxic liquid, organic, N.O.S(3-Acetylpyridine).</td>
<td>6,(6.1)</td>
<td>III</td>
</tr>
<tr>
<td>Air Transport</td>
<td>IATA</td>
<td>UN 2810</td>
<td>Toxic liquid, organic, N.O.S(3-Acetylpyridine).</td>
<td>6,(6.1)</td>
<td>III</td>
</tr>
</tbody>
</table>

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: Acute Tox Oral Cat.3, Skin Irrit. Cat.2.
  - Hazard Statements: H301; H315

US Information

- TSCA
  - CAS# 350-03-8 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:

Jubilant Life Sciences Limited
3-Acetylpyridine
Safety Data Sheet
according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

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

STATE
CAS# 350-03-8 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 : April 06, 2012
Chemical : 3-Acetyl Pyridine
CAS #: 350-03-8
File Name : 0031Gj Ghs10 Div.3 sds 3-Acetylpyridine
Revision Number : 10
Date of Issue : December 14, 2015
Revision Due Date : November, 2017
Supersedes date : September 07, 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.
- RTECS= Registry of Toxic Effects of Chemical Substances.
- NTP=National Toxicology Program
- IARC= International Agency for Research on Cancer.
- EPA=Environmental Protection Agency.
- TSCA=Toxic Substances Control Act.
- SARA= Superfund Amendments and Reauthorization Act.
- 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.
- AGHIH = 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 relatif au transport international de marchandises.
- 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

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)