



REV: 1/16/2003

11059

**SIGMA-ALDRICH****Material Safety Data Sheet**Date Printed: 07/15/2003  
Date Updated: 01/16/2003  
Version 1.20**Section 1 - Product and Company Information**

<b>Product Name</b>	PHENANTHRENE, 98%		
<b>Product Number</b>	P11409		
<b>Brand</b>	Aldrich Chemical		
<b>Company</b>	Sigma-Aldrich		
<b>Street Address</b>	3050 Spruce Street		
<b>City, State, Zip, Country</b>	SAINT LOUIS, MO 63103 US		
<b>Technical Phone:</b>	314 771 5765	<b>Emergency Phone:</b>	414 273 3850 Ext. 5996
<b>Fax:</b>	800 325 5052		

**Section 2 - Composition/Information on Ingredient**

<b>Substance Name</b>	<b>CAS #</b>	<b>SARA 313</b>
PHENANTHRENE	85-01-8	Yes

<b>Formula</b>	C14H10
<b>Synonyms</b>	Coal tar pitch volatiles: phenanthrene (OSHA), Phenanthren (German), Phenantrin, Ravatite

**Section 3 - Hazards Identification****Emergency Overview**

Harmful. Dangerous for the environment.  
Harmful if swallowed. Irritating to eyes, respiratory system and skin. Very toxic to aquatic organisms.  
Photosensitizer.

<b>HMIS Rating</b>		
Health: 2*	Flammability: 0	Reactivity: 0

<b>NFPA Rating</b>		
Health: 2	Flammability: 0	Reactivity: 0

\*additional chronic hazards present.

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

**Section 4 - First Aid Measures****Oral Exposure**

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

**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.

**Section 5 - Fire Fighting Measures****Autoignition Temp:** 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)**

Emits toxic fumes under fire conditions.

**Section 6 - Accidental Release Measures****Procedure to be Followed in Case of Leak or Spill**

Evacuate area.

**Procedure(s) of Personal Precaution(s)**

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

**Methods for Cleaning Up**

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

**Section 7 - Handling and Storage****Handling****User Exposure**

Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

**Storage****Suitable**

Keep tightly closed. Store in a cool dry place. Handle and store under nitrogen.

**Special Requirements**

Handle and store under inert gas.

**Section 8 - Exposure Controls / PPE****Engineering Controls**

Safety shower and eye bath. Mechanical exhaust required.

**Personal Protective Equipment****Respiratory**

Government approved respirator.

**Hand**

Compatible chemical-resistant gloves.

**Eye**

Chemical safety goggles.

**General Hygiene Measures**

Wash thoroughly after handling.

**Exposure Limits, RTECS**

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<b>Country</b>	<b>Source</b>	<b>Type</b>	<b>Value</b>
USA	OSHA	PEL	8H TWA 0.2 MG/M3

### Section 9 - Physical/Chemical Properties

**Appearance**  
Physical State  
Solid

**Molecular Weight:** 178.23 AMU

<u>Property</u>	<u>Value</u>	<u>At Temperature or Pressure</u>
pH	N/A	
BP/BP Range	340 °C	760 mmHg
MP/MP Range	98 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	1.063 g/cm3	
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	
Partition Coefficient	Log Kow: 4.57	
Decomposition Temp.	N/A	
Flash Point °F	N/A	
Flash Point °C	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Solubility	N/A	

N/A = not available

### Section 10 - Stability and Reactivity

**Stability**  
Stable  
Stable.  
**Materials to Avoid**  
Oxidizing agents.

**Hazardous Decomposition Products**  
Hazardous Decomposition Products  
Carbon monoxide, Carbon dioxide.

**Hazardous Polymerization**  
**Hazardous Polymerization**  
Will not occur.

### Section 11 - Toxicological Information

**Route of Exposure**  
**Skin Contact**  
Causes skin irritation.  
**Skin Absorption**  
May be harmful if absorbed through the skin.  
**Eye Contact**  
Causes eye irritation.  
**Inhalation**  
Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.  
**Ingestion**  
Harmful if swallowed.

