

# MATERIAL SAFETY DATA SHEET

## Beta Picoline

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

**1.1. Product identifier** Beta Picoline  
**Synonyms:** 3-Picoline; 3-Methylpyridine  
**Chemical Abstracts Registry No:** 108-99-6

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

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

M/s Shakambari Aromatics Private Limited  
Village: Dudiya-Matewa, Tehsil: Gunderdehi  
District: Balod, Chhattisgarh: 491225, India  
Ph: +91 95893 77899

### SECTION 2: Hazards identification

**2.1. Classification of the substance or mixture** (According to Regulation (EC) No 1272/2008, 29 CFR 1910.1200 and the Globally Harmonized System)

Skin Corrosion/Irritation Category 1C  
Serious Eye Damage Category 1  
Acute Toxicity Inhalation Vapour Category 3  
Acute Toxicity Dermal Category 3  
Acute Toxicity Oral Category 4  
Flammable Liquids Category 3  
EUH071 - Corrosive to the respiratory tract.

**2.2. Label elements**

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Hazard Symbols (Pictogram):



Signal Word:

Danger

Hazard Precautions:

H226 - Flammable liquid and vapour.  
H302 - Harmful if swallowed.  
H311+H331 - Toxic in contact with skin or if inhaled.  
H314 - Causes severe skin burns and eye damage.  
EUH071 - Corrosive to the respiratory tract.

Prevention Precautionary Statements:

P210 - Keep away from heat/sparks/open flames/hot surfaces. – No smoking.  
P240 - Ground/bond container and receiving equipment.  
P241 - Use explosion-proof electrical/ventilating/lighting/telecommunication/computer/equipment.  
P242 - Use only non-sparking tools.  
P243 - Take precautionary measures against static discharge.  
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.  
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.

First Aid Precautionary Statements:

P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 - Immediately call a POISON CENTER or doctor/physician.  
P361 - Remove/Take off immediately all contaminated clothing.  
P363 - Wash contaminated clothing before reuse.

Storage Precautionary Statements:

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal Precautionary Statements:

P501 - Dispose of contents/container in accordance with local/regional/national/international regulation for hazardous wastes.

### 2.3. Other hazards

Other Hazards:

Not applicable.

**SECTION 3: Composition/information on ingredients**

3.1.Substances or 3.2.Mixtures

Ingredient	CAS Number	Concentration (weight %)	EC Number	CLP Inventory/ Annex VI	EU CLP Classification (1272/2008)
Beta Picoline	108-99-6	~ 100	203-636-9	Not listed.	Skin Corr. 1C; H314 Acute Tox. 3; H311 Flam. Liq. 3; H226
					Acute Tox. 3; H331 Acute Tox. 4; H302 Eye Dam. 1; H318

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NOTE: See Section 8 for exposure limit data for these ingredients. See Section 15 for trade secret information (where applicable).

## 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. Remove contaminated clothing and continue flushing with water. Prolonged contact with contaminated clothing or shoes/boots may cause burns to appear after an extended exposure period.
- Eye Contact:** Rinse eyes immediately with large amounts of water for at least 15 minutes, occasionally lifting the eyelids. Get medical attention if irritation or other symptoms exist.
- Inhalation:** Remove from exposure area to fresh air immediately. If breathing has stopped, give artificial respiration. Keep affected person warm and at rest. Obtain immediate medical attention
- Ingestion:** Do NOT induce vomiting, this material is corrosive. If swallowed, contact physician or poison control center immediately. Do not give anything by mouth to an unconscious person.

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

- Acute:** Beta Picoline is corrosive to skin, eyes and mucous membranes. Vapors may be irritating to the respiratory tract. Beta Picoline is readily absorbed through the skin and is considered toxic via oral and dermal routes. Extended exposure (e.g., from saturated clothing) may lead to skin burns 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. Beta Picoline is a corrosive, so damage to the mouth and throat is a possibility if large amounts are ingested. 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

- 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: Firefighting measures

### 5.1. Extinguishing media

Water fog, Foam, Alcohol foam, Carbon dioxide, Dry chemical

Appropriate Extinguishing Media:

### 5.2. Special hazards arising from the substance or mixture

- Hazardous Products of Combustion:** Toxic vapors may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).
- Potential for Dust Explosion:** Not applicable.

