Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION
Product name: 2-Pyridinecarboxaldehyde
Product Number: P50023
Brand: Aldrich
Supplier: Sigma-Aldrich
3500 Spruce Street
SAINT LOUIS MO 63103
USA
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8556

2. HAZARDS IDENTIFICATION
Emergency Overview
OSHA Hazards: Combustible Liquid, Toxic by inhalation., Harmful by ingestion., Skin sensitiser, Irritant, Mutagen
GHS Classification:
Flammable liquids (Category 1)
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 4)
Acute toxicity, Dermal (Category 2)
Skin irritation (Category 3)
Serious eye damage (Category 1)
Skin sensitisation (Category 1)
Specific target organ toxicity - single exposure (Category 3)
Respiratory system toxicity (Category 2)
GHS Label elements, including precautionary statements
Signal word: Danger
Hazard statement(s): Combustible liquid
H302: Harmful if swallowed.
H313: May be harmful in contact with skin.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H330: Fatal if inhaled.
H335: May cause respiratory irritation.
H401: Toxic to aquatic life.

Do not breathe dusts/ fumes/ gases/ mists/ vapours/ spray.
Wear protective gloves/ eye protection/ face protection.
Wear respiratory protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IMMEDIATELY call a POISON CENTER or doctor/ physician.
HMM Classification
Health hazard: 2
Chronic Health Hazard: 2
Flammability: 2
Physical hazards: 0
NFPA Rating
Health hazard: 2
Fire: 2
Reactivity hazard: 0
Potential Health Effects
Inhalation: Toxic if inhaled. Causes respiratory tract irritation.
Skin: Harmful if absorbed through skin. Causes skin irritation.
Eye: Causes eye irritation.
Ingestion: Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS
Synonyms: Picolinic aldehyde
Pyridine-2-aldehyde

Formula: C₈H₇NO

Molecular Weight: 107.11 g/mol

Component: Pyridine-2-carboxaldehyde
CAS-No.: 1121-60-4
EC-No.: 214-333-6
Concentration: 90 - 100 %

4. FIRST AID MEASURES
General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES
Conditions of flammability: Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/ sparks/ open flames/ hot surface. No smoking.
Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

Further Information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 - 8 °C
Store under inert gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NICOSH (US) or CE (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves' outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 120 min
Material tested: Butoxide® (KCL 897 / Aldrich Z677647, Size M)

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: clear, liquid
Colour: brown

Safety data
pH: 5.0 - 7.0 at 111 g/l at 20 °C (68 °F)
Melting point/freezing point: Melting point/range: -21 °C (-6 °F)
Boiling point: 181 °C (358 °F) - liq.
Flash point: 77 °C (171 °F)
Ignition temperature: no data available
Auto-ignition temperature: no data available
Lower explosion limit: no data available
Upper explosion limit: no data available
Vapour pressure: 1.2 kPa (0.9 mmHg) at 20 °C (68 °F)
Density: 1.126 g/cm³ at 25 °C (77 °F)
Water solubility: completely miscible
Partition coefficient: log Pow: 0.714
n-octanol/water
Relative vapour density: no data available
Odour: characteristic
Odour Threshold: no data available
Evaporation rate: no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents, Strong bases, Acids

Eye protection
Tightly fitting safety goggles. Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD₅₀
LD₅₀ Oral - rat: 585 mg/kg
Inhalation LC₅₀
LC₅₀ Inhalation - rat: 6 h - 0.8 mg/l
Dermal LD₅₀
LD₅₀ Dermal - rat: > 2,000 mg/kg
Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit: Moderate skin irritation - OECD Test Guideline 404
Serious eye damage/eye irritation
Eyes - rabbit: Risk of serious damage to eyes. - OECD Test Guideline 405
Respiratory or skin sensitisation
May cause allergic skin reaction.
no data available

Germ cell mutagenicity
Experiments showed mutagenic effects in cultured bacterial cells.

Genotoxicity in vitro - Ames test: S. typhimurium - positive

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
Inhalation: May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation: Toxic if inhaled. Causes respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: Harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available
Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity
Toxicity to fish
LC₅₀ - Oncorhynchus mykiss (rainbow trout): 1.3 mg/l - 96 h
NOEC - Oncorhynchus mykiss (rainbow trout): 1.0 mg/l
Method: OECD Test Guideline 213

Toxicity to daphnia and other aquatic invertebrates
EC₅₀ - Daphnia: 8.9 mg/l - 48 h
Method: OECD Test Guideline 222

Persistence and degradability
Biodegradability: Result: 82% - Biodegradable
Method: OECD Test Guideline 301

Bioaccumulative potential
Bioaccumulation is unlikely.

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
no data available

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2810 Class: 6.1 Packing group: II
Proper shipping name: Toxic, liquids, organic, n.o.s. (Pyridine-2-carboxaldehyde)
Reportable Quantity (RQ):
Marine pollutant: No
Poison Inhalation Hazard: No

Aldrich - P82005
Delivery 0846219097-000010 Purchase Order 0000000050
IMDG
UN number: 2810  Class: 6.1  Packing group: II  EMS-No: F-A, S-A
Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (Pyridine-2-carboxaldehyde)
Marine pollutant: No

IATA
UN number: 2810  Class: 6.1  Packing group: II
Proper shipping name: Toxic liquid, organic, n.o.s. (Pyridine-2-carboxaldehyde)

15. REGULATORY INFORMATION
OSHA Hazards
Combustible Liquid, Toxic by inhalation, Harmful by ingestion, Skin sensitiser, Irritant, Mutagen

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION
Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.