

Safety Data Sheet

According to SS 586 Part 3: 2014 Revision date: 13/12/2022 Version: 2.1

SECTION 1: Identification	
1.1. Product identifier	
Name Product code CAS-No. IUPAC name Chemical name Formula	 PYRIDINE-D5 (D, 99.5%) +0.05% V/V TMS DLM-13TB 110-86-1 Pyridine Pyridine C5H5N
1.2. Other means of identification	
EC-No.	: 203-809-9
1.3. Recommended use of the chemical and	restrictions on use
No additional information available	
1.4. Supplier's details	
Cambridge Isotope Laboratories, Inc. 50 Frontage Rd 01810 ANDOVER MA USA 01810 T 1-800-322-1174 <u>cilsales@isotope.com</u> - <u>www.isotope.com</u>	
1.5. Emergency phone number	
Emergency number	: 1-703-741-5970 Chemtrec 1-800-424-9300 24 hours
SECTION 2: Hazards identification	
2.1. Classification of the substance or mixtu	Ire
Physical hazards Health hazards	Flammable liquids, Category 2 Acute toxicity (Oral), Category 4 Acute toxicity (Dermal), Category 4 Acute toxicity (Inhalation), Category 4 Skin corrosion/irritation, Category 2 Serious eye damage/eye irritation, Category 2 Specific target organ toxicity – Single exposure, Category 3
Environmental hazards	Hazardous to the aquatic environment – Acute Hazard, Category 1
2.2. GHS label elements including precaution	onary statements
Hazard pictograms (GHS SG)	
Signal word (GHS SG)	: Danger
Hazard statements (GHS SG) H225 : Highly flammable liquid and vapour. H302+H312+H332 : Harmful if swallowed, in contact H315 : Causes skin irritation. H319 : Causes serious eye irritation. H335 : May cause respiratory irritation. H400 : Very toxic to aquatic life.	with skin or if inhaled
Precautionary statements Prevention	
P210 : Keep away from heat, hot surfaces, sparks, op P233 : Keep container tightly closed.	pen flames and other ignition sources. No smoking.

Safety Data Sheet

According to SS 586 Part 3: 2014

- P240 : Ground/bond container and receiving equipment.
- P241 : Use explosion-proof electrical/ventilating/lighting equipment.
- P242 : Use only non-sparking tools.
- P243 : Take precautionary measures against static discharge.
- P261 : Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 : Wash hands, forearms and face thoroughly after handling.
- P270 : Do not eat, drink or smoke when using this product.
- P271 : Use only outdoors or in a well-ventilated area.
- P273 : Avoid release to the environment.

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

Response

P301+P312 : IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.

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

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.

P312 : Call a POISON CENTER or doctor if you feel unwell.

P321 : Specific treatment (see supplemental first aid instruction on this label).

P330 : Rinse mouth.

P332+P313 : If skin irritation occurs: Get medical advice/attention.

P337+P313 : If eye irritation persists: Get medical advice/attention.

P362+P364 : Take off contaminated clothing and wash it before reuse.

P370+P378 : In case of fire: Use media other than water to extinguish.

P391 : Collect spillage.

Storage

P403+P233 : Store in a well-ventilated place. Keep container tightly closed. P403+P235 : Store in a well-ventilated place. Keep cool. P405 : Store locked up.

Disposal

P501 : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Synonyms	Concentration (%)	Formula	Product identifier
PYRIDINE-D5 (D, 99.5%)	-	99.969	C5H5N	CAS-No.: 110-86-1 EC-No.: 203-809-9 EC Index-No.: 613- 002-00-7
TETRAMETHYLSILANE 99.9%	-	0.031	C4H12Si	CAS-No.: 75-76-3 EC-No.: 200-899-1

SECTION 4: First-aid measures	
4.1. Description of necessary first aid me	asures
First-aid measures general	: Move out of dangerous area. Consult a physician and show this safety data sheet. May cause cancer. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Safety Data Sheet

