

Pyridine (anhydrous)

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Issue date: 10/28/2016

Revision date: 6/27/2023

Version: 2.0

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

1.1. Product identifier

Product form	: Substance
Trade name	: Pyridine (anhydrous)
EC Index-No.	: 613-002-00-7
EC-No.	: 203-809-9
CAS-No.	: 110-86-1
REACH registration No	: 01-2119493105-40-XXXX
Product code	: NC-0604
Type of product	: Solvents
Formula	: C ₅ H ₅ N
Product group	: End product

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

1.2.1. Relevant identified uses

Main use category	: Industrial use, Laboratory chemical
Industrial/Professional use spec	: For professional use only Industrial
Use of the substance/mixture	: Solvents Laboratory chemicals Substance manufacture
Function or use category	: Solvents, Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

emp Biotech GmbH
Robert-Rössle-Str. 10
13125 Berlin - Deutschland
T +49 (0)30 94 89 22 01 (Monday-Friday, 9:00 am-5:00 pm) - F +49 (0)30 94 89 32 01
info@empbiotech.com - www.empbiotech.com

1.4. Emergency telephone number

Emergency number	: Giftnotruf Berlin +49 30 30686700 (Beratung in Deutsch), 24 Stunden, 7 Tage/Woche; International: INFOTRAC +1-352-323-3500 (Phone) or in the US 800-535-5053 (toll-free), 24 hours/day, 7 days/week
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2	H225
Acute Tox. 4 (Inhalation)	H332
Acute Tox. 4 (Dermal)	H312
Acute Tox. 4 (Oral)	H302

Full text of hazard classes, H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)	:		
		GHS02	GHS07

Signal word (CLP)	: Danger
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Hazard statements (CLP)	: H225 - Highly flammable liquid and vapour. H332 - Harmful if inhaled. H312 - Harmful in contact with skin. H302 - Harmful if swallowed.
Precautionary statements (CLP)	: P210 - Keep away from heat, hot surfaces, sparks, open flames. No smoking. P280 - Wear protective gloves, protective clothing, eye protection, face protection. P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 - IF INHALED: Remove person to fresh air and keep 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.

2.3. Other hazards

Other hazards which do not result in classification	: This substance / mixture does not contain any components of 0.1% or higher that are either classified as persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).
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SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type	: Mono-constituent
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Name	Product identifier	%
Pyridine (anhydrous)	(CAS-No.) 110-86-1 (EC-No.) 203-809-9 (EC Index-No.) 613-002-00-7 (REACH-no) 01-2119493105-40-XXXX	≤ 100

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Consult a doctor. Show this safety data sheet to the doctor in attendance.
First-aid measures after inhalation	: Move person to fresh air and ensure comfortable breathing. Call a physician immediately. Give oxygen or artificial respiration if necessary.
First-aid measures after skin contact	: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Call a physician immediately.
First-aid measures after eye contact	: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses, if possible. Continue rinsing.
First-aid measures after ingestion	: Drink water immediately (max. 2 cups). Call a physician immediately.

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

Symptoms/effects after inhalation	: Shortness of breath. Cough. May cause respiratory irritation.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Eye irritation.
Symptoms/effects after ingestion	: Harmful if swallowed. Ingestion may cause nausea and vomiting.

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

Provide the physician information about the substance/product and treatment already administered. During late side-effects monitoring, which should be continued over several months, neurological parameters are especially relevant.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Alcohol resistant foam, dry chemical powder or carbon dioxide. Large amounts of water are ineffective. Cool containers with large amounts of water.
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5.2. Special hazards arising from the substance or mixture

Fire hazard	: Combustible.
Explosion hazard	: Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

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Hazardous decomposition products in case of fire : Carbon dioxide. Carbon monoxide. Nitrous gases (NOx). Be careful to flashback of fire.

5.3. Advice for firefighters

Precautionary measures fire : Eliminate all ignition sources if safe to do so.
Firefighting instructions : Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Protection during firefighting : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : For personal protection see section 8.
Emergency procedures : Do not breathe vapour/aerosol. Avoid substance contact. Ensure adequate ventilation, observe emergency procedures, consult an expert. No flames, no sparks. Eliminate all sources of ignition. Evacuate area.

6.1.2. For emergency responders

Protective equipment : Use self-contained breathing apparatus and chemically protective clothing.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Be careful of explosion risk.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Large spills should be collected mechanically (remove by pumping) for disposal. Ventilate the area. Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4. Reference to other sections

Information on exposure controls/personal protective equipment and on Instructions for disposal can be found in sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : In use, may form flammable vapour-air mixture.
Precautions for safe handling : Use under laboratory hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. Avoid contact with skin, eyes and clothing. Keep away from sources of ignition - No smoking. For precautions see section 2.2.
Hygiene measures : Take off immediately all contaminated clothing and wash it before reuse. Wash hands thoroughly after handling. Apply preventive skin protection.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed in a dry, well-ventilated place. Keep away from heat and sources of ignition. Keep contents under inert gas.
Storage temperature : 0 – 30 °C
Storage area : Storage class (TRGS 510): See section 15.1.2.

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Pyridine (anhydrous) (110-86-1)		
Germany	Local name	Pyridin
Germany	AGW (OEL TWA) [1]	15 mg/m ³
Germany	AGW (OEL TWA) [2]	5 ppm - Remarks: Indicative Legal reference: Commission Directive 91/322/EEC on release of indicative limit values

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Pyridine (anhydrous) (110-86-1)	
DNEL/DMEL (Workers)	
Acute - systemic effects, inhalation	7.5 mg/m ³
Long-term - systemic effects, inhalation	2.5 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, inhalation	0.6 mg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	0.3 mg/l
PNEC aqua (marine water)	0.03 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	3.2 mg/kg dwt
PNEC sediment (marine water)	0.32 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.46 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	2 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Hand protection:

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Use proper glove removal technique (without touching glove's 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: 0,7 mm

Break through time: 240 min

Eye protection:

Wear closed safety glasses. EN 166

Skin and body protection:

Wear fire/flame resistant/retardant clothing. Antistatic clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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 must be tested and approved under appropriate government standards such as NIOSH (U.S.) or EN (EU). Recommended filter type: Filter A



Environmental exposure controls:

Avoid release to the environment. Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 79.1 g/mol
Colour	: Colourless.
Odour	: Acrid.
Odour threshold	: 0.0001 ppm
pH	: ≈ 8.5 at 25 °C

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Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -42 °C
Freezing point	: -42 °C
Boiling point	: 115 °C
Flash point	: 17 °C closed cup.
Auto-ignition temperature	: 550 °C Temperature class: T1
Decomposition temperature	: No data available
Flammability	: No data available
Vapour pressure	: 20.5 hPa at 20 °C
Vapour pressure at 50 °C	: 95 hPa
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Relative density of saturated gas/air mixture	: 1.03 Ratio of the density to dry air at 20 °C and standard pressure.
Density	: 0.98 g/cm ³ at 20 °C.
Relative gas density	: 2.73 Ratio of the density to dry air at the same temperature and pressure.
Solubility	: Completely miscible with water. Water: ≈ 1000 g/l at 20 °C.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: 0.65
Viscosity, kinematic	: No data available
Viscosity, dynamic	: ≈ 0.88 mPa.s
Explosive properties	: Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentrations higher than the occupational exposure limits.
Oxidising properties	: No data available
Lower explosion limit	: 1.7 vol %
Upper explosion limit	: 10.6 vol %

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Vapors can form an explosive mixture with air.

10.2. Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3. Possibility of hazardous reactions

Risk of explosion with:

Perchloric acid
Nitrogen oxides
Halogen-halogen compounds

Risk of ignition or formation of inflammable gases or vapours with:

Chlorosulfonic acid
Chromium(VI) oxide
Acid anhydrides
Fuming sulfuric acid
Oxidizing agents
Perchromates
Nitric acid
Nitrogen dioxide

Exothermic reaction with:

Fluorine
Sulfuric acid
Silver perchlorate.

10.4. Conditions to avoid

Heat.

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10.5. Incompatible materials

Rubber. Several plastics. Several metals. Strong oxidizing agents, Strong acids.

10.6. Hazardous decomposition products

In the event of fire: see section 5.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if inhaled. Harmful in contact with skin. Harmful if swallowed.

Pyridine (anhydrous) (110-86-1)	
LD50 oral rat	891 mg/kg BIOFAX Industrial Bio-Test Laboratories, Inc., Data Sheets. Vol. 14-4/1970.
LD50 dermal rabbit	1120 mg/kg BIOFAX Industrial Bio-Test Laboratories, Inc., Data Sheets. Vol. 14-4/1970.

