SAFETY DATA SHEET

1. Identification

Product identifier **PYRIDINE, REAGENT (ACS)**

Other means of identification

Product code 702

Recommended use professional, scientific and technical activities: other professional, scientific and technical activities solvent technical function of substance

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name	GFS Chemicals, Inc.	
Address	P.O. Box 245 Powell OH 43065 US	
Telephone	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
Website	www.gfschemicals.com	
E-mail	service@gfschemicals.com	
Emergency phone number	Emergency Assistance	Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 1A
	Serious eye damage/eye irritation	Category 1
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure	Category 1 (nervous system, respiratory system)
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Specific target organ toxicity, repeated exposure	Category 1 (kidney, liver, nervous system)

OSHA hazard(s) Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. Harmful if inhaled. May cause drowsiness or dizziness. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs (nervous system, respiratory system). Causes damage to organs (kidney, liver, nervous system) through prolonged or repeated exposure. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.

Response In case of fire: Use appropriate media for extinction. Eliminate all ignition sources if safe to do so. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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: Get medical advice/attention.

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 an approved incineration plant.

Hazard(s) not otherwise classified (HNOC) Static accumulating flammable liquid

Environmental hazards

Hazardous to the aquatic environment, acute hazard	Category 1
Hazardous to the aquatic environment, long-term hazard	Category 2

Supplemental information

Hazard statement Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. These alone may be insufficient to remove static electricity. Avoid release to the environment.

Response Collect spillage.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/information on ingredients

Substances

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
PYRIDINE		110-86-1	100

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Call a physician or poison control center immediately. Call a POISON CENTER or doctor/physician if you feel unwell. For minor skin contact, avoid spreading material on unaffected skin.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately. Get medical attention if irritation develops and persists.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed Corrosive effects. Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Proteinuria. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. IF exposed or concerned: Get medical advice/attention. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Alcohol resistant foam. Powder.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. By heating and fire, harmful vapors/gases may be formed. Material will float and may ignite on surface of water.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire-fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage.
Specific methods	In the event of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Use standard firefighting procedures and consider the hazards of other involved materials. Move container from fire area if it can be done without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Immediately evacuate personnel to safe areas. Local authorities should be advised if significant spillages cannot be contained. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Should not be released into the environment. This product is miscible in water. Prevent entry into waterways, sewers, basements or confined areas. Large Spills: Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Clean up in accordance with all applicable regulations. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.
Environmental precautions	Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Use appropriate containment to avoid environmental contamination. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Vapors may form explosive mixtures with air. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code". DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid contact during pregnancy/while nursing. Do not get this material on clothing. Use personal protective equipment as required. Use only outdoors or in a well-ventilated area. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in cool place. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a well-ventilated place. Keep container tightly closed. Keep in an area equipped with sprinklers. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
PYRIDINE (CAS 110-86-1)	PEL	15 mg/m3 5 ppm

US. ACGIH Threshold Limit Values

Material	Type	Value
PYRIDINE (CAS 110-86-1)	TWA	1 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
PYRIDINE (CAS 110-86-1)	TWA	15 mg/m3 5 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. An eye wash and safety shower must be available in the immediate work area.

Individual protection measures, such as personal protective equipment

Eye/face protection

Chemical goggles are recommended.

Skin protection

Hand protection

Wear protective gloves.

Other

Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. Wear protective gloves.

Respiratory protection

Use an organic vapor respirator for concentrations exceeding the Occupational Exposure Limit.

Thermal hazards

Not available.

General hygiene considerations

When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Clear.

Physical state

Liquid.

Form

Liquid.

Color

Colorless to yellow.

Odor	Strong disagreeable characteristic odor.
Odor threshold	Not available.
pH	8.5 0.2 molar aqueous solution
Melting point/freezing point	-42.9 °F (-41.6 °C)
Initial boiling point and boiling range	239.36 - 239.54 °F (115.2 - 115.3 °C)
Flash point	68.00 °F (20.00 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	12.4
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	2.773 kPa at 25 °C
Vapor density	0.982
Relative density	Not available.
Solubility(ies)	Miscible
Partition coefficient (n-octanol/water)	0.7
Auto-ignition temperature	899.6 °F (482 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	0.98 g/cm3 estimated
Flammability class	Flammable IB estimated
Flash point class	Flammable IB
Molecular formula	C5-H5-N
Molecular weight	79.10 g/mol
Percent volatile	100 %
Specific gravity	0.9827 at 20 °C
VOC (Weight %)	100 %