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Special Flammability Hazards:

Severe explosion hazard in the form of vapor (within flammability limits) when exposed to heat, flame or 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.

## 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:

See Section 8 for personal protective equipment recommendations. Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded.

### 6.2. Environmental precautions

Prevent releases to soils, drains, sewers and waterways.

### 6.3. Methods and material for containment and cleaning up

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.

### 6.4. Reference to other sections

Refer to section 8 for information on selecting personal protective equipment. Refer to section 13 for information on spilled product, absorbent and clean up material disposal instructions.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for Unique Hazards: Not applicable.

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. Do not eat, drink or smoke in work areas. Prevent contact with incompatible materials. Avoid spills and keep away from drains. Handle in a manner to prevent generation of aerosols, vapors or dust clouds.

Special Handling Equipment:

Not applicable.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage Precautions & Recommendations:

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. Should be periodically inspected.

Dangerous Incompatibility Reactions:

Avoid contact with strong acids and oxidizing agents.

Incompatibilities with Materials of Construction:

May cause some forms of plastics and rubbers to deteriorate.

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## 7.3. Specific end use(s)

If a chemical safety assessment has been completed an exposure scenario is attached as an annex to this Safety Data Sheet. Refer to this annex for the specific exposure scenario control parameters for uses identified in subsection 1.2.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Occupational Exposure Limit: Not established

Air Monitoring Method: Collection media: Charcoal; Analysis Method: GC/FID

Derived No Effect Levels (DNELs) – Workers:

Route	DNEL
Acute - systemic effects (dermal)	0.42 mg/kg bw/day
Acute - systemic effects (inhalation)	7.5 mg/m <sup>3</sup>
Long-term - systemic effects (dermal)	0.14 mg/kg bw/day
Long-term - systemic effects (inhalation)	2.5 mg/m <sup>3</sup>
Acute and long-term - local effects (dermal, inhalation)	Qualitative assessment - skin/eye irritant

Derived No Effect Levels (DNELs) – General Population:

Route	DNEL
Acute - systemic effects (oral, dermal, inhalation)	No applications involving general population
Long-term - systemic effects (dermal)	0.07 mg/kg bw/day
Long-term - systemic effects (inhalation)	0.6 mg/m <sup>3</sup>
Long-term - systemic effects (oral)	0.070 mg/kg bw/day
Acute and long-term - local effects (dermal, inhalation)	No applications involving general population.

Predicted No Effect Concentrations (PNECs):

Route	PNEC
PNEC aqua (freshwater)	0.3 mg/L
PNEC aqua (marine water)	0.03 mg/L
PNEC aqua (intermittent releases)	3 mg/L
PNEC aqua (STP)	2 mg/L
PNEC sediment (freshwater)	4.5 mg/kg sediment dw
PNEC sediment (marine water)	0.45 mg/kg sediment dw
PNEC soil	0.73 mg/kg soil dw
PNEC oral (wildlife exposures)	Derivation waived - no potential for bioaccumulation

### 8.2. Exposure controls

Also see the annex to this SDS (if applicable) for specific exposure scenario controls.

**Intermediate Status:** Where the substance has been registered as an isolated intermediate (on-site or transported), this safety data sheet is consistent with the specific conditions relied on to justify the registration in accordance with Article 17 or 18 of regulation (EC) No 1907/2006.

