

Order Number

Customer Number

1. Identification of the substance/preparation and of the company/undertaking

Product name : Phenylarsine Oxide **Catalog #** : 521000
Chemical formula : C₆H₅AsO **Supplier** : EMD Biosciences, Inc.
10394 Pacific Center Court
San Diego, CA 92121
(858)450-5558/(800)854-3417
FAX: (858)453-3552
Synonym : PAO; Oxophenylarsine

Emergency telephone number : Call Chemtrec®
 (800)424-9300 (within U.S.A.)
 (703)527-3887 (outside U.S.A.)

2. Composition / information on ingredients

Substance/Preparation : Substance

Chemical name*	CAS No.	EC Number	Symbol	R-Phrases
phenylarsine oxide	637-03-6	211-275-3	T+	R27/28, R34, R40

3. Hazards identification

Physical/chemical hazards : Not applicable.

Human health hazards : DANGER!
 MAY BE FATAL IF ABSORBED THROUGH SKIN OR IF SWALLOWED.
 CAUSES SEVERE RESPIRATORY TRACT, EYE AND SKIN BURNS.
 CANCER HAZARD.
 CAN CAUSE CANCER.
 BIRTH DEFECT HAZARD
 CONTAINS MATERIAL WHICH CAN CAUSE BIRTH DEFECT.
 CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, REPRODUCTIVE SYSTEM,
 LIVER, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS
 SYSTEM.

4. First-aid measures

First-Aid measures

Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion : If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. 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. Thoroughly clean shoes before reuse. Get medical attention immediately.
Eye Contact : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Effects and symptoms

Inhalation : Extremely hazardous in case of inhalation (lung corrosive). Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Over-exposure by inhalation may cause respiratory irritation.
Ingestion : Extremely hazardous in case of ingestion. May be fatal if swallowed. May cause burns to mouth, throat and stomach.
Skin Contact : Extremely hazardous in case of skin contact (corrosive, permeator). The amount of tissue damage depends on length of contact. Skