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Safety Data Sheet

1. Chemical product and company identification

Product name	:	Pyridine

Company information

Name of manufacturer	:	KANTO CHEMICAL CO., INC.
Address	:	2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section	:	Business Administration Department, Reagent Division
Telephone number	:	+81-3-6214-1090
Facsimile number	:	+81-3-3241-1047
Mail address	:	BC32@kanto.co.jp
Reference No	:	32485
Product numbers applied by the SDS	:	32122, 32485, 32508, 33168, 7460-1B
Recommended use	:	For research use only
Restrictions on use	:	Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity (oral)	Category 4
	Acute toxicity (dermal)	Category 4
	Acute toxicity (inhalation:vapors)	Category 4
	Skin corrosion/irritation	Category 1C
	Serious eye damage/eye irritation	Category 1
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity (single exposure)	Category 1 (central nervous system)
	Specific target organ toxicity (single exposure)	Category 3 (narcosis)
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	Category 1 (central nervous system, blood, liver, kidney)
	Aspiration hazard	Category 1
Environmental hazards	Aquatic acute	Category 1
	Aquatic chronic	Category 1

Hazard pictograms

Signal word	:	Danger
Hazard statements	:	Highly flammable liquid and vapor Harmful if swallowed, in contact with skin or if inhaled May be fatal if swallowed and enters airways Causes severe skin burns and eye damage May cause respiratory irritation May cause drowsiness or dizziness Suspected of causing cancer Suspected of damaging fertility or the unborn child Causes damage to organs (central nervous system) Causes damage to organs (central nervous system, blood, liver, kidney) through prolonged or repeated exposure Very toxic to aquatic life Very toxic to aquatic life with long lasting effects

Precautionary statements

Prevention	:	Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take action to prevent static discharges. Do not breathe mist/vapors. Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	:	IF SWALLOWED: Immediately call a POISON CENTER or doctor. IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. IF SWALLOWED: Rinse mouth. Do not induce vomiting. IF ON SKIN: Wash with plenty of water. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water . IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Call a POISON CENTER or doctor. IF exposed or concerned: Get medical advice/attention. Immediately call a POISON CENTER or doctor. Call a POISON CENTER or doctor if you feel unwell. Get medical advice/attention if you feel unwell. Rinse mouth. Do not induce vomiting. Take off contaminated clothing and wash it before reuse. Collect spillage.
Storage	:	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.

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

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Pyridine	≥ 99	C5H5N	Listed	203-809-9	110-86-1

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle. If necessary, get medical treatment.

First-aid measures after skin contact : Wash the affected areas under running water, get medical treatment as soon as possible.

First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. Get medical treatment.

First-aid measures after ingestion : The chemical is volatile. Do not induce vomiting because it increases the risk of aspiration into the lungs. Get medical attention immediately. If necessary, rinse mouth with water.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

Most Important Symptoms/Effects

Symptoms/effects : Inhalation causes headache, dizziness, lethargy.

5. Fire fighting measures

Suitable extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand, alcohol resistant foam

Unsuitable extinguishing media : Foam extinguisher

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Fight fire from windward.

Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Alcohol-resistant foam extinguisher is effective for a large scale fire.

Personal protection (Emergency response) : Firefighters should wear protective equipment.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Environmental precautions

Environmental precautions	:	Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Methods and Equipment for Containment and Cleaning up

For containment	:	Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.
Prevention Measures for Secondary Accidents	:	Remove nearby sources of ignition and prepare extinguishing media.

7. Handling and storage

Handling

Technical measures	:	Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited. Ventilate well at working places.
Precautions for safe handling	:	Avoid formation of vapor and aerosols. Do not allow contact with oxidizing substances.

Storage

Storage conditions	:	Store the bottle tightly closed in a cool, dark place because the substance is hygroscopic.
Material used in packaging/containers	:	Glass, fluorine resin, stainless steel.

8. Exposure controls / Personal protection equipment

ACGIH TWA	1 ppm

Appropriate engineering controls	:	Use with an enclosed system or a local exhaust ventilation.

Protective equipment

Respiratory protection	:	Chemical cartridge respirator with an organic vapor cartage or airline respirator
Hand protection	:	Impervious protective gloves
Eye protection	:	Safety goggles
Skin and body protection	:	Protective clothing, protective boots

9. Physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless.
Odor	:	Unpleasant
pH	:	8.5 (16g/L, 20℃)
Melting point	:	-42 ° C
Freezing point	:	No data available
Boiling point	:	115.3 ° C
Flash point	:	20 ° C (C.C.)
Auto-ignition temperature	:	482 ° C

Decomposition temperature	:	No data available
Flammability	:	Flammable
Vapor pressure	:	20 hPa (20℃)
Relative density	:	No data available
Density	:	0.983 g/cm³ (20℃)
Relative gas density	:	2.7
Solubility	:	Water: Miscible. Organic solvents: Soluble in many kinds of organic solvents like alcohol, diethyl ether, benzene.
Partition coefficient n-octanol/water (log Pow)	:	0.65
Explosive limits (vol %)	:	1.8 - 12 vol %
Viscosity, kinematic	:	0.97 mm²/s (20℃)
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	Make addition compounds with metal salts such as zinc, mercury, cobalt and nickel. It is stable to oxidation, but is oxidized by hydrogen peroxide to produce N-oxide.
Chemical stability	:	Stable under normal conditions. It is hygroscopic and forms an adduct with water.
Possibility of hazardous reactions	:	May react violently when in contact with oxidaizing substances.
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Oxidizing substances.
Hazardous decomposition products	:	Carbon monoxide, nitrogen oxides.

