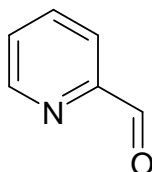


SAFETY DATA SHEET**Section 1: IDENTIFICATION**

Product Name Pyridine 2-aldehyde
CAS RN 1121-60-4
EC# 214-333-6
SYNONYMS Pyridine-2-carbaldehyde
 2-Formylpyridine
 2-Picolinaldehyde
 2-Picolinaldehyde
 2-Pyridaldehyde
 2-Pyridinecarboxaldehyde
 2-Pyridylaldehyde
 2-Pyridylcarboxaldehyde
 Picolinic aldehyde
 Pyridine-2-aldehyde
 o-Nicotinaldehyde

OTHER LANGUAGES **De** : Pyridin-2-carbaldehyd
Es : Piridina-2-carbaldehido
Fr : Pyridine-2-carbaldehyde

SYSTEMATIC NAME Pyridine-2-carbaldehyde
MOLECULAR FORMULA C₆H₅NO
STRUCTURAL FORMULA

**INGREDIENTS**

Chemical	CAS	Purity	Unit
Pyridine 2-aldehyde	1121-60-4	>98%	w/w

PRODUCT USES: It is used as an intermediate in the manufacturing of pharmaceutical drugs like biscacodyl, carbinoxamine maleate and mefloquine.

FACTORY & REGISTERED OFFICE:

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Medical and Transport Emergencies:
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+91-120-4365441. (India)**Section 2: HAZARD IDENTIFICATION****GHS CLASSIFICATION**

Flammable Liquid: Category 4
Skin corrosion / irritant: Category 2.
Eye damage/eye irritant: Category 2A.
Skin Sensitization: Category 1.
Acute Toxicity Oral: Category 4.
Acute Toxicity –Inhalation: Category 3.
Aquatic Environment: Chronic Hazard: Category 2.
Specific Target Organ Systemic Toxicity (Single Exposure): Category 3

**Signal Word**

Danger!

Overview

It is a Clear yellow to yellow-brown liquid. It is a combustible Liquid. It is also irritating and toxic to tissues of the mucous membranes and upper respiratory tract. It is Harmful if swallowed and causes eye and skin irritation.

H302: Harmful if swallowed.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H331: Toxic if inhaled.
H335: May cause respiratory irritation.
H411: Toxic to aquatic life with long lasting effects
H227: Combustible liquid.

PRECAUTIONARY STATEMENTS**Prevention and Response*****P264: Wash hands thoroughly after handling**

P270: Do not eat, drink or smoke when using this product

P261: Avoid breathing dust/fume/gas/mist/vapours/spray**P271: Use only outdoors or in a well-ventilated area**

P311: Call a POISON CENTER or doctor/physician

P321: Specific treatment (see ... on this label)

P330: Rinse mouth

P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

***P280: Wear protective gloves/protective clothing/eye protection/face protection**

P332+313: If skin irritation occurs: Get medical advice/attention

P362: Take off contaminated clothing and wash before reuse

P337+313: Get medical advice/attention

P262: Do not get in eyes, on skin, or on clothing.

***P273: Avoid release to the environment.**

P302 + P352: IF ON SKIN: Wash with plenty of soap and water.

P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P333+313: If skin irritation or a rash occurs: Get medical advice/attention

P363: Wash contaminated clothing before reuse

***P210: Keep away from heat/sparks/open flames/hot surfaces**

P280: Wear protective gloves/protective clothing/eye protection/face protection

P370+378: In case of fire, use ... for extinction ... appropriate media specified by the manufacturer/supplier or the competent authority

Storage

P405: Store locked up

P403+233+235: Store in a well ventilated place. Keep container tightly closed. Store in a well ventilated place. Keep cool

Disposal

P501: Dispose of the container as per local norms and regulations.

Section 3: Composition of ingredients

Sr. No	Chemical	CAS #	EC#	Purity
1.	Pyridine 2-aldehyde	1121-60-4	214-333-6	>98%

Section 4: First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5: Fire Fighting Measures
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Flash Point: 78 °C (Ref: Section: 9)

Combustible liquid

Extinguishing media

Dry chemical powder, chemical foam, 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. Use water spray to knock down fire fumes if possible.

Special Protective Equipment And Precautions For Fire Fighter.