According to SS 586 Part 3: 2014

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Inhalation	: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
Skin contact	: Wash with soap and plenty of water. Consult a physician. Rinse skin with water/shower. Take off immediately all contaminated clothing. Wash with plenty of water/ Wash contaminated clothing before reuse. If skin irritation occurs: Take off immediately all contaminated clothing. Get medical advice/attention. Specific treatment (see Hazard pictograms (CLP) on this label).
Eye contact	: Rinse cautiously with water for several minutes. Flush eye with water for 15 minutes. Get medical attention. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Rinse cautiously with water for several minutes. Get medical advice/attention.
Ingestion	 Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. Rinse mouth. Call a POISON CENTER/doctor if you feel unwell. Do NOT induce vomiting. Obtain emergency medical attention.
4.2. Most important symptoms/effe	cts, acute and delayed
Symptoms/effects	: There are potential chronic health effects to consider. Causes damage to organs (kidneys, liver) (Inhalation, Dermal, oral).
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Symptoms/effects after inhalation: May be harmful if inhaled. Causes respiratory tract irritation. May cause respiratory irritation.Symptoms/effects after skin contact: Harmful if absorbed through skin. Causes skin irritation. Causes skin irritation.Symptoms/effects after eye contact: Causes eye irritation. Causes serious eye irritation.Symptoms/effects after ingestion: Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of immediate medical attention and special treatment needed

No additional information available

SECTION 5: Fire-fighting measures	
5.1. Suitable extinguishing media	
Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.
5.2. Specific hazards arising from the c	hemical
Fire hazard Explosion hazard	Extremely flammable liquid and vapour.May form flammable/explosive vapour-air mixture.
5.3. Special protective actions for fire fi	ighters
Firefighting instructions	 Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. Wear self-contained breathing apparatus when entering area unless atmosphere is proved
Protection during firefighting	to be safe. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures		
6.1. Personal precautions, protective e	quipment and emergency procedures	
General measures	: Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.	
6.1.1. For non-emergency personnel		
Emergency procedures	: Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Evacuate unnecessary personnel.	
6.1.2. For emergency responders		
Protective equipment	: Avoid breathing dust, mist or spray. Equip cleanup crew with proper protection.	

Safety Data Sheet

According to SS 586 Part 3: 2014

Emergency procedures

: Ventilate area.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

ainment and cleaning up
: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.
: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Section 8. Exposure controls and personal protection.

SECTION 7: Handling and storag	e
7.1. Precautions for safe handling	
Additional hazards when processed	: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Normal measures for preventive fire protection. Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling	No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Avoid breathing dust, mist or spray.
Hygiene measures	: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Do not eat, drink or smoke when using this product. Wash Both hands thoroughly after handling.
7.2. Conditions for safe storage, incl	uding any incompatibilities
Technical measures	: Keep container tightly closed in a cool, dry and well-ventilated place. Opened containers must be carefully resealed and kept upright to prevent leakage. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.
Storage conditions	: Store at room temperature away from light and moisture.
Incompatible products Incompatible materials	Strong bases. Strong acids.Heat sources. Sources of ignition. Direct sunlight.
7.3 Specific and usa(s)	

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection	
8.1. Control parameters/Occupational exposure limits	
PYRIDINE-D5 (D, 99.5%) +0.05% V/V TMS (11	0-86-1)
Singapore - Occupational Exposure Limits	
Local name	Pyridine
PEL (OEL TWA)	16 mg/m ³
PEL (OEL TWA) [ppm]	5 ppm
Regulatory reference	WSH (General Provision) Regulation 2014

Safety Data Sheet

According to SS 586 Part 3: 2014

PYRIDINE-D5 (D, 99.5%) (110-86-1)	
Singapore - Occupational Exposure Limits	
Local name	Pyridine
PEL (OEL TWA)	16 mg/m ³
PEL (OEL TWA) [ppm]	5 ppm
Regulatory reference	WSH (General Provision) Regulation 2014