Skin corrosion/irritation : Skin - Rabbit
Result: Mild skin irritation - 24 h
(Draize Test)
pH: ≈ 8.5 at 25 °C

Serious eye damage/irritation : Eyes - Rabbit
Result: Irritating to eyes. - 24 h
Remarks: (ECHA)
pH: ≈ 8.5 at 25 °C

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classifiable as to its carcinogenicity to humans.

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Pyridine (anhydrous) (110-86-1)	
Viscosity, kinematic	≈ 0.898 mm ² /s

Potential adverse human health effects and symptoms : Good warning effect due to low odor threshold. burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Other information : To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1. Toxicity

Pyridine (anhydrous) (110-86-1)	
LC50 - Fish [1]	6.3 (1.1 – 106) mg/l Reference for median: Wan, M.T., D.J. Moul, and R.G. Watts 1987. Acute Toxicity to Juvenile Pacific Salmonids of Garlon 3A, Garlon 4, Triclopyr, Triclopyr Ester, and Their Transformation Products: 3,5,6-Trichloro-2 Pyridinol and 2-Methoxy-3,5,6-Trichloropyridine. Bull.Environ.Contam.Toxicol. 39(4):721-728 (OECDG Data File)
EC50 - Crustacea [1]	1130 (182 – 2550) mg/l Reference for median: Canton, J.H., and D.M.M. Adema 1978. Reproducibility of Short-Term and Reproduction Toxicity Experiments with Daphnia magna and Comparison of the Sensitivity of Daphnia magna with Daphnia pulex and Daphnia cucullata in Short-Term Experiments. Hydrobiologia 59(2):135-140 (Used Reference 2018)
EC50 96h - Algae [1]	110 mg/l Reference for median: Slooff, W. 1982. A Comparative Study on the Short-Term Effects of 15 Chemicals on Fresh Water Organisms of Different Tropic Levels. Natl.Tech.Inf.Serv., Springfield, VA :25 p. (DUT) (ENG ABS) (NTIS/PB83-200386)

12.2. Persistence and degradability

Pyridine (anhydrous) (110-86-1)	
Biodegradation	97 % Aerobic - Exposure time 28 d Result: Readily biodegradable. (OECD Test Guideline 301B)

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12.3. Bioaccumulative potential

Pyridine (anhydrous) (110-86-1)

Partition coefficient n-octanol/water (Log Kow)	0.65
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Pyridine (anhydrous) (110-86-1)

Results of PBT assessment	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
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12.6. Other adverse effects




SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Product residues are to be disposed of in compliance with national and regional regulations dispose. Keep chemicals in original containers. Not with other waste mix. Uncleaned containers are to be treated according to the product. Pay attention to the waste policy 2008/98/EG.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

ADR	IMDG	IATA
14.1. UN number		
1282	1282	1282
14.2. UN proper shipping name		
(PYRIDINE)	(PYRIDINE)	(Pyridine)
14.3. Transport hazard class(es)		
3	3	3
		
14.4. Packing group		
II	II	II
14.5. Environmental hazards		
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No
No supplementary information available		

14.6. Special precautions for user

- Overland transport

Tunnel restriction code (ADR) : D/E

- Transport by sea

EmS-No. (Fire) : F-E

EmS-No. (Spillage) : S-D

- Air transport

No data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

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Pyridine (anhydrous) is not on the REACH Candidate List

Pyridine (anhydrous) is not on the REACH Annex XIV List

Organic solvent

Seveso Information : Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. : FLAMMABLE LIQUIDS

15.1.2. National regulations

Germany

Regulatory reference : WGK 2, Significantly hazardous to water (Classification according to AwSV)

Storage class (LGK, TRGS 510) : LGK 3 - Flammable liquids

Employment restrictions : Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.
Take note of Dir 94/33/EC on the protection of young people at work.

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

TA Luft : 5.2.5 Organic Substances

The total mass flow and total mass concentration shall not exceed the following values:
Mass flow: 0.5 kg/h or Mass concentration: 50 mg/m³

15.2. Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Full text of H- and EUH-statements:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.

MSDS (Reach Anhang II) EMP

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.