

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pyridine

| | | | |
|---------------|---------------------|---------|-----|
| Creation date | 19th September 2019 | Version | 4.0 |
| Revision date | 26th November 2024 | | |

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

1.1. Product identifier

| | |
|----------------------|-----------------------|
| Substance / mixture | Pyridine |
| Chemical name | substance |
| CAS number | pyridine |
| Index number | 110-86-1 |
| EC (EINECS) number | 613-002-00-7 |
| Registration number | 203-809-9 |
| Other substance name | 01-2119493105-40-xxxx |
| | Pyridine |

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

Substance's intended use

Chemical production, analytical chemistry, laboratory synthesis, industrial applications.

Substance uses advised against

The product should not be used in ways other than those referred in Section 1.

1.3. Details of the supplier of the safety data sheet

Supplier

| | |
|-----------------------------|----------------------------------|
| Name or trade name | Ing. Petr Švec - PENTA s.r.o. |
| Address | Radiová 1122/1, Praha 10, 102 00 |
| | Czech Republic |
| Identification number (CRN) | 02096013 |
| VAT Reg No | CZ02096013 |
| Phone | +420 226 060 681 |
| E-mail | info@pentachemicals.eu |
| Web address | www.pentachemicals.eu |

Competent person responsible for the safety data sheet

| | |
|--------|-------------------------------|
| Name | Ing. Petr Švec - PENTA s.r.o. |
| E-mail | info@pentachemicals.eu |

1.4. Emergency telephone number

European emergency number: 112 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification of the substance in accordance with Regulation (EC) No 1272/2008

The substance is classified as dangerous.

Flam. Liq. 2, H225

Acute Tox. 4, H302+H312+H332

Most serious adverse physico-chemical effects

Highly flammable liquid and vapour.

Most serious adverse effects on human health and the environment

Harmful if swallowed, in contact with skin or if inhaled.

2.2. Label elements

Hazard pictogram



Signal word

Danger

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Dangerous substance

pyridine
(Index: 613-002-00-7; CAS: 110-86-1)

Hazard statements

H225 Highly flammable liquid and vapour.
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P310 Immediately call a POISON CENTER/doctor.

2.3. Other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended. Does not contain any PMT or vPvM components.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical characterization

The substance specified below.

| Identification numbers | Substance name | Content in % weight | Classification according to Regulation (EC) No 1272/2008 | Note |
|--|---|---------------------|--|------|
| Index: 613-002-00-7 CAS: 110-86-1 EC: 203-809-9 Registration number: 01-2119493105-40- xxxx | substance main component pyridine | >99.5 | Flam. Liq. 2, H225 Acute Tox. 4, H302+H312+H332 | 1 |

Notes

1 A substance for which exposure limits are set.

Full text of all classifications and hazard statements is given in the section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. If unconscious, put the person in the stabilized (recovery) position on his side with his head slightly bent backwards and make sure that airways are free; never induce vomiting. If the person vomits by himself, make sure that the vomit is not inhaled. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance. Respiratory arrest - provide artificial respiration immediately. Cardiac arrest - provide indirect cardiac massage immediately.

If inhaled

Terminate the exposure immediately; move the affected person to fresh air. Protect the person against growing cold. Provide medical treatment if irritation, dyspnoea or other symptoms persist.

If on skin

Remove contaminated clothes. Wash the affected area with plenty of water, lukewarm if possible. Soap, soap solution or shampoo should be used if there is no skin injury. Provide medical treatment if skin irritation persists. Rinse skin with water or shower.

If in eyes

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. Rinsing should continue at least for 10 minutes.

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If swallowed

Rinse out the mouth with water and provide 2-5 dL of water. Provide medical treatment.

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

If inhaled

Cough, headache.

If on skin

not available

If in eyes

Not expected.

If swallowed

Irritation, nausea.

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

Symptomatic treatment.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam, carbon dioxide, powder, water spray jet, water mist.