8.2. Monitoring

No additional information available

No additional information available	
8.3. Appropriate engineering control me	easures
No additional information available	
8.4. Personal protection	
Hand protection	: Wear protective gloves.
Eye protection	: Wear safety glasses with side shields (or goggles) and a face shield. Chemical goggles or safety glasses
Skin and body protection	: Wear complete suit protecting against chemicals according to concentration and amount of substance. Use suitable gloves. Use proper glove removal technique. Wash and dry hands. Wear suitable protective clothing
Respiratory protection	: Wear appropriate NIOSH/MSHA approved respirator. Wear appropriate mask
Personal protective equipment symbol(s)	

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and ch	nemical properties
Physical state	: Liquid
Appearance	: Liquid, clear.
Molecular mass	: 79.1 g/mol Source: ICSC
Colour	: Colourless
Odour	: characteristic
Odour threshold	: No data available
рН	: 8.81 Source: ECHA
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -41.6 °C Source: ECHA
Freezing point	: No data available
Boiling point	: 115 °C Source: ICSC
Flash point	: 20 °C Source: ICSC
Auto-ignition temperature	: 482 °C Source: ICSC
Decomposition temperature	: No data available
Flammability	: Extremely flammable liquid and vapour.
Vapour pressure	: 2 kPa at 20°C Source: ICSC
Relative vapour density at 20°C	: 2.73 Source: ICSC
Relative density	: 0.982 Source: ECHA
Density	: 0.978 g/ml at 25 °C (77 °F)
Solubility	: Soluble in water.
	Water: 100 g/100ml at 25°C Source: ECHA
Partition coefficient n-octanol/water (Log Pow)	: 0.65 Source: ICSC
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: 0.899 mm²/s
Viscosity, dynamic	: 0.879 cP Source: ECHA

Safety Data Sheet

According to SS 586 Part 3: 2014

Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 1.8 – 12.4 % (V)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Not available. Sparks. Heat. Direct sunlight. Overheating. Open flame. Extremely high or low temperatures.

10.5. Incompatible materials

Strong oxidizing agents, Strong bases, Magnesium, Sodium/Sodium oxides, Lithium. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Formed under fire conditions: Carbon oxides, Hydrogen chloride gas. May release flammable gases. fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Acute toxicity			
Acute toxicity (dermal)	Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.		
PYRIDINE-D5 (D, 99.5%) +0.05% V/V TMS (110	PYRIDINE-D5 (D, 99.5%) +0.05% V/V TMS (110-86-1)		
LD50 oral rat	891 mg/kg Source: ECHA		
LD50 oral	891 mg/kg		
LD50 dermal rabbit	1121 mg/kg Source: ECHA		
LD50 dermal	1120 mg/kg		
LC50 Inhalation - Rat	28500 mg/m ³ 1 h; Remarks: Sense Organs and Special Senses (Nose, Eye, Ear and Taste): Eye: Lacrimation. Behavioral: Somnolence (general depressed activity). Lungs, Thorax, or Respiration: Dyspnea.		
LC50 Inhalation - Rat [ppm]	5400 ppm/4h		
LC50 Inhalation - Rat (Vapours)	14.23 mg/l/4h		
ATE SG (dust,mist)	1.5 mg/l/4h		
PYRIDINE-D5 (D, 99.5%) (110-86-1)			
LD50 oral rat	891 mg/kg Source: ECHA		
LD50 oral	891 mg/kg		
LD50 dermal rabbit	1121 mg/kg Source: ECHA		
LD50 dermal	1120 mg/kg		