**Other Engineering Controls:** All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided.

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Personal Protective Equipment:	Use NIOSH approved chemical cartridge-respirator or supplied air breathing equipment. Chemical goggles should be worn at all times; use face shields as conditions warrant. Neoprene, nitrile or PVC-coated gloves (Standard EN 374). Safety glasses or chemical goggles (Standard EN166). Chemical resistant clothing (Standard EN368). Impervious clothing and boots.
Respirator Caution:	Observe OSHA regulations for respirator use (29 CFR 1910.134). Air-purifying respirators must not be used in oxygen-deficient atmospheres.
Thermal Hazards:	Not applicable.
Environmental Exposure Controls:	The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Appearance, State & Odor (ambient temperature):	Colorless to yellow liquid with a strong, sweetish odor.		
Vapor Pressure:	0.807 kPa	Evaporation Rate:	Not determined
Specific Gravity or Density:	0.9568 @20°C	Vapor Density (air = 1):	3.2
Boiling Point:	144 °C	Freezing / Melting Point:	-18 °C
Solubility in Water:	miscible	Octanol / Water Coefficient:	log Kow = 1.20
pH:	10 (as 100 g/L solution in water at 20°C); pKa = 5.63	Odor Threshold:	< 1 ppm
Viscosity:	No data available.	Autoignition Temperature:	488°C
Flash Point and Method:	100°F (37°C) Tag Closed Cup	Flammable Limits:	1.3% (LEL) –8.7% (UEL)
Flammability (solid, gas):	Not applicable.	Decomposition Temperature:	No data available.
Explosive Properties:	Not explosive.	Oxidizing Properties:	Not an oxidizer.

#### 9.2. Other information

Not applicable.

### SECTION 10: Stability and reactivity

<u>10.1.Reactivity</u>	Not classified as dangerously reactive.
<u>10.2.Chemical stability</u>	Stable
<u>10.3.Possibility of hazardous reactions</u>	Will not occur.
<u>10.4.Conditions to avoid</u>	Avoid static discharge and uncontrolled exposure to high temperatures.

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## 10.5. Incompatible materials

Avoid contact with strong acids and oxidizing agents.

## 10.6. Hazardous decomposition products

Toxic vapors may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute Oral LD <sub>50</sub> :	LD50 (rat) = 710 mg/kg LD50 (rat) = 630 mg/kg	Birch 1972 Carreon 1983 (KEY)
Acute Dermal LD <sub>50</sub> :	LD50 (rabbit) = 200 - 1000 mg/kg LD50 (rabbit) = 126 - 200 mg/kg LD50 (rat) > 400 mg/kg	Fitzgerald (1991a & b) Birch 1972 Oley 2008 (KEY)
Acute Inhalation LC <sub>50</sub> :	Inhalation LC50 (4h) (rat) = 1300 - 3300 ppm Inhalation LC50 (5h) (rat) < 11.82 mg/L	Kinney 1984 (KEY) Birch 1972
Skin Irritation:	Corrosive to skin.	
Eye Irritation:	Corrosive to eyes.	
Skin Sensitization:	Not a sensitizer	
Mutagenicity:	Genotoxic activity was absent (i.e., DNA lesions were not induced and mutagenic activity was not induced) when tested using the following tests: DNA single-strand breaks measurement in V79 cells, HGPRT gene mutation assay in V79 cells, Salmonella/microsome test, and micronucleus assay.	
Reproductive / Developmental Toxicity:	No data available. No data available.	
Carcinogenicity:	In a two-year drinking water study in mice, pyridine was reported to increase the incidence of hepatocellular carcinomas and hepatoblastomas. In male Fischer 344 rats, pyridine was reported to increase the incidence of renal tubule adenomas, but this was not observed in male Wistar rats. (NOTE: These studies were audited for data quality and several major concerns have been noted. Tumor incidence rates in control rats reached 76 to 84%. There is also evidence that normal metabolic pathways were saturated, leading to results of questionable biological significance.) No increase in tumor incidence at any site was observed in rats following subcutaneous injection of pyridine for one year. (NTP 1997)  Two studies conducted with genetically modified mice showed no treatment-related increase in tumors. No scientific study supports an association between pyridine and cancer in humans. IARC reviewed all of the available carcinogenicity data and concluded that pyridine is not classifiable as to its carcinogenicity in humans (Group 3). (IARC 2000) Pyridine has NOT been listed in the NTP's Report on Carcinogens.	
Target Organs:	Several repeated dose toxicity tests have been performed in mice and rats, both as gavage and drinking water studies. Most tests showed evidence of adverse liver effects after subchronic/chronic oral exposures; there were isolated reports of kidney, cardiac, blood and reproductive effects, but these endpoints were not as reproducibly observed as liver effects. NOAEL levels ranged from 1 to 15 mg/kg/day in gavage and drinking water studies conducted from 13 weeks to 2 years in duration. A single subchronic inhalation study showed development of olfactory lesions in rats exposed to levels exceeding regulatory exposure limits over a 4-day period.	
Aspiration Hazard:	Based on physical properties, not likely to be an aspiration hazard.	



