

## MATERIAL SAFETY DATA SHEET

Date Printed: 06/26/2008

Date Updated: 02/04/2008

Version 1.9

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Section 1 - Product and Company Information

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Product Name QUINOLINE, REAGENT GRADE, 98%  
Product Number 241571  
Brand ALDRICH

Company Sigma-Aldrich  
Address 3050 Spruce Street  
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832  
Fax: 800-325-5052  
Emergency Phone: 314-776-6555

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Section 2 - Composition/Information on Ingredient

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Substance Name	CAS #	SARA 313
QUINOLINE	91-22-5	Yes

Formula C9H7N  
Synonyms 1-Azanaphthalene \* B-500 \* 1-Benzazine \*  
Benzo(b)pyridine \* Chinoleine \* Chinolin (Czech)  
\* Chinoline \* Leucol \* Leukol \* USAF EK-218  
RTECS Number: VA9275000

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Section 3 - Hazards Identification

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## EMERGENCY OVERVIEW

Toxic (USA) Harmful (EU).

Harmful in contact with skin and if swallowed. Irritating to skin.  
Risk of serious damage to eyes. Limited evidence of a carcinogenic effect.

Possible Carcinogen (US). Readily absorbed through skin. Target organ(s): Liver.

## HMIS RATING

HEALTH: 2\*

FLAMMABILITY: 2

REACTIVITY: 1

## NFPA RATING

HEALTH: 2

FLAMMABILITY: 2

REACTIVITY: 1

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

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Section 4 - First Aid Measures

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## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

#### INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

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#### Section 5 - Fire Fighting Measures

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##### AUTOIGNITION TEMP

480 °C

##### FLAMMABILITY

N/A

##### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

##### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

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#### Section 6 - Accidental Release Measures

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##### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

##### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

##### METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

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#### Section 7 - Handling and Storage

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##### HANDLING

User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

##### STORAGE

Suitable: Store under inert gas. Keep tightly closed. Store in a cool dry place.

##### SPECIAL REQUIREMENTS

Store under inert gas. Light and moisture sensitive.

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#### Section 8 - Exposure Controls / PPE

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## ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

## PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.  
Hand: Compatible chemical-resistant gloves.  
Eye: Chemical safety goggles.

## GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

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## Section 9 - Physical/Chemical Properties

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Appearance	Physical State: Clear liquid Color: Slightly yellow	
Property	Value	At Temperature or Pressure
Molecular Weight	129.16 AMU	
pH	N/A	
BP/BP Range	108.0 - 110.0 °C	11 mmHg
MP/MP Range	- 17.0 °C	
Freezing Point	N/A	
Vapor Pressure	1 mmHg	59.7 °C
Vapor Density	4.5 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	1.093 g/cm <sup>3</sup>	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	480 °C	
Refractive Index	1.625	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

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## Section 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents, Strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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Section 11 - Toxicological Information

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ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: Harmful if absorbed through skin. Readily absorbed through skin.

Eye Contact: Causes severe eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: Harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Liver.

TOXICITY DATA

Oral

Rat

331 mg/kg

LD50

Skin

Rabbit

540 UL/KG

LD50

IRRITATION DATA

Eyes

Rabbit

24HR

Remarks: Severe irritation effect

Skin

Rabbit

100 mg

24H

Remarks: Moderate irritation effect

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Species: Rat

Route of Application: Oral

Dose: 7770 MG/KG

Exposure Time: 37W

Frequency: C

Result: Liver:Tumors. Tumorigenic:Neoplastic by RTECS criteria.

Species: Mouse

Route of Application: Oral

Dose: 50 GM/KG

Exposure Time: 30W

Frequency: C

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors.

Species: Mouse  
Route of Application: Intraperitoneal  
Dose: 9042 UG/KG  
Exposure Time: 15D  
Frequency: I  
Result: Liver: Tumors. Tumorigenic: Carcinogenic by RTECS criteria. Blood: Lymphomas including Hodgkin's disease.

Species: Rat  
Route of Application: Oral  
Dose: 23 GM/KG  
Exposure Time: 30W  
Frequency: C  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors.

#### IRIS/EPA CARCINOGEN LIST

Rating: Group C  
Species: Rat, mouse  
Route: Oral

#### CHRONIC EXPOSURE - MUTAGEN

Species: Rat  
Dose: 1 MMOL/L  
Cell Type: liver  
Mutation test: DNA damage

Species: Rat  
Dose: 500 UMOL/L  
Cell Type: liver  
Mutation test: Other mutation test systems

Species: Rat  
Dose: 100 UMOL/L  
Cell Type: liver  
Mutation test: Unscheduled DNA synthesis

Species: Mouse  
Route: Intraperitoneal  
Dose: 50 MG/KG  
Mutation test: Micronucleus test

Species: Mouse  
Dose: 700 MG/L  
Cell Type: lymphocyte  
Mutation test: Mutation in mammalian somatic cells.

Species: Mouse  
Route: Intraperitoneal  
Dose: 200 MG/KG  
Exposure Time: 4D  
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster  
Dose: 80 UMOL/L (+S9)  
Cell Type: ovary  
Mutation test: Mutation in microorganisms

Species: Hamster  
Dose: 500 UG/L  
Cell Type: ovary  
Mutation test: Cytogenetic analysis

Species: Hamster  
Dose: 100 MG/L  
Cell Type: lung  
Mutation test: Cytogenetic analysis

Species: Hamster  
Dose: 110 UG/L  
Cell Type: ovary  
Mutation test: Sister chromatid exchange

Mutation test: Histidine reversion (Ames)

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## Section 12 - Ecological Information

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No data available.

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## Section 13 - Disposal Considerations

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### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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## Section 14 - Transport Information

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### DOT

Proper Shipping Name: Quinoline  
UN#: 2656  
Class: 6.1  
Packing Group: Packing Group III  
Hazard Label: Toxic Substance  
PIH: Not PIH

### IATA

Proper Shipping Name: Quinoline  
IATA UN Number: 2656  
Hazard Class: 6.1  
Packing Group: III

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## Section 15 - Regulatory Information

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### EU ADDITIONAL CLASSIFICATION

Symbol of Danger: Xn  
Indication of Danger: Harmful.  
R: 21/22-38-41  
Risk Statements: Harmful in contact with skin and if swallowed. Irritating to skin. Risk of serious damage to eyes.  
S: 26-36/37/39  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.

### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Toxic (USA) Harmful (EU).  
Risk Statements: Harmful in contact with skin and if swallowed. Irritating to skin. Risk of serious damage to eyes. Limited

evidence of a carcinogenic effect.  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.  
US Statements: Possible Carcinogen (US). Readily absorbed through skin. Target organ(s): Liver.

#### UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes  
DEMINIMIS: 1 %  
NOTES: This product is subject to SARA section 313 reporting requirements.  
TSCA INVENTORY ITEM: Yes

#### CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.  
DSL: Yes  
NDSL: No

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#### Section 16 - Other Information

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#### DISCLAIMER

For R&D use only. Not for drug, household or other uses.

#### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.  
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