**Sensitization**  
**Sensitization**  
Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburnlike responses to edematous, vesiculated lesions, or bullae

**RTECS Number:** SF7175000

**Toxicity Data**  
Oral - Mouse: 700 mg/kg (LD50)  
Intraperitoneal - Mouse: 700 MG/KG (LD50)  
Intravenous - Mouse: 56 MG/KG (LD50)

**Chronic Exposure Carcinogen**  
Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.  
Mouse - Skin: 71 MG/KG  
Result: Tumorigenic: Neoplastic by RTECS criteria. Skin and Appendages: Other: Tumors. Tumorigenic: Tumors at site or application.  
Mouse - Skin: 22 GM/KG 10W I  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

#### IARC Carcinogen List

Rating  
Group 3

<u>Chronic Exposure - Mutagen</u>		<u>Cell Type</u>	<u>Mutation test</u>
<u>Species</u>	<u>Dose</u>		
Human	100 UMOL/L	lymphocyte	Mutation in mammalian somatic cells.
Rat	10 MG/L	Embryo	Morphological transformation.
Rat	3 MMOL/L	liver	DNA damage
Mouse	5 MG/L	Embryo	Morphological transformation.
Hamster	5 MG/L 24H	fibroblast	DNA damage
Hamster	5 MG/L	kidney	DNA damage
Hamster	40 MG/L 27H	lung	Cytogenetic analysis
Hamster	900 MG/KG Intraperitoneal 24H		Sister chromatid exchange
Hamster	10 UMOL/L	fibroblast	Sister chromatid exchange Histidine reversion (Ames)

## Section 12 - Ecological Information

### Acute Ecotoxicity Tests

<b>Test Type</b>	
EC50 Daphnia	
<b>Species</b>	
Daphnia magna	
<b>Time:</b>	<b>Value:</b>
24.0 h	0.86 mg/l
<b>Test Type</b>	
EC50 Daphnia	
<b>Species</b>	
Daphnia magna	
<b>Time:</b>	<b>Value:</b>
48.0 h	0.38 mg/l
<b>Test Type</b>	
LC50 Fish	
<b>Species</b>	
Onchorhynchus mykiss (Rainbow trout)	
<b>Time:</b>	<b>Value:</b>
96.0 h	3.2 mg/l
<b>Test Type</b>	
EC50 Algae	
<b>Species</b>	
Chlorella vulgaris	
<b>Time:</b>	<b>Value:</b>
3 h	1.2 mg/l
<b>Test Type</b>	
LC100 Fish	
<b>Species</b>	
other fish	
<b>Time:</b>	<b>Value:</b>
1 h	1.5 mg/l

### Elimination

## Section 13 - Disposal Considerations

### Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

## Section 14 - Transport Information

### DOT

**Proper Shipping Name:** Environmentally hazardous substances, solid, n.o.s.  
**UN#:** 3077  
**Class:** 9  
**Packing Group:** Packing Group III  
**Hazard Label:** Class 9  
**PIH:** Not PIH

### IATA

**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.  
**IATA UN Number:** 3077  
**Hazard Class:** 9  
**Packing Group:** III

## Section 15 - Regulatory Information

### EU Additional Classification

**Symbol of Danger:** Xn N

### Indication of Danger

Harmful. Dangerous for the environment.

**Risk Statements** R: 22 36/37/38 50

Harmful if swallowed. Irritating to eyes, respiratory system and skin. Very toxic to aquatic organisms.

**Safety Statements** S: 26 60 61

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

### US Classification and Label Text

#### Indication of Danger

Harmful. Dangerous for the environment.

#### Risk Statements

Harmful if swallowed. Irritating to eyes, respiratory system and skin. Very toxic to aquatic organisms.

#### Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

#### US Statements

Photosensitizer.

### 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

## Section 16 - Other Information

### 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. 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. Copyright 2003 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.