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Primary Route(s) of Exposure:	Skin contact and absorption, eye contact, and inhalation. Ingestion is not likely to be a primary route of exposure.
Most important symptoms and effects, both acute and delayed	Beta Picoline is corrosive to skin, eyes and mucous membranes. Vapors may be irritating to the respiratory tract. Beta Picoline is readily absorbed through the skin and is considered toxic via oral and dermal routes. Extended exposure (e.g., from saturated clothing) may lead to skin burns 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. Beta Picoline is a corrosive, so damage to the mouth and throat is a possibility if large amounts are ingested. Ingestion is not likely to be a primary route of exposure. Delayed Effects: None known.
Additive or Synergistic effects:	None known.

### SECTION 12: Ecological information

<u>12.1.Toxicity</u>	LC50 (96h) Brachydanio rerio (Zebra fish) = 560 - 1000 mg/L EC50 (48h) Daphnia = 320 mg/L EC50 (72h) Selenastrum capricornutum (algae) = 320 mg/L	Weytjens (1991a) Weytjens (1991b) Weytjens (1991c)
<u>12.2.Persistenceand degradability</u>	Readily biodegradable. Based on environmental modeling, this material is not expected to be persistent in the environment, is not expected to bioaccumulate, and is not expected to be chronically toxic to fish.	
<u>12.3. Bioaccumulative potential</u>	Bioconcentration is not expected to occur.	
<u>12.4.Mobilityinsoil</u>	This material is expected to have high mobility in soil. It absorbs weakly to most soil types.	
<u>12.5.ResultsofPBTandvPvB assessment</u>	This substance is not a PBT or vPvB.	
<u>12.6. Other adverse effects</u>	None known	

### SECTION 13: Disposal considerations

<u>13.1. Waste treatment methods</u>	
US EPA Waste Number:	D001
Waste Classification: (per US regulations)	Ignitable.
Waste Disposal:	NOTE: Generator is responsible for proper waste characterization. State hazardous waste regulations may differ substantially from federal regulations. Dispose of this material responsibly, and in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws, and environmental protection duty of care principles. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate classification code according to the European Community List of Wastes should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.

### SECTION 14: Transport information

The following information applies to all shipping modes (DOT/IATA/ICAO/IMDG/ADR/RID/ADN), unless otherwise indicated:

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14.1. UN number	UN2313	14.2. UN proper shipping name	(Picolines)
14.3. Transport hazard class(es)	3	14.4. Packing group	PG III
14.5. Environmental hazards	Not applicable		
14.6. Special precautions for user	Not applicable See section 8 for exposure control/personal protection guidance.		
NA Emergency Guidebook Numbers:	129	IMDG EMS:	S-D; F-E
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Category Z		

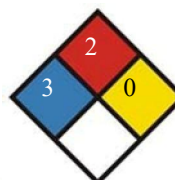
### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Chemical Inventory Lists:	Status:		
USA TSCA:	Listed	EINECS:	203-636-9
Canada(DSL/NDSL):	DSL	Japan:	(5)-711
Korea:	2003-3-2408	Australia:	Listed
China:	17000	Philippines:	Listed
Taiwan:	Listed	New Zealand:	Listed
German Water Hazard Classification:	ID Number 1601, hazard class 1 - low hazard to waters (3-Methylpyridin)		

SARA 313: Not listed.  
Reportable Quantities: Not applicable.  
State Regulations: Not applicable.  
Other Regulatory Listings: This material is listed as a Volatile Organic Compound (VOC) by U.S. EPA; see 40 CFR 60.  
HMIS IV: NFPA:

HEALTH	3
FLAMMABILITY	2
PHYSICAL HAZARD	0



### 15.2. Chemical safety assessment

A chemical safety assessment has been prepared for this product.