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low area. Wear self-contained (positive pressure if available) breathing apparatus and full protective clothing. Isolate for 1/2 mile in all directions if tank car or truck is involved in fire (DOT 1984, Guide 29).

NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 0

Section 6: Accidental Release Measures

Minor Spills

- Clean up all spills following relevant Standard Operating Procedures.
- Avoid all contact with the material.
- Shut off leak source if possible.
- Wear protective clothing, boots, impervious gloves and safety glasses.
- Wipe up.

Major Spill

- Alert Emergency Responders and tell them location and nature of hazard.
- 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.
- Prevent, by any means available, spillage from entering drains or water and watercourses.
- Collect recoverable product into labeled containers for recycling, recovery or disposal.
- Collect spillage with sand, earth or vermiculite.
- Wash up the area with water
- Inform authorities in event of contamination of any public sewers, drains or water bodies.

Section 7: Handling & Storage
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Handling

- Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority. (See Section 8)
- Wash thoroughly after handling.
- Do not breathe mist
- Ground/Bond container and receiving equipment
- Use explosion-proof electrical/ventilating/lighting equipment.
- Take precautionary measures against static discharge.
- Use only non-sparking tools.
- Keep only in original container.
- Use only outdoors or in a well-ventilated area.
- Do not eat, drink or smoke when using this product.

Storage

- Store locked up.
- Store in a cool refrigerated area
- Store in flame-proof area.
- Keep only in original container.

Section 8: Exposure Controls/Personal Protection

Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Pyridine 2-aldehyde	Not established	Not established	Not established

Occupational Exposure Limits:**Exposure Controls**

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. 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.

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
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Sr.No.	Parameter	Typical value
1	Appearance	Clear yellow to yellow-brown liquid.
2	Odor	Not available
3	Odor Threshold	Not available
4	Melting point	-21°C
5	Boiling point	181 deg C @ 760 mm Hg
6	Flash point	78°C (SGS Report GR: GL:7210015790 dated 14/4/2007)
7	Evaporation rate (n-BuAc=1)	Not available
8	Explosive limits	Not available
9	Vapor pressure	1.2hPa @20 deg C
10	Vapor density (air=1) at 20°C	Not available
11	Specific gravity (water=1)	1.126 g/cm ³
12	Solubility	Miscible in water, soluble in most common organic solvents
13	PH	6.0 - 7.0 (20 °C Concentration:111g/l)
14	Refractive index	1.5343 to 1.5373 (20°C, 589 nm)
15	Log Kow (octanol/water)	0.44
16	Auto-ignition temperature	Not available
17	Decomposition temperature	Not available
18	Viscosity	Not available
19	Molecular Weight	107.11
20	Pka (@25°C)	Not available
21	Log Koc	0.7368
22	Flammable material	No
23	Oxidizer	No
24	Corrosive material	No
25	Explosive material	No

Section 10: Stability and Reactivity

Chemical Stability: Air sensitive. Light sensitive. Store at +2°C to +8°C.

Conditions to Avoid: Incompatible materials, light, exposure to air, excess heat. Incompatibilities with Other Materials Strong oxidizing agents, oxidizing agents, acids, bases, cyanides.

Hazardous Decomposition Products: Hydrogen cyanide, nitrogen oxides, carbon monoxide, carbon dioxide.

Hazardous Polymerization : Has not been reported.

Section 11: Toxicological Information**(a) Acute Toxicity**

- **RTECS # Not available**
- **LD50/LC50: (Methods)**
 - Oral, rat: LD50 = 585 mg/kg (OECD 401)
 - Dermal, rat: LD50 > 2000 mg/kg (OECD 402)
 - Inhalation, rat: LC50 = 0.8 mg/L/4H (OECD 403)

(b) Skin Corrosion/Irritation;

- It is slightly irritating (OECD 404)

(c) Serious Eye Damage/Irritation;

- It is strongly irritating (OECD 405)

(d) Respiratory or Skin Sensitization;

- It causes respiratory irritation

(e) Germ Cell Mutagenicity;

- No information available.

(f) Carcinogenicity;

- Not listed by NTP, IARC and OSHA.
- Not present on the EU CMR list.

(g) Reproductive Toxicity;

- No information available.

(h) Aspiration Hazard.

- No information available.