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Risk of explosion. Stable at normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Avoid temperatures exceeding the flash point.
Incompatible materials	Strong oxidizing agents. Strong acids.
Hazardous decomposition products	If product is burned hazardous gases such as oxides of carbon and nitrogen and various hydrocarbons may be produced.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Causes digestive tract burns. Harmful if swallowed.
Inhalation	Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Harmful if inhaled.
Skin contact	Toxic in contact with skin. Causes severe skin burns.
Eye contact	Causes severe eye burns. Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result. Narcosis. Edema. Liver enlargement. Jaundice. Proteinuria. Behavioral changes. Decrease in motor functions. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity Causes severe skin burns and eye damage. Toxic in contact with skin. Harmful if inhaled. Harmful if swallowed.

Product	Species	Test Results
PYRIDINE (CAS 110-86-1)		
Acute		
Dermal		
LD50	Rabbit	1121 mg/kg
Inhalation		
LC50	Rat	9000 ppm, 1 Hours
		9000 mg/l, 1 Hours
		4000 ppm, 4 Hours
		4000 mg/l, 4 Hours
LD50	Rat	9000 ppm, 1 Hours
		9000 mg/l, 1 Hours
Oral		
LD50	Guinea pig	4000 mg/kg
	Mouse	800 - 1600 mg/kg
		1500 mg/kg
		0.8 g/kg
	Rat	800 - 1600 mg/kg
		1580 mg/kg
		1500 mg/kg
		891 mg/kg
		0.8 g/kg
Other		
LD50	Dog	880 mg/kg
	Guinea pig	1 ml/kg
	Mouse	420 mg/kg
		0.8 g/kg
	Rat	360 mg/kg
		0.8 g/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes severe eye burns. Causes serious eye damage.

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization Due to lack of data the classification is not possible.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

PYRIDINE (CAS 110-86-1) 3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific target organ toxicity - single exposure May cause irritation to the respiratory system. Narcotic effects. Causes damage to organs (nervous system, respiratory system).

Specific target organ toxicity - repeated exposure Causes damage to organs (kidney, liver, nervous system) through prolonged or repeated exposure.

Aspiration hazard Due to lack of data the classification is not possible.

Chronic effects Prolonged inhalation may be harmful. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
PYRIDINE (CAS 110-86-1)			
Aquatic			
Fish	LC50	Chinook salmon (Oncorhynchus tshawytscha)	2.9 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability None known.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)
0.65

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Not available.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F
D038: Waste Pyridine

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1282
UN proper shipping name	Pyridine, MARINE POLLUTANT
Transport hazard class(es)	3
Subsidary class(es)	Not available.
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Labels required	3
Special provisions	IB2, T4, TP2
Packaging exceptions	None
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1282
UN proper shipping name	Pyridine
Transport hazard class(es)	3
Subsidary class(es)	-
Packaging group	II
Environmental hazards	No
Labels required	Not available.
ERG Code	3L
Special precautions for user	Not available.

IMDG

UN number	UN1282
UN proper shipping name	PYRIDINE, MARINE POLLUTANT
Transport hazard class(es)	3
Subsidary class(es)	-
Packaging group	II
Environmental hazards	
Marine pollutant	Yes
Labels required	Not available.
EmS	F-E, S-D
Special precautions for user	Not available.

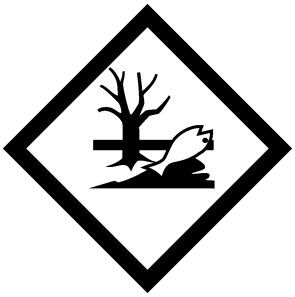
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

General information DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

DOT

IATA; IMDG

Marine pollutant



15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

PYRIDINE (CAS 110-86-1) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List

PYRIDINE (CAS 110-86-1)

US. New Jersey Worker and Community Right-to-Know Act

PYRIDINE (CAS 110-86-1) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

PYRIDINE (CAS 110-86-1)

US. Rhode Island RTK

PYRIDINE (CAS 110-86-1)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

PYRIDINE (CAS 110-86-1)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date April-28-2014

Version # 01

Further information	Not available.
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision Information	Product and Company Identification: Alternate Trade Names Composition / Information on Ingredients: Disclosure Overrides Physical & Chemical Properties: Multiple Properties Transport Information: Proper Shipping Name/Packing Group