## SECTION 16: Other information

### Key Data Sources:

- Birch, MD, 1972, Toxicological Investigation of 0.4 Mole Fraction; 3-Methylpyridine Lot: QET 195729, American Chemistry Council, Pyridine and Pyridine Derivatives HPV Work Group, Testing Laboratory: Monsanto Company, ST Louis, MO, USA.
- Carreon, RE, 1983, 3-Methylpyridine: Acute Toxicological Properties and Industrial Handling Hazards, American Chemistry Council, Pyridine and Pyridine Derivatives HPV Work Group 2003, Owner: Dow Chemical Company.
- Chen HC and Krauss, WC, 1984, Subchronic Inhalation Toxicity of 3-Methylpyridine, Testing Laboratory: EI DuPont de Nemours & Co., Wilmington, DE, USA, EPA Document Number 878214922.
- Claxton, LD, et al., 1987, Mutation Research, 176:185-198.
- Clayton G. D and F. E. Clayton (eds.), 1994, Patty's Industrial Hygiene and Toxicology, 4th ed. New York, NY: John Wiley & Sons Inc.
- Fitzgerald GB, 1991a, Acute Dermal Toxicity Study (LD50): 3-Methylpyridine. Testing laboratory: Toxikon Corp., Woburn, MA, USA, Report no.: Report Number 91-0351.1. Owner company: Reilly Industries Inc.
- Fitzgerald, GB, 1991b, Acute Dermal Toxicity Study (LC50): 3-Methylpyridine Testing Laboratory: Toxikon Corporation, Woburn, MA, USA, Report no: 91-0351.2 Owner: Reilly Industries.
- Fitzgerald, GB, 1991c, DOT Skin Corrosion Study with Beta-Picoline, Testing Laboratory: Toxikon Corporation, Woburn, MA USA, Report no 91-0352 Owner: Reilly Industries.
- International Agency for Research on Cancer (IARC), 2000, Pyridine: IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, 77:503-528.
- Ho, C.H et al. 1981, Mutation Research, 85: 335-345
- Kinney, LA et al. 1984 Lethal Concentration(s) by inhalation of Pyridine and 3-Methylpyridine, US EPA, Testing Laboratory: EI DuPont de Nemours & Co Inc, Wilmington, DE, USA, EPA Document Number 878214921
- MITI 2002. Bioconcentration Test on 3-Methylpyridine, Japanese National Institute of Technology and Industry, Official Bulletin of Economy, Trade and Industry Report No. 1-336in 5-711
- National Toxicology Program (NTP), 1997, NTP Technical Report on the Toxicology and Carcinogenesis Studies of Pyridine (CAS RN 110-86-1) in F344/N Rats, Wistar Rats and B6C3F1 Mice (Drinking Water Studies), NIH, Testing laboratory: U. S. Department of Health and Human Services, Public Health Service, National Institute of Health, Washington, DC, Report no.: TR470: NIH publication NO. 98-3960.