Unsuitable extinguishing media

Water - full jet.

5.2. Special hazards arising from the substance or mixture

In the event of fire, carbon monoxide, carbon dioxide and other toxic gases may arise. Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage.

5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely. Use a self-contained breathing apparatus and full-body protective clothing. Closed containers with the product near the fire should be cooled with water. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Provide sufficient ventilation. The substance is flammable. Remove all ignition sources. Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8. Do not inhale mist/vapours/spray. Prevent contact with skin and eyes.

6.2. Environmental precautions

Prevent contamination of the soil and entering surface or ground water.

6.3. Methods and material for containment and cleaning up

Spilled product should be covered with suitable (non-flammable) absorbing material (sand, diatomaceous earth, earth and other suitable absorption materials); to be contained in well closed containers and removed as per the Section 13. In the event of leakage of the substantial amount of the product, inform fire brigade and other competent bodies. After removal of the product, wash the contaminated site with plenty of water. Do not use solvents.

6.4. Reference to other sections

See the Section 7, 8 and 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Prevent formation of gases and vapours in flammable or explosive concentrations and concentrations exceeding the occupational exposure limits. The product should be used only in the areas where it is not in contact with open fire and other ignition sources. Use non-sparking tools. Use of antistatic clothes and footwear is recommended. Do not inhale mist/vapours/spray. Prevent contact with skin and eyes. No smoking. Do not eat, drink or smoke when using this product. Wash hands and exposed parts of the body thoroughly after handling. Use only outdoors or in a well-ventilated area. Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Take action to prevent static discharges.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose. Do not expose to sunlight. Keep container tightly closed. Keep cool.

The specific requirements or rules relating to the substance/mixture

Solvent vapours are heavier than air and accumulate especially near the floor where they may form an explosive mixture with the air.

7.3. Specific end use(s)

not available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| European Union | Commission Directive 91/322/EEC | |
|----------------------------|---------------------------------|----------------------|
| Substance name (component) | Type | Value |
| pyridine (CAS: 110-86-1) | OEL 8 hours | 15 mg/m ³ |
| | OEL 8 hours | 5 ppm |

8.2. Exposure controls

Follow the usual measures intended for health protection at work and especially for good ventilation. This can be achieved only by local suction or efficient general ventilation. Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

Eye/face protection

Protective goggles.

Skin protection

Suitable material: butyl rubber. Hand protection: Protective gloves resistant to the product. Contaminated skin should be washed thoroughly.

Respiratory protection

Halfmask with a filter against organic vapours or a self-contained breathing apparatus as appropriate if exposure limit values of substances are exceeded or in a poorly ventilated environment.

Thermal hazard

Not available.

Environmental exposure controls

Observe usual measures for protection of the environment, see Section 6.2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|------------|
| Physical state | liquid |
| Colour | colourless |
| Odour | specific |
| Melting point/freezing point | -42 °C |
| Boiling point or initial boiling point and boiling range | 115 °C |

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| | |
|---|--------------------|
| Flammability | flammable |
| Lower and upper explosion limit | |
| bottom | 1.7 % |
| upper | 12.4 % |
| Flash point | 17 °C |
| Auto-ignition temperature | data not available |
| Decomposition temperature | data not available |
| pH | 8.5 (undiluted) |
| Kinematic viscosity | data not available |
| Viscosity | 0.95 mPa.s |
| Solubility in water | data not available |
| Partition coefficient n-octanol/water (log value) | 1.04 |
| Vapour pressure | data not available |
| Density and/or relative density | data not available |
| Relative vapour density | data not available |
| Particle characteristics | data not available |

9.2. Other information

| | |
|----------------------|--------|
| Ignition temperature | 550 °C |
|----------------------|--------|

SECTION 10: Stability and reactivity

10.1. Reactivity

The substance is highly flammable.

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Unknown.

10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Protect against flames, sparks, overheating and against frost.

