SAFETY DATA SHEET
according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 04/08/2019 Version 1.7

SECTION 1.Identification

Product identifier

Product number	109728
Product name	Pyridine for analysis EMSURE® ACS,Reag. Ph Eur
CAS-No.	110-86-1

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

Identified uses	Reagent for analysis

Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation | 400 Summit Drive | Burlington | Massachusetts 01803 | United States of America | General Inquiries: +1 800-645-5476 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Flammable liquid, Category 2, H225
Acute toxicity, Category 4, Oral, H302
Acute toxicity, Category 4, Inhalation, H332
Acute toxicity, Category 4, Dermal, H312
Skin irritation, Category 2, H315
Eye irritation, Category 2A, H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Danger

Hazard Statements
H225 Highly flammable liquid and vapor.
H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary Statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
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/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
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/doctor if you feel unwell.
P322 Specific measures (see supplemental first aid instructions 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 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	C_5H_5N (Hill)
Molar mass	79.1 g/mol

Hazardous ingredients

Chemical name (Concentration)
CAS-No.
Pyridine (>= 90 % - <= 100 %)
110-86-1
Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

Inhalation
After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

Skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

Eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

Ingestion
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, Cough, Shortness of breath, narcosis, Nausea, Vomiting, cardiovascular disorders, collapse, Headache, insomnia, restlessness

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media
Water, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapors possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.
Fire may cause evolution of:
nitrogen oxides, nitrous gases

Advice for firefighters
Special protective equipment for fire-fighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

Environmental precautions
Do not let product enter drains. Risk of explosion.

Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Store at +5°C to +30°C (+41°F to +86°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Components

Basis	Value	Threshold limits	Remarks
Pyridine 110-86-1			
ACGIH	Time Weighted Average (TWA):	1 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	5 ppm 15 mg/m³	
OSHA_TRANS	PEL:	5 ppm 15 mg/m³	
Z1A	Time Weighted Average (TWA):	5 ppm 15 mg/m³	

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures
Immediately change contaminated clothing. Apply skin- protective barrier cream.
Wash hands and face after working with substance.

Eye/face protection
Safety glasses

Hand protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:
Flame retardant antistatic protective clothing.

Respiratory protection
required when vapors/aerosols are generated.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	pungent
Odor Threshold	0.0001 - 20.1 ppm
pH	ca. 8.81 at 68 °F (20 °C)
Melting point	-44 °F (-42 °C)
Boiling point/boiling range	ca. 239 °F (115 °C) at 1,013 hPa
Flash point	63 °F (17 °C) Method: c.c.
Evaporation rate	12.7
Flammability (solid, gas)	No information available.
Lower explosion limit	1.8 %(V)
Upper explosion limit	12.4 %(V)

Vapor pressure	ca.26.7 hPa at 77 °F (25 °C)
Relative vapor density	2.73
Density	0.982 g/cm3 at 68 °F (20 °C)
Relative density	No information available.
Solubility(ies)	Solvent: Diethyl ether 68 °F (20 °C) miscible Solvent: ethanol 68 °F (20 °C) miscible
Water solubility	ca.1,000 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: ca. 0.64 (20 °C) (experimental) (Lit.) Bioaccumulation is not expected.
Autoignition temperature	1652 °F(900 °C) at 1,013 hPa
Decomposition temperature	ca.914 °F (490 °C)
Viscosity, dynamic	ca.0.88 mPa.s at 77 °F (25 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	900 °F (482 °C)

SECTION 10. Stability and reactivity

Reactivity

Vapors may form explosive mixture with air.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Risk of explosion with:

perchloric acid, nitrogen oxides, halogen-halogen compounds

Risk of ignition or formation of inflammable gases or vapors with:

chlorosulfonic acid, chromium(VI) oxide, Acid anhydrides, fuming sulfuric acid, Oxidizing agents, perchromates, Nitric acid, nitrogen dioxide

Exothermic reaction with:

Fluorine, sulfuric acid, silver perchlorate

Conditions to avoid

Warming.