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- National Toxicology Program (NTP), 2000, NTP Technical Report on the Toxicology and Carcinogenesis Studies of Pyridine (CAS RN 110-86-1) in F344/N Rats, Wistar Rats and B6C3F1 Mice (Drinking Water Studies), NIH, Testing laboratory: U. S. Department of Health and Human Services, Public Health Service, National Institute of Health, Washington, DC, Report no.: TR470: NIH publication NO. 98-3960.
- National Toxicology Program (NTP), Mouse Micronucleus Study, Report No A31463
- Oley, SD, 2008 Acute Dermal Toxicity in Rats - Limit Test, Testing Laboratory Eurofins / Product Safety Laboratories, Report No 26492 Owner: Vertellus Specialties
- Singh BB & Chandra R, 2005, Bull Environ Contam Toxicol, 75:482-9.
- Spear, H 1984 DOT Skin Corrosion Test, Department of Transportation CFR Title 49, 173.1200, Testing Laboratory: Product Safety Labs, 340 Commercial Ave, New Brunswick, NJ 08901 US, Report T-4008, Owner: Nepera Inc., Route 17, Harriman, NY US 10926
- Spear, H 1984 DOT Skin Corrosion Test, Department of Transportation CFR Title 49, 173.1200, Testing Laboratory: Product Safety Labs, 340 Commercial Ave, New Brunswick, NJ 08901 US, Report T-5276, Owner: Nepera Inc., Route 17, Harriman, NY US 10926
- Trochimowicz, HL, 1994, Heterocyclic and Miscellaneous Nitrogen Compounds in Patty's Industrial Hygiene and Toxicology, 4th Ed. (GD Clayton and FE Clayton, eds), New York, John Wiley and Sons.
- Vleminckx, C, et al, 1993, Evaluation of the Genotoxic Potential of Pyridine and Methylated Pyridines. A Salmonella/Microsome Test, Testing laboratory: Institute of Hygiene and Epidemiology, Brussels, Belgium. Report no.: IHE-TOX-1003, Owner company: Reilly Industries, Report date: 1993-03-08, unpublished data.
- Vleminckx, C, et al, 1993, Evaluation of the Genotoxic Potential of Pyridine and Methylated Pyridines. HGPRT gene mutation test in V79 cells, Testing laboratory: Institute of Hygiene and Epidemiology, Brussels, Belgium, Report no.: IHE-TOX-1003b, Owner company: Reilly Industries, Report date: 1993-03-08, unpublished data.
- Vleminckx, C, et al, 1993, Evaluation of the Genotoxic Potential of Pyridine and Methylated Pyridines. DNA single strand breaks measurement in mammalian cells in vitro, Testing laboratory: Institute of Hygiene and Epidemiology, Brussels, Belgium, Report no.: IHE-TOX-1003c, Owner company: Reilly Industries, Report date: 1993-03-08, unpublished data.
- Weytjens, D, 1991, The Acute Toxicity Of B-Picoline (3-methyl pyridine) In The Zebra Fish (Brachydanio rerio), Testing laboratory: Janssen Pharmaceutica, Report no.: AFB/0010, Owner company: Reilly Chemicals SA, Report date: 1991-12-11, unpublished data.

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- Weytjens, D, 1991, The Acute Toxicity of B-Picoline (3-methyl pyridine) In the Water-Flea (Daphnia Magna), Testing laboratory: Janssen Pharmaceutica, Report no.: ADK6/0012, Owner company: Reilly Chemicals SA, Report date: 1991-12-11, unpublished data.
- Weytjens, D, 1991, The Effect of B-Picoline (3-methyl pyridine) On The Growth Of The Unicellular Green Alga Selanastrum capricornutum, Testing laboratory: Janssen Pharmaceutica, Report no.: AASc/0002, Owner company: Reilly Chemicals SA, Report date: 1991-12-11, unpublished data.
- Workplace Environmental Exposure Level, 1988, Picolines, American Industrial Hygiene Association Yuill, L, 2008, Reproduction/Developmental Toxicity Screening Test in Rats, Testing laboratory: Charles River Laboratories, Tranent, Edinburgh, UK. Report no.: 28038. Owner company: Pyridine Group of American Chemistry Council (Vertellus Specialties Inc.), Study number: 494646, Report date: 2008-08-29, unpublished data.

Classification Method: On basis of test data

### Legend of Abbreviations:

ACGIH = American Conference on Governmental Industrial Hygienists.	LD = Lethal Dose.
CAS = Chemical Abstracts Service.	NFPA = National Fire Protection Association.
CFR = Code of Federal Regulations.	NIOSH = National Institute of Occupational Safety and Health.
DSL/NDSL = Domestic Substances List/Non-Domestic Substances List.	NTP = National Toxicology Program.
EC = European Community.	OSHA = Occupational Safety and Health Administration
EINECS = European Inventory of Existing Commercial Chemical Substances.	PEL = Permissible Exposure Limit.
ELINCS = European List of Notified Chemical Substances.	RQ = Reportable Quantity.
EU = European Union.	SARA = Superfund Amendments and Reauthorization Act of 1986.
GHS = Globally Harmonized System.	TLV = Threshold Limit Value.
LC = Lethal Concentration.	WHMIS = Workplace Hazardous Materials Information System.