10.5. Incompatible materials

Protect against strong acids, bases and oxidizing agents.

10.6. Hazardous decomposition products

Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Inhalation of solvent vapors above values exceeding exposure limits for working environment may result in acute inhalation poisoning, depending on the level of concentration and exposure time. No toxicological data is available for the substance.

Acute toxicity

Harmful if swallowed, in contact with skin or if inhaled.

| pyridine | | | | | | | |
|-------------------|------------------|--------|-------------|---------------|-------------------------|-----|--------|
| Route of exposure | Parameter | Method | Value | Exposure time | Species | Sex | Source |
| Oral | LD ₅₀ | | 1.500 mg/kg | | Rat (Rattus norvegicus) | | ECHA |
| Inhalation | LC ₅₀ | | 17.1 mg/l | 4 hours | Rat (Rattus norvegicus) | F/M | US-EPA |

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|-------------------|------------------|----------|--------------------|---------------|---------|-----|--------|
| Route of exposure | Parameter | Method | Value | Exposure time | Species | Sex | Source |
| Dermal | LD ₅₀ | OECD 402 | >1.000-2.000 mg/kg | | Rabbit | | |

Skin corrosion/irritation

Based on available data the classification criteria are not met.

| pyridine | | | |
|-------------------|---------------------|---------------|---------|
| Route of exposure | Result | Exposure time | Species |
| Skin | Slightly irritating | 24 hours | Rabbit |

Serious eye damage/irritation

Based on available data the classification criteria are not met.

| pyridine | | | |
|-------------------|------------|---------------|---------|
| Route of exposure | Result | Exposure time | Species |
| Eye | Irritating | 24 hours | Rabbit |

Respiratory or skin sensitisation

Based on available data the classification criteria are not met.

| pyridine | | | | | |
|-------------------|----------|----------|---------------|---------|-----|
| Route of exposure | Result | Method | Exposure time | Species | Sex |
| | Negative | OECD 429 | | Mouse | |

Germ cell mutagenicity

Based on available data the classification criteria are not met.

| pyridine | | | | | |
|----------|----------|---------------|-----------------------|---|-----|
| Result | Method | Exposure time | Specific target organ | Species | Sex |
| Negative | OECD 471 | | | | |
| Negative | OECD 476 | | Lung fibroblast | Chinese hamster (Cricetulus barabensis) | |
| Negative | OECD 475 | | Bone marrow | Mouse | |

Carcinogenicity

Based on available data the classification criteria are not met.

Reproductive toxicity

Based on available data the classification criteria are not met.

Toxicity for specific target organ - single exposure

Based on available data the classification criteria are not met.

Toxicity for specific target organ - repeated exposure

Based on available data the classification criteria are not met.

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Aspiration hazard

Based on available data the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

Based on available data the classification criteria are not met. Does not contain any components that may cause endocrine disruption for humans.

Other information

not available

SECTION 12: Ecological information

12.1. Toxicity

Based on available data the classification criteria are not met.

Acute toxicity

| pyridine | | | | | |
|------------------|----------|---------------|---------------|---|-------------|
| Parameter | Method | Value | Exposure time | Species | Environment |
| EC ₅₀ | OECD 203 | 500-1000 mg/l | 96 hours | Fish (Danio rerio) | |
| EC ₅₀ | OECD 202 | 320 mg/l | 48 hours | Daphnia (Daphnia magna) | |
| EC ₅₀ | OECD 201 | 320 mg/l | 72 hours | Algae (Pseudokirchneriella subcapitata) | |

12.2. Persistence and degradability

The following data are available.

Biodegradability

| pyridine | | | | | |
|-----------|-----------|-------|---------------|-------------|----------------------|
| Parameter | Method | Value | Exposure time | Environment | Result |
| | OECD 301B | 97 % | 28 days | | Easily biodegradable |

12.3. Bioaccumulative potential

No data available for the substance.