Safety Data Sheet

According to SS 586 Part 3: 2014

PYRIDINE-D5 (D, 99.5%) (110-86-1)	
LC50 Inhalation - Rat	28500 mg/m ³ 1 h; Remarks: Sense Organs and Special Senses (Nose, Eye, Ear and Taste): Eye: Lacrimation. Behavioral: Somnolence (general depressed activity). Lungs, Thorax, or Respiration: Dyspnea.
LC50 Inhalation - Rat [ppm]	5400 ppm/4h
LC50 Inhalation - Rat (Vapours)	14.23 mg/l/4h
Skin corrosion/irritation	: Causes skin irritation. pH: 8.81 Source: ECHA
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
IARC group	: 3 - Not classifiable
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
PYRIDINE-D5 (D, 99.5%) +0.05% V/V TM	IS (110-86-1)
Viscosity, kinematic	0.899 mm²/s
Density	0.978 g/ml at 25 °C (77 °F)
Potential adverse human health effects and	: Harmful if swallowed.

symptoms

SECTION 12: Ecological information	
12.1. Toxicity	
Hazardous to the aquatic environment, short-term : (acute)	Very toxic to aquatic life. Harmful to aquatic life with long lasting effects. Very toxic to aquatic life. Not classified
PYRIDINE-D5 (D, 99.5%) +0.05% V/V TMS (110	-86-1)
LC50 - Fish [1]	99 mg/l Source: ECHA
EC50 - Crustacea [1]	320 mg/l Source: ECHA
EC50 - Other aquatic organisms [1]	1140 mg/l Daphnia magna(Water flea) - 48 h
LC50 - Fish [2]	26 mg/l Cyprinus carpio (Carp) - 96 h
LC50 - Other aquatic organisms [2]	520 mg/l Dphnia pulex (Water flea) - 48 h
EC50 72h - Algae [1]	320 mg/l Source: ECHA
ErC50 algae	0.1 mg/l
NOEC chronic algae	0.01 mg/l
TETRAMETHYLSILANE 99.9% (75-76-3)	
PYRIDINE-D5 (D, 99.5%) (110-86-1)	
LC50 - Fish [1]	99 mg/l Source: ECHA
LC50 - Fish [2]	26 mg/l Cyprinus carpio (Carp) - 96 h
LC50 - Other aquatic organisms [2]	520 mg/l Dphnia pulex (Water flea) - 48 h
EC50 - Crustacea [1]	320 mg/l Source: ECHA

Safety Data Sheet

According to SS 586 Part 3: 2014

PYRIDINE-D5 (D, 99.5%) (110-86-1)	
EC50 - Other aquatic organisms [1]	1140 mg/l Daphnia magna(Water flea) - 48 h
EC50 72h - Algae [1]	320 mg/l Source: ECHA
ErC50 algae	0.1 mg/l
NOEC chronic algae	0.01 mg/l
Partition coefficient n-octanol/water (Log Pow)	0.65 Source: ICSC

12.2. Persistence and degradability

PYRIDINE-D5 (D, 99.5%) +0.05% V/V TMS (110-86-1)		
Persistence and degradability	Aerobic - exposure time: 28 d.	
BOD (% of ThOD)	97 % ThOD Readily biodegradable	
PYRIDINE-D5 (D, 99.5%) (110-86-1)		
Persistence and degradability	Aerobic - exposure time: 28 d. Readily biodegradable.	
Biodegradation	97 %	

12.3. Bioaccumulative potential

PYRIDINE-D5 (D, 99.5%) +0.05% V/V TMS (110-86-1)	
Partition coefficient n-octanol/water (Log Pow)	0.65 Source: ICSC
Bioaccumulative potential	Not available.
PYRIDINE-D5 (D, 99.5%) (110-86-1)	
Partition coefficient n-octanol/water (Log Pow)	0.65 Source: ICSC

12.4. Mobility in soil

PYRIDINE-D5 (D, 99.5%) +0.05% V/V TMS (110-86-1)		
Mobility in soil	No additional information available	
Partition coefficient n-octanol/water (Log Pow)	0.65 Source: ICSC	
Ecology - soil	Not available.	
PYRIDINE-D5 (D, 99.5%) (110-86-1)		
Partition coefficient n-octanol/water (Log Pow)	0.65 Source: ICSC	
12.5. Other adverse effects		

 Ozone
 : Not classified

 Other adverse effects
 : An environmental hazard cannot be excluded in the event of an unprofessional handling or disposal. Harmful to aquatic life.