Section 12: Ecological Information**(a) Ecotoxicity:-****Acute eco-toxicity**

Toxic to aquatic organisms like fish and daphnia. It may cause long term effects in the environment. (As per New Zealand Hazardous Substances and New Organisms Act - Classification of Chemicals - Classification Data.)

- Daphnia Magna: EC₅₀: 6.9 mg/l/48 hr
- Fish 32-day ChV 7.349 mg/L (estm. ECOSAR v0.99h)
- Birds

- Oral European starling LD₅₀>1000 mg/kg (Ref.: E. Schafer & W.Bowles, USDA, National Wildlife Research Center 2004)
- Oral Japanese quail LD₅₀: 750 mg/kg (Ref.: E. Schafer & W.Bowles, USDA, National Wildlife Research Center 2004)

(b) Persistence and Degradability:-

PBT Profiler estimate results classify this chemical substance as persistent in the environment as it degrades slowly into the environment.

Abiotic

- OH rate constant: 1.7E-11 cm³/molecule-sec at 25 degrees C (estm.)
Half Life t_{1/2}: 23 hours (estm. PBT Profiler Ver 1.203)

Biotic

- Biodegradable
 - 70.3% BOD reduction 28 days (Japan August 2003)

(c) Bioaccumulative Potential (estimated)

- BCF = 3.2
- Log Kow = 0.44

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

(d) Mobility (Predicted)

- Log Koc = 0.7368 (estimated). Low sorption.
- Henry's Law Constant: 1.76 X 10⁻⁰⁸ atm-m³/mole. It is expected to be non-volatile from aqueous phase.
- Log Kow= 0.44. Negligible potential to bioaccumulation.


(e) Environment Fate:

Based on the environmental modeling, this material has a negligible potential to get absorbed in the organic matter of soil and is expected to be non-volatile from aqueous 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. It is estimated that pyridine-2-aldehyde has negligible potential to bioaccumulate. It may harm aquatic organism, so do not empty it into drains and water bodies.

Section 13: Disposal Consideration

- Burn in a chemical incinerator equipped with an afterburner and scrubber.
- 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 rinsates.

Section 14: Transport Information
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S.No	Agency	UN Number	Shipping name	Hazard Class	Packing Group
Land transport	ADR/RIC	2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	II
Maritime Transport	IMDG	2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	II
Air Transport	IATA	2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	II
Transport Labeling	Toxic label				

Section 15: Regulatory Information

European information

EU Inventory (ECICS): Present

EC# 214-333-6

Classification (as per Regulation (EC) No 1272/2008):

Hazards Class and Category: Eye Irrit. 2, Skin Irrit. 2, STOT SE 3, Skin Sens.1 , Acute tox.2, Aquatic Chronic 2.

CLP Notification Number: 02-2119488523-31-0000

Classification: T; R23 - Xn; R22 - Xi; R36/37/38 - R43 - N; R51/53

T Toxic

N Dangerous to the Environment

RISK PHRASES

- R23 Toxic by inhalation.
- R22 Harmful if swallowed.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- R43 May cause sensitization by skin contact.

- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SAFETY PHRASES

- S24 Avoid contact with the skin.
- S37 Wear suitable gloves.
- S63 In case of accident by inhalation: remove casualty to fresh air and keep at rest.
- S61 Avoid release to the environment. Refer to special instructions/safety data sheets.

Pre-Registration Status under REACH Regulation (EC) No. 1907/2006

EC Name	Submission Number	Pre-registration Number	Name of the Organization (OR)	Validity
Pyridine-2-carbaldehyde	EE222882-52	05-2114557540-51-0000	Jubilant Pharmaceuticals NV	31/05/2018

US FEDERAL TSCA

CAS# 1121-60-4 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.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

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 depleters.

This material does not contain any Class 2 Ozone depleters.

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# 1121-60-4 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

WGK (Water Danger/Protection)

CAS# 1121-60-4: 2

Canada - DSL/NDSL

CAS# 1121-60-4 is listed on Canada's DSL List.

Section 16: Other Information

SDS data

Chemical: Pyridine 2-aldehyde

CAS #: 1121-60-4

File Name: 0432A03 Div.03 sds Pyridine-2-aldehyde.

Date: December 13th, 2010

Revision Number: 02

Revision due date: November, 2012

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