**Important Note:** Please note that the information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. The information contained herein may change without prior notice. THIS SAFETY DATA SHEET SUPERSEDES ALL PREVIOUS EDITIONS.

eSDS Section	Exposure Scenario Content	
1.2 Use of Substance		Application for all ES
7.1 Handling	General occupational RMM and OC other than personal protective equipment	· Use of appropriate equipment:
		- Impervious secondary containment with volume greater than the largest container / vessel
		- Closed systems

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		- Bonded and grounded tanks, lines and vessels
		- Applicable storage tank controls , i.e. pressure and temperature gauging, pressure relief venting with routing to safe areas
		- Applicable processing vessel controls, i.e. rupture discs with routing to overfill vessels of adequate capacity
		- Ventilation for storage areas
		- Processing in areas of good ventilation or in closed systems
		- Transfers in closed, dedicated lines
		- Electrical equipment with explosion proof rating
		- Other equipment, including fire control systems, consistent with and required for the storage and use of flammable materials
		- Local Exhaust Ventilation: 90% efficiency
		- Fire extinguishing media: water fog, alcohol foam, carbon dioxide, dry chemical
		- Proper operations and storage conditions
		- Controls to maintain the substance at appropriate temperature and pressure
		- Isolation from uncontrolled heat sources, such as steam lines
		☐ Organization Controls ☐
		- Store in well ventilated cool places
		- Proper labeling of the substance in storage and lines used for transfer
		- Training of worker in substance hazards and associated precautions / actions
		- Training of employees on chemical process safety and emergency response

## SAFETY DATA SHEET

		<ul style="list-style-type: none"> <li>- Access to SDS</li> <li>- Written operating procedures for storage, transfer, substance use and emergency</li> <li>- Monitor of substance vapor concentration prior to activities such as equipment maintenance and repair</li> <li>- Implementation of formal hot work procedures</li> <li>- Keep container tightly closed</li> <li>- Use of non sparking tools</li> <li>- Ground/bond container and receiving equipment</li> <li>- Keep away from ignition sources</li> <li>- Keep away from heat / sparks/ open flames/ hot surfaces</li> <li>- Keep away from oxidizers and acids</li> <li>- Take precautionary measures against static discharge</li> <li>- Management / Supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
	<p>Environmental RMM controlling emission from local exhaust ventilation (LEV), collective ventilation, or collection and disposal of spillage</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Compliance with local water discharge regulations</li> <li><input type="checkbox"/> Compliance with local air discharge regulations</li> <li><input type="checkbox"/> Impermeable surfaces</li> <li><input type="checkbox"/> Avoid release to the environment</li> <li><input type="checkbox"/> Keep away from drains / Do not empty into drains</li> </ul>

## SAFETY DATA SHEET

		system ☐ ☐ Substance must not enter sewage ☐ This material and its container must be disposed in a safe way as a hazardous waste ☐		
7.3 Specific Uses	Recommendations related to end products with specific uses	No uses defined		
8.1 Exposure limit values	DNELs		Acute Toxicity	Repeat Dose Toxicity
		Oral/ Dermal systemic (mg/kg bw/day)	0.42	0.14
		Inhalation systemic (mg/m3)	22.8	7.6
		Oral/ Dermal Local (mg/kg bw/day)	---	
	PNECs	Endpoint	Value	
		Aquatic freshwater	0.3 mg/l	
		Aquatic Marine	0.03 mg/l	
		Aquatic intermittent	3 mg/l	
		Micro-organisms	2 mg/l	
		Sediment freshwater		
			4.5 mg/kg dw	
		Sediment marine		
			0.45 mg/kg dw	
	Soil			
		0.73 mg/kg dw		
	Oral	NA		