12.4. Mobility in soil

Based on available data the classification criteria are not met. Does not contain any PMT or vPvM components.

12.5. Results of PBT and vPvB assessment

Based on available data the classification criteria are not met. Does not contain any PBT or vPvB components. Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

12.6. Endocrine disrupting properties

Based on available data the classification criteria are not met. Does not contain any components that may cause endocrine disruption in the environment.

12.7. Other adverse effects

Not available.

SECTION 13: Disposal considerations

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13.1. Waste treatment methods

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

Waste management legislation

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended. Decision 2000/532/EC establishing a list of wastes, as amended.

SECTION 14: Transport information

14.1. UN number or ID number

UN 1282

14.2. UN proper shipping name

PYRIDINE

14.3. Transport hazard class(es)

3 Flammable liquids

14.4. Packing group

II

14.5. Environmental hazards

not relevant



14.6. Special precautions for user

not available

14.7. Maritime transport in bulk according to IMO instruments

not relevant

Additional information

| | |
|---------------------------|---|
| Hazard identification No. |  |
| UN number |  |
| Classification code | F1 |
| Safety signs | 3 |



Tunnel restriction code (D/E)

Air transport - ICAO/IATA

| | |
|----------------------------------|-----|
| Packaging instructions passenger | 353 |
| Cargo packaging instructions | 364 |

Marine transport - IMDG

| | |
|----------------------|----------|
| EmS (emergency plan) | F-E, S-D |
|----------------------|----------|

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SECTION 15: Regulatory information

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

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information

A list of standard risk phrases used in the safety data sheet

| | |
|----------------|---|
| H225 | Highly flammable liquid and vapour. |
| H302+H312+H332 | Harmful if swallowed, in contact with skin or if inhaled. |

Guidelines for safe handling used in the safety data sheet

| | |
|------|--|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P310 | Immediately call a POISON CENTER/doctor. |

Other important information about human health protection

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.

Key to abbreviations and acronyms used in the safety data sheet

| | |
|------------------|---|
| Acute Tox. | Acute toxicity |
| ADR | European agreement concerning the international carriage of dangerous goods by road |
| BCF | Bioconcentration Factor |
| CAS | Chemical Abstracts Service |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures |
| EC | Identification code for each substance listed in EINECS |
| EC ₅₀ | Concentration of a substance when it is affected 50 % of the population |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| EmS | Emergency plan |
| EU | European Union |
| EuPCS | European Product Categorisation System |
| Flam. Liq. | Flammable liquid |
| IATA | International Air Transport Association |
| IBC | International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals |
| ICAO | International Civil Aviation Organization |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| INCI | International Nomenclature of Cosmetic Ingredients |
| ISO | International Organization for Standardization |
| IUPAC | International Union of Pure and Applied Chemistry |
| LC ₅₀ | Lethal concentration of a substance in which it can be expected death of 50% of the population |
| LD ₅₀ | Lethal dose of a substance in which it can be expected death of 50% of the population |
| log Kow | Octanol-water partition coefficient |

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| | |
|-------|---|
| OEL | Occupational Exposure Limits |
| PBT | Persistent, bioaccumulative and toxic |
| PMT | Persistent, mobile and toxic |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Agreement on the transport of dangerous goods by rail |
| UN | Four-figure identification number of the substance or article taken from the UN Model Regulations |
| UVCB | Substances of unknown or variable composition, complex reaction products or biological materials |
| VOC | Volatile organic compounds |
| vPvB | Very persistent and very bioaccumulative |
| vPvM | Very persistent and very mobile |

Training guidelines

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

Recommended restrictions of use

not available

Information about data sources used to compile the Safety Data Sheet

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended.
REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

The changes (which information has been added, deleted or modified)

The version 4.0 replaces the SDS version from Monday, 27 June 2022. Changes were made in sections 1, 2, 11, 12, 13, 15 and 16.

More information

Classification procedure - calculation method.

Statement

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.