Incompatible materials

rubber, various plastics, various metals

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Inhalation, Eye contact, Skin contact

Target Organs
Eyes
Skin
Central nervous system
Liver
Kidneys
gastrointestinal tract

Acute oral toxicity
LD50 Rat: ca. 1,500 mg/kg (ECHA)

Symptoms: Vomiting, Nausea

Acute inhalation toxicity
LC50 Rat: 17.1 mg/l; 4 h ; vapor
US-EPA

Symptoms: mucosal irritations, Cough, Shortness of breath

Acute dermal toxicity
LD50 Rabbit: > 1,000 - 2,000 mg/kg
OECD Test Guideline 402

Skin irritation

Causes skin irritation.

Eye irritation

Causes serious eye irritation.

Sensitization
Sensitization test: Guinea pig
Result: negative

(Lit.)

Genotoxicity in vivo
Micronucleus test
Mouse
Result: negative
Method: OECD Test Guideline 475

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test
Chinese hamster lung cells
Result: negative
Method: OECD Test Guideline 476

Teratogenicity
Did not show teratogenic effects in animal experiments.

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	Confirmed animal carcinogen with unknown relevance to humans.
	Pyridine 110-86-1

Further information

Systemic effects:
After uptake:
Headache, restlessness, insomnia
In high doses:
narcosis, cardiovascular disorders, Circulatory collapse
Chronic uptake results in damage of:
Liver, Kidney
Good warning effect due to low odor threshold.
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
flow-through test LC50 Pimephales promelas (fathead minnow): 99 mg/l; 96 h
Analytical monitoring: yes(ECHA)

Toxicity to daphnia and other aquatic invertebrates
EC5 E.sulcatum: 3.5 mg/l; 72 h (Lit.) (maximum permissible toxic concentration)

Toxicity to algae
IC5 Scenedesmus quadricauda (Green algae): 120 mg/l; 7 d (maximum permissible toxic concentration) (Lit.)

Toxicity to bacteria
EC5 Pseudomonas putida: 340 mg/l; 16 h (Lit.) (maximum permissible toxic concentration)

Persistence and degradability

Biodegradability
97 %; 28 d; aerobic
OECD Test Guideline 301B
Readily biodegradable.

Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: ca. 0.64 (20 °C)
(experimental)
(Lit.) Bioaccumulation is not expected.

Mobility in soil
No information available.

Additional ecological information
Forms toxic mixtures in water, dilution measures notwithstanding.
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1282
Proper shipping name	PYRIDINE
Class	3
Packing group	II
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1282
Proper shipping name	PYRIDINE
Class	3
Packing group	II
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1282
Proper shipping name	PYRIDINE
Class	3
Packing group	II
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-D

SECTION 15. Regulatory information

United States of America

SARA 313
The following components are subject to reporting levels established by SARA Title III, Section 313:
Components
Pyridine 110-86-1 *100 %*

SARA 302
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act
This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

DEA List I
Not listed

DEA List II
Not listed

US State Regulations

Massachusetts Right To Know
Components
Pyridine

Pennsylvania Right To Know
Components
Pyridine

New Jersey Right To Know
Components

Pyridine

California Prop 65 Components

WARNING: this product contains a chemical known in the State of California to cause cancer.

Components

Pyridine

Notification status

TSCA:	All components of the product are listed in the TSCA-inventory.
DSL:	All components of this product are on the Canadian DSL

SECTION 16. Other information

(company-internal/in-house) Occupational Exposure Limit (company OEL)

Internal company value	0.8 mg/m³
Short Term Exposure (15 min) Factor	4
Pregnancy risk groups	C There is no reason to fear damage to the embryo, or foetus when the company OEL value is observed.

Training advice

Provide adequate information, instruction and training for operators.

Labeling

Hazard pictograms

Signal Word

Danger

Hazard Statements

H225 Highly flammable liquid and vapor.
H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary Statements

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P240 Ground/bond container and receiving equipment.
Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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