11. Toxicological information

Acute toxicity (oral)	:	Harmful if swallowed rat LD50=891mg/kg
Acute toxicity (dermal)	:	Harmful in contact with skin rabbit LD50=1120mg/kg
Acute toxicity (inhalation)	:	No classification (gas) Harmful if inhaled (vapor) rat LC50=4400ppm/4h Classification not possible (dust, mist)
Skin corrosion/irritation	:	Causes severe skin burns In a skin irritation test in which this substance (0.5 mL) was applied to rabbit skin for 4 hours, irreversible damage to the skin was observed, and it was concluded that this substance is corrosive. In another skin irritation test, mild to severe erythema associated with necrosis was observed, and the skin irritation index was reported to be 4.8 (maximum 8). Thus, it was classified into category 1C.
Serious eye damage/irritation	:	Causes serious eye damage Application of this substance (90%) to rabbits causes severe reactions such as corneal opacity and conjunctival scarring, resulting in permanent mild interstitial emulsification and vascularization. Thus, it was classified into category 1.
Respiratory sensitization	:	Classification not possible

Skin sensitization	:	Classification not possible While there are positive reports in LLNA studies in mice, there are negative reports in skin sensitization studies in guinea pigs. Due to conflicting test results, the classification was not possible.
Germ cell mutagenicity	:	No classification As for in vivo tests, there are negative data on micronucleus assay, chromosome aberration tests in mouse bone marrow cells, and unscheduled DNA synthesis test in mouse liver cells. As for in vitro tests, there are negative data on reverse mutation test in bacteria, mouse lymphoma assay, gene mutation test, chromosome aberration tests, and positive and negative data on sister chromatid exchange test in cultured mammalian cells.
Carcinogenicity	:	Suspected of causing cancer IARC classifies it as group 2B (possibly carcinogenic to humans).
Reproductive toxicity	:	Suspected of damaging fertility or the unborn child In a reproduction/developmental toxicity screening test using oral administration in rats (OECD TG 421), it was reported that at dosing levels toxic to parent animals (increased liver weight), decreased number of viable litters during 1-4 days of lactation was observed. Thus, it was classified into category 2.
STOT-single exposure	:	Causes damage to organs (central nervous system) May cause drowsiness or dizziness May cause respiratory irritation Human studies have shown that the substance causes irritation of the skin, eyes, and upper airway. Case reports reveal that a woman who inhaled vapor from the substance for 15-20 minutes developed speech disorder. Animal studies have shown that main acute toxic effects found in all exposure routes are anesthetic actions and irritant properties. By considering both human and animal data, the substance was classified into category 1 (central nervous system) and category 3 (narcosis, respiratory tract irritation).
STOT-repeated exposure	:	Causes damage to organs (central nervous system, blood, liver, kidney) through prolonged or repeated exposure In cases where this substance was used as a therapeutic agent for epilepsy, anorexia, nausea, vomiting, abdominal pain and bloating, headache, stupor, malaise, and depression were observed in 5 epilepsy patients during the dosing period who were orally administered a dose of 1.85-2.46 mL/day for about 1 month. Two of the patients showed decreased serum total protein, nitrogenemia, and albuminuria, indicating liver and kidney damage. In a 13-week drinking-water study in rats, decreases in hemoglobin/red blood cell count/hematocrit at 50 ppm or more, increased liver weight at 100 ppm or more, liver pigmentation at 250 ppm or more, increased bile acids, chronic inflammation/pigmentation of the liver, hypertrophy/degeneration of centrilobular hepatocytes at 500 ppm or more, and death, increase in ALT/SDH, prolonged estrous cycle at 1000 ppm were observed. Thus, it was classified into category 1 (central nervous system, blood, liver, kidney).
Aspiration hazard	:	May be fatal if swallowed and enters airways Ingestion of several ounces (1 ounce=28.35 g) resulted in severe vomiting, diarrhea, hyperthermia, delirium, and autopsy revealed respiratory effects (pulmonary edema and tracheobronchitis), which were considered to be caused by aspiration. Thus, it was classified into category 1.

12. Ecological information

Ecotoxicity

Aquatic acute	:	Very toxic to aquatic life Pseudokirchneriella subcapitata ErC50=0.10mg/L/72h
Aquatic chronic	:	Very toxic to aquatic life with long lasting effects Pseudokirchneriella subcapitata NOEL=0.01mg/L/72h

Persistence and degradability

Readily biodegradable
BOD : 62%

Bioaccumulative potential

Low bioconcentration
log Pow : 0.65

Mobility in soil

High mobility
Koc : 33

Hazardous to the ozone layer

Ozone	:	Classification not possible

13. Disposal considerations

Ecological waste information	:	Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.
Contaminated container and packaging	:	In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG)	:	1282
Proper Shipping Name (IMDG)	:	PYRIDINE
Packing group (IMDG)	:	II
Transport hazard class(es) (IMDG)	:	3

Air transport(IATA)

UN-No. (IATA)	:	1282
Proper Shipping Name (IATA)	:	Pyridine
Packing group (IATA)	:	II
Transport hazard class(es) (IATA)	:	3

Marine pollutant	:	Applicable

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

Pollutant category	:	Y
MFAG-No	:	129

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.
Solvents Handbook, T, Asahara el, Kodansha Scientific Ltd. (1976) .
Handbook of Dangerous Substances Springer-Verlag Tokyo (1991) .
Handbook of 17625 Chemical Products, The Chemical Daily Co. (2025) .

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully.The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements.The information herein is only provision of information, and it does not represent a guarantee the properties of the product.The Safety Data Sheet(SDS) is prepared based on JIS Z7253.