## SAFETY DATA SHEET

<p>8.2.1 Occupational exposure controls</p>	<p>Full range of specific occupational RMM and OC</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Wear protective clothing with long sleeves</li> </ul>
	<p>Details on equipment if individual measures (PPE) is needed</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Wear face shield or tight fitting chemical goggles</li> <li><input type="checkbox"/> Wear chemically resistant gloves. Suitable glove materials including neoprene, PVC, nitrile rubber Control efficiency: 80%</li> </ul>
	<p>Summary of occupational RMM for all identified uses set out in the SDS</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Local exhaust except outside unload : 90 % efficiency</li> <li><input type="checkbox"/> Safety showers and eyewash stations in near vicinity</li> <li><input type="checkbox"/> Prevent formation of aerosols</li> <li><input type="checkbox"/> Keep away from food, drink</li> <li><input type="checkbox"/> Do not eat drink or smoke when using this material</li> <li><input type="checkbox"/> Avoid contact with skin and eyes</li> <li><input type="checkbox"/> Do not breathe dust/fume/gas/mist/vapours/ spray</li> <li><input type="checkbox"/> Avoid contact with skin and eyes</li> <li><input type="checkbox"/> Contaminated work clothing should not be allowed out of workplace</li> <li><input type="checkbox"/> Store protective clothing separately</li> </ul>

## SAFETY DATA SHEET

8.2.2	Information on the full	<input type="checkbox"/> Prevent formation of aerosols <input type="checkbox"/> Safety showers and eyewash stations in near vicinity
Environmental Exposure Controls	range of RMM and OC, required to fulfill commitment under community environmental regulation	
13 Waste related measures	Summary of environmental RMM for all identified uses set out in the SDS	<input type="checkbox"/> Compliance with local water discharge regulations <input type="checkbox"/> Compliance with local air discharge regulations <input type="checkbox"/> Impermeable surfaces <input type="checkbox"/> Avoid release to the environment <input type="checkbox"/> Keep away from drains / Do not empty into drains <input type="checkbox"/> Substance must not enter sewage system
		<input type="checkbox"/> This material must be disposed of in a safe way, as a hazardous waste. <input type="checkbox"/> Clean / destroy container at approved facility. EU waste code: 15 01 10 <input type="checkbox"/> Solids from waste water or air treatment: send to approved hazardous waste incinerator. EU waste code 16 10 01

SAFETY DATA SHEET

		☐ Absorbents filter materials, wiping cloths and protective clothing: send offsite for incineration. EU waste code 15 02 02☐

SAPL

## SAFETY DATA SHEET

Summary of RMM				
Beta Picoline				
Risk Management Measures are defined below:				
· Proper labeling of the substance in storage and lines used for transfer				
· Use of appropriate equipment:				
- Bonded and grounded tanks, lines and vessels				
- Applicable storage tank controls, i.e. pressure and temperature gauging, pressure relief venting with routing to safe areas				
- Applicable processing vessel controls, i.e. rupture discs with routing to overflow vessels of adequate capacity				
- Ventilation for storage areas				
- Inside storage in rooms compliant for flammable materials				
- Processing in areas of good ventilation, with local exhaust or in closed systems				
- Transfers in closed, dedicated lines				
- Electrical equipment with explosion proof rating				
- Impervious secondary containment with volume greater than the largest container / vessel in the area				
- Other equipment, including fire control systems, consistent with and required for the storage and use of flammable materials				
- Fire extinguishing media: Water fog, Alcohol foam, Carbon Dioxide, Dry chemical				
· Proper operations and storage conditions				
- Controls to maintain the substance at appropriate temperature and pressure				
- Isolation from uncontrolled heat sources, such as steam lines				
· Organization Controls				
- Written operating procedures for storage, transfer, substance use and emergency				
- Keep away from heat/sparks/open flames/hot surfaces				
- Ground / bond container and receiving equipment				
- Take precautionary measures against static discharge				
- Store in well ventilated area, keep cool				
- Keep containers tightly closed				
- No smoking				
- Monitor of substance vapor concentration prior to activities such as equipment maintenance and repair				
- Implementation of formal hot work procedures				
- Training of employees on chemical process safety and emergency response				
- Access to SDS				
- Use of non sparking tools				
- Avoid contact with strong acids and oxidizing agents				