SECTION 13: Disposal considerations	
Product/Packaging disposal recommendations:	Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to Comply with applicable regulations.
Additional information	: Handle empty containers with care because residual vapours are flammable.

Safety Data Sheet

According to SS 586 Part 3: 2014

According to SS 586 Part 3: 2014	
SECTION 14: Transport information	
14.1. UN number	
UN-No.(UN RTDG) UN-No. (IMDG) UN-No. (IATA)	: 1282 : 1282 : 1282
14.2. UN proper shipping name	
Proper Shipping Name (UN RTDG) Proper Shipping Name (IMDG) Proper Shipping Name (IATA)	: PYRIDINE : PYRIDINE : Pyridine
14.3. Transport hazard class(es)	
UN RTDG Transport hazard class(es) (UN RTDG) Danger labels (UN RTDG)	
IMDG Transport hazard class(es) (IMDG) Danger labels (IMDG)	
IATA Transport hazard class(es) (IATA) Danger labels (IATA)	
14.4. Packing group	• •
Packing group (UN RTDG) Packing group (IMDG) Packing group (IATA)	: : :
14.5. Environmental hazards	
Dangerous for the environment Marine pollutant Other information	: Yes : Yes : No supplementary information available
14.6. Special precautions for user	
UN RTDG Limited quantities (UN RTDG) Excepted quantities (UN RTDG) Packing instruction (UN RTDG) Portable tank and bulk container special instructions (UN RTDG) Portable tank and bulk container special provisions (UN RTDG)	: 1L : E2 : P001, IBC02 : T4 : TP2

Safety Data Sheet

According to SS 586 Part 3: 2014

: 1L
: E2
: P001
: IBC02
: T4
: TP2
: F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS
: S-D - SPILLAGE SCHEDULE Delta - FLAMMABLE LIQUIDS
: B
: SW2
: 17°C c.c.
: Colourless or slightly yellow liquid with a pungent odour. Flashpoint: 17°C c.c. Explosive limits: 1.8% to 12.4% Miscible with water. Harmful by inhalation.
: 129
: E2
: Y341
: 1L
: 353
: 5L

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

: 364

: 60L

: 3L

Not applicable

ERG code (IATA)

CAO packing instructions (IATA)

CAO max net quantity (IATA)

SECTION 15: Regulatory information	
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15.1. Safety, health and	d environmental regulation	s specific for the prod	luct in guestion

Regulation	Component / Mixture	
Fire Safety Act/Fire Safety (Petroleum and Flammable Materials) Regulations	Petroleum and Flammable Materials	Pyridine

15.2. International regulations

R-phrases:

R12 - Extremely flammable

R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed

R36/37/38 - Irritating to eyes, respiratory system and skin

R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrases:

S23 - Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer)

S36/37 - Wear suitable protective clothing and gloves

S43 - In case of fire, use ... (indicate in the space the precise type of fire-fighting equipment. If water increases risk, add - "Never use water") S3/7/9 - Keep container tightly closed in a cool, well-ventilated place

S16 - Keep away from sources of ignition - No smoking

S25 - Avoid contact with eyes

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S33 - Take precautionary measures against static discharges

S35 - This material and its container must be disposed of in a safe way

S51 - Use only in well-ventilated areas

S59 - Refer to manufacturer/supplier for information on recovery/recycling

S61 - Avoid release to the environment. Refer to special instructions/safety data sheets

15.3 Chemical inventory status

No additional information available

Safety Data Sheet

According to SS 586 Part 3: 2014

SECTION 16: Other information		
Revision date	13/12/2022	
Data sources	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.	
Other information	: This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound. None.	

Safety Data Sheet (SDS), Singapore

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.