

## SAFETY DATA SHEET

Version 5.6  
Revision Date 05/24/2016  
Print Date 11/19/2018

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**1. PRODUCT AND COMPANY IDENTIFICATION****1.1 Product identifiers**

Product name : Fenamiphos

Product Number : 45483  
Brand : Sigma-Aldrich  
Index-No. : 015-123-00-5

CAS-No. : 22224-92-6

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

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

**1.4 Emergency telephone number**

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

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**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 2), H300  
Acute toxicity, Inhalation (Category 2), H330  
Acute toxicity, Dermal (Category 2), H310  
Eye irritation (Category 2A), H319  
Acute aquatic toxicity (Category 1), H400  
Chronic aquatic toxicity (Category 1), H410

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

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word : Danger

Hazard statement(s)  
H300 + H310 + H330  
H319  
H410

Fatal if swallowed, in contact with skin or if inhaled  
Causes serious eye irritation.  
Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)  
P260  
P262  
P264

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
Do not get in eyes, on skin, or on clothing.  
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.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P350 + P310	IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms	: Phenamiphos
Formula	: C <sub>13</sub> H <sub>22</sub> NO <sub>3</sub> PS
Molecular weight	: 303.36 g/mol
CAS-No.	: 22224-92-6
EC-No.	: 244-848-1
Index-No.	: 015-123-00-5

#### Hazardous components

Component	Classification	Concentration
<b>Fenamiphos</b>		
	Acute Tox. 2; Eye Irrit. 2A; Aquatic Acute 1; Aquatic Chronic 1; H300 + H310 + H330, H319, H410	<= 100 %

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

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

- 4.3 Indication of any immediate medical attention and special treatment needed**  
No data available

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## 5. FIREFIGHTING MEASURES

- 5.1 Extinguishing media**  
**Suitable extinguishing media**  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- 5.2 Special hazards arising from the substance or mixture**  
No data available
- 5.3 Advice for firefighters**  
Wear self-contained breathing apparatus for firefighting if necessary.
- 5.4 Further information**  
No data available

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## 6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures**  
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.  
For personal protection see section 8.
- 6.2 Environmental precautions**  
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
- 6.3 Methods and materials for containment and cleaning up**  
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.
- 6.4 Reference to other sections**  
For disposal see section 13.

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## 7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling**  
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.  
Provide appropriate exhaust ventilation at places where dust is formed.  
For precautions see section 2.2.
- 7.2 Conditions for safe storage, including any incompatibilities**  
Keep container tightly closed in a dry and well-ventilated place.  
  
Recommended storage temperature 2 - 8 °C  
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials
- 7.3 Specific end use(s)**  
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Fenamiphos	22224-92-6	TWA	0.100000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	Potential for dermal absorption		

		TWA	0.050000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Cholinesterase inhibition Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Acetylcholinesterase Inhibiting Pesticide Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.050000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Cholinesterase inhibition Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Acetylcholinesterase Inhibiting Pesticide Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Cholinesterase inhibition Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Acetylcholinesterase Inhibiting Pesticide Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.1 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		PEL	0.1 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

## 8.2 Exposure controls

### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

#### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an

industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### **Body Protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on basic physical and chemical properties**

- |   |                                     |
|---|-------------------------------------|
| a) Appearance                                   | Form: solid                         |
| b) Odour  | No data available                   |
| c) Odour Threshold                              | No data available                   |
| d) pH   | No data available                   |
| e) Melting point/freezing point                 | No data available                   |
| f) Initial boiling point and boiling range      | No data available                   |
| g) Flash point                                  | 100.00 °C (212.00 °F) - closed cup  |
| h) Evaporation rate                             | No data available                   |
| i) Flammability (solid, gas)                    | No data available                   |
| j) Upper/lower flammability or explosive limits | No data available                   |
| k) Vapour pressure                              | 1.7 hPa (1.3 mmHg) at 30 °C (86 °F) |
| l) Vapour density                               | No data available                   |
| m) Relative density                             | 1.140 g/cm <sup>3</sup>             |
| n) Water solubility                             | slightly soluble                    |
| o) Partition coefficient: n-octanol/water       | log Pow: 3.3 at 20 °C (68 °F)       |
| p) Auto-ignition temperature                    | No data available                   |
| q) Decomposition temperature                    | No data available                   |
| r) Viscosity                                    | No data available                   |
| s) Explosive properties                         | No data available                   |
| t) Oxidizing properties                         | No data available                   |

### **9.2 Other safety information**

No data available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides, Oxides of phosphorus

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rabbit - 10 mg/kg

LD50 Oral - Mouse - 22.7 mg/kg

LC50 Inhalation - Rat - 4 h - 91 mg/m<sup>3</sup>

LD50 Dermal - Rat - 80 mg/kg

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

#### Respiratory or skin sensitisation

No data available

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

#### Reproductive toxicity

No data available

Reproductive toxicity - Rat - Oral

Maternal Effects: Other effects.

No data available

#### Specific target organ toxicity - single exposure

No data available

No data available

No data available

## RTECS: TB3675000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## 12.1 Toxicity

Toxicity to fish	LC50 - <i>Cyprinodon variegatus</i> (sheepshead minnow) - 0.02 mg/l - 96.0 h
	LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - 0.07 - 0.6 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - <i>Daphnia magna</i> (Water flea) - 0.002 mg/l - 48 h

## No data available

No data available

No data available

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

### 13.1 Waste treatment methods

Offer surplus and non-recyclable solutions to a licensed disposal company. 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.

Dispose of as unused product.

## DOT (US)

UN number: 2811      Class: 6.1      Packing group: II  
Proper shipping name: Toxic solids, organic, n.o.s. (Fenamiphos)  
Reportable Quantity (RQ):  
Marine pollutant: yes  
Poison Inhalation Hazard: No

UN number: 2811      Class: 6.1      Packing group: II      EMS-No: F-A, S-A  
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Fenamiphos)  
Marine pollutant: yes

UN number: 2811      Class: 6.1      Packing group: II  
Proper shipping name: Toxic solid, organic, n.o.s. (Fenamiphos)

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## 15. REGULATORY INFORMATION

### SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Fenamiphos	22224-92-6	1994-04-24

### SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### Massachusetts Right To Know Components

	CAS-No.	Revision Date
Fenamiphos	22224-92-6	1994-04-24

### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Fenamiphos	22224-92-6	1994-04-24

### New Jersey Right To Know Components

	CAS-No.	Revision Date
Fenamiphos	22224-92-6	1994-04-24

### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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## 16. OTHER INFORMATION

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

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
H300	Fatal if swallowed.
H300 + H310 + H330	Fatal if swallowed, in contact with skin or if inhaled
H310	Fatal in contact with skin.
H319	Causes serious eye irritation.

### HMIS Rating

Health hazard:	4
Chronic Health Hazard:	
Flammability:	1
Physical Hazard	0

### NFPA Rating

Health hazard:	4
Fire Hazard:	1
Reactivity Hazard:	0

### Further information

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**Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

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