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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

Pyrrrole, 99%
Code P 2825

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H302 Harmful if swallowed

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

Response

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330 Rinse mouth.

Storage

none

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
1H-pyrrole	1H-pyrrole	109-97-7	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

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. 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

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms/effects, acute and delayed

no data available

4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

FOAM, CARBON DIOXIDE, DRY CHEMICAL.

5.2 Specific hazards arising from the chemical

no data available

5.3 Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 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.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

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

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state colourless to brown liquid with chloroform odour

Colour Colorless liquid when fresh

Odour Agreeable empyreumatic odor resembling that of chloroform

Melting point/ freezing point -23°C (lit.)

Boiling point or initial boiling point and boiling range 130°C

Flammability no data available

Lower and upper explosion limit / flammability limit no data available

Flash point 39°C (lit.)

Auto-ignition temperature no data available

Decomposition temperature no data available

pH no data available

Kinematic viscosity 4.1123X10⁻³ Pa.s @ 249.74K

Solubility In water: 60 g/L (20 °C)

Partition coefficient n-octanol/water (log value) log Kow = 0.75

Vapour pressure 8.35 mm Hg @ 25 °C

Density and/or relative density 0.967

density

Relative vapour density 2.31 (vs air)
Particle characteristics no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

DARKENS ON STANDING WITH EXPOSURE TO AIR.

10.3 Possibility of hazardous reactions

Flammable liquid when exposed to heat or flame ...

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

... CAN REACT WITH OXIDIZING MATERIALS.

10.6 Hazardous decomposition products

WHEN HEATED TO DECOMPOSITION IT EMITS HIGHLY TOXIC FUMES OF NITROXIDES.

11. Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Pyrrole was not degraded in a mixture of compounds in water after 1100-1300 hrs at 10°C and at a concentration of 0.2-1 mg/l. Experiments have shown that pyrrole is actually degraded by gasoline-adapted ground water cultures when present as a single substrate. Adaption time was 480 hrs and degradation time was 600 hrs. Pyrrole inhibits benzene biodegradation strongly even at pyrrole concentrations of 100-200 µg/l(1). Degradation of pyrrole seems to be enhanced with the concomitant degradation of other compounds in an aqueous environment. No degradation of pyrrole was observed under denitrifying conditions during 846 days of incubation(2). In an aerobic enrichment culture that originated from groundwater at a creosote-contaminated aquifer in Fredensbury Denmark, pyrrole was completely removed after 49 days. It is suggested that microorganisms have to adapt to pyrrole before they can begin to degrade it and that the lag phase can be very long(3).

12.3 Bioaccumulative potential

An estimated BCF of 2 was calculated for pyrrole(SRC), using a log Kow of 0.75(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is low.

12.4 Mobility in soil

The Koc of pyrrole is estimated as approximately 61(SRC), using a log Kow of 0.75(1) and a regression-derived equation(2).

According to a classification scheme(3), this estimated Koc value suggests that pyrrole is expected to have high mobility in soil.

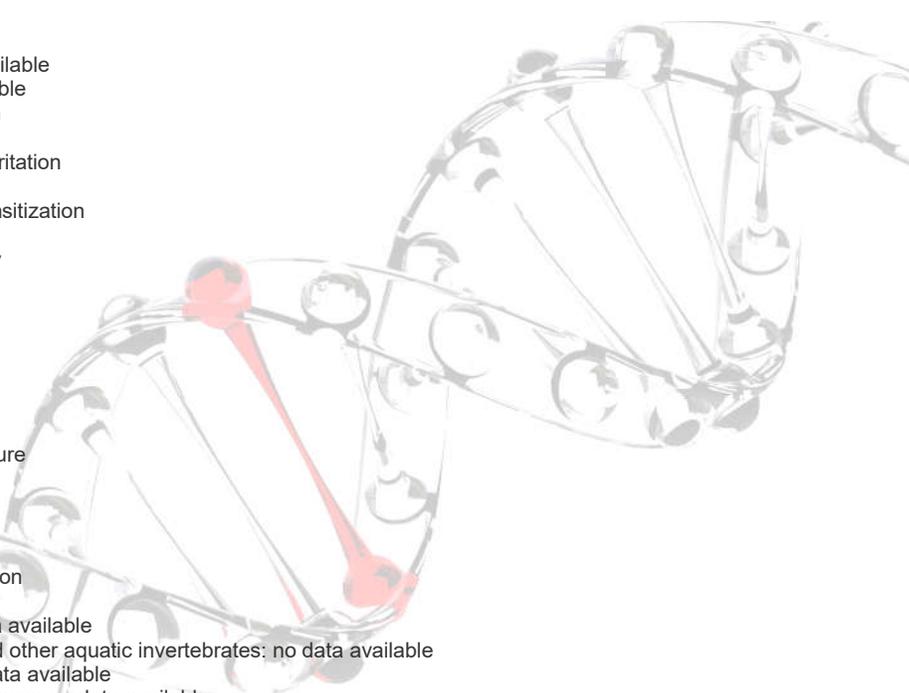
12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product



The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN1992 IMDG: UN1992 IATA: UN1992

14.2 UN Proper Shipping Name

ADR/RID: FLAMMABLE LIQUID, TOXIC, N.O.S.

IMDG: FLAMMABLE LIQUID, TOXIC, N.O.S.

IATA: FLAMMABLE LIQUID, TOXIC, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
1H-pyrrole	1H-pyrrole	109-97-7	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.