

# Material Safety Data Sheet

Glycerol calibration standard 1 in pyridine, Part Number G3440-85022

## 1. Product and company identification

<b>Product name</b>	: Glycerol calibration standard 1 in pyridine, Part Number G3440-85022
<b>Material uses</b>	: Analytical chemistry.
<b>Supplier/Manufacturer</b>	: Agilent Technologies, Inc. Logistics Center - Americas 500 Ships Landing Way New Castle, Delaware 19720 800-227-9770
<b>Part No.</b>	: G3440-85022
<b>Validation date</b>	: 04/19/2012
<b>In case of emergency</b>	: Chemtrec: 1-800-424-9300

## 2. Hazards identification

<b>Physical state</b>	: Liquid.
<b>Odor</b>	: Unpleasant.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Emergency overview

<b>Signal word</b>	: WARNING!
<b>Hazard statements</b>	: FLAMMABLE LIQUID AND VAPOR. HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
<b>Precautions</b>	: Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not ingest. Do not get in eyes. Avoid contact with skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

### Potential acute health effects

<b>Inhalation</b>	: Toxic by inhalation. Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
<b>Ingestion</b>	: Harmful if swallowed.
<b>Skin</b>	: Harmful in contact with skin. Irritating to skin.
<b>Eyes</b>	: Severely irritating to eyes. Risk of serious damage to eyes.

### Potential chronic health effects

<b>Chronic effects</b>	: Contains material that may cause target organ damage, based on animal data.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.
<b>Target organs</b>	: Contains material which may cause damage to the following organs: blood, kidneys, the nervous system, liver, gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).

### Over-exposure signs/symptoms

<b>Inhalation</b>	: Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Ingestion</b>	: No specific data.

## 2. Hazards identification

- Skin** : Adverse symptoms may include the following:  
irritation  
redness
- Eyes** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

## 3. Composition/information on ingredients

Name	CAS number	%
Pyridine	110-86-1	60 - 100

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

## 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

## 5. Fire-fighting measures

- Flammability of the product** : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

## 5. Fire-fighting measures

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

## 7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## 8. Exposure controls/personal protection

Ingredient	Exposure limits
Pyridine	<p><b>ACGIH TLV (United States, 2/2010).</b> TWA: 1 ppm 8 hour(s).</p> <p><b>NIOSH REL (United States, 6/2009).</b> TWA: 15 mg/m<sup>3</sup> 10 hour(s). TWA: 5 ppm 10 hour(s).</p> <p><b>OSHA PEL (United States, 6/2010).</b> TWA: 15 mg/m<sup>3</sup> 8 hour(s). TWA: 5 ppm 8 hour(s).</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 15 mg/m<sup>3</sup> 8 hour(s). TWA: 5 ppm 8 hour(s).</p>

## 8. Exposure controls/personal protection

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : 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.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Other protection** : Not available.

## 9. Physical and chemical properties

- Physical state** : Liquid.
- Flash point** : Closed cup: 18.667°C (65.6°F)
- Auto-ignition temperature** : 250°C (482°F)
- Flammable limits** : Lower: 1.8%  
Upper: 12.4%
- Color** : Colorless.
- Odor** : Unpleasant.
- pH** : Not available.
- Boiling/condensation point** : 115°C (239°F)
- Melting/freezing point** : -42°C (-43.6°F)
- Specific gravity** : 0.978
- Vapor pressure** : 2.7 kPa (20 mm Hg) [20°C]
- Vapor density** : 2.72 [Air = 1]
- Odor threshold** : Not available.
- Evaporation rate** : Not available.
- Solubility** : Soluble in the following materials: cold water and hot water.

## 10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
- Materials to avoid** : Reactive or incompatible with the following materials:  
oxidizing materials  
Other: acids.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Pyridine	LC50 Inhalation Gas.	Rat	9010 ppm	1 hours
	LC50 Inhalation Gas.	Rat	4500 ppm	4 hours
	LD50 Dermal	Rabbit	1.12 g/kg	-
	LD50 Oral	Rat	891 mg/kg	-

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Pyridine	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

### Sensitizer

**Conclusion/Summary** : Not available.

### Carcinogenicity

#### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Pyridine	A3	3	-	-	-	-

### Mutagenicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

## 12. Ecological information

**Ecotoxicity** : This material is harmful to aquatic life. May cause long-term adverse effects in the aquatic environment.

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Pyridine	Acute EC50 100000 to 180000 ug/L Fresh water	Algae - Selenastrum sp.	72 hours
	Acute EC50 110000 ug/L Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 182000 ug/L Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 520000 ug/L Fresh water	Daphnia - Daphnia pulex - <24 hours	48 hours
	Acute LC50 26000 ug/L Fresh water	Fish - Cyprinus carpio - 4 to 5 cm	96 hours

## 12. Ecological information

**Other adverse effects** : No known significant effects or critical hazards.

## 13. Disposal considerations




**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below 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.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT	UN1282	Pyridine solution	3	II		<p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: 5 L</p> <p><b>Cargo aircraft</b> Quantity limitation: 60 L</p> <p><b>Special provisions</b> IB2, T4, TP2</p>
IMDG	UN1282	PYRIDINE solution	3	II		<p><b>Emergency schedules (EmS)</b> F-E, S-D</p>
IATA	UN1282	Pyridine solution	3	II		<p><b>Passenger and Cargo Aircraft</b> Quantity limitation: 5 L Packaging instructions: 353</p> <p><b>Cargo Aircraft Only</b> Quantity limitation: 60 L Packaging instructions: 364</p> <p><b>Limited Quantities -</b></p>

## 14. Transport information

						Passenger Aircraft Quantity limitation: 1 L Packaging instructions: Y341
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PG\* : Packing group

## 15. Regulatory information

**HCS Classification** : Flammable liquid  
Toxic material  
Irritating material  
Target organ effects

**U.S. Federal regulations** : **TSCA 8(a) IUR:** Not determined

**United States inventory (TSCA 8b):** Not determined.

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.

**SARA 302/304 emergency planning and notification:** No products were found.

**SARA 302/304/311/312 hazardous chemicals:** Pyridine

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**

Pyridine: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

**Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 313

	Product name	CAS number	Concentration
<b>Form R - Reporting requirements</b>	Pyridine	110-86-1	60 - 100
<b>Supplier notification</b>	Pyridine	110-86-1	60 - 100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

### State regulations

**Massachusetts** : The following components are listed: PYRIDINE

**New York** : The following components are listed: Pyridine

**New Jersey** : The following components are listed: PYRIDINE

**Pennsylvania** : The following components are listed: PYRIDINE

### California Prop. 65

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

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Pyridine	Yes.	No.	No.	No.

## 16. Other information

**Label requirements** : FLAMMABLE LIQUID AND VAPOR. HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

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**Version** : 1

✔ Indicates information that has changed from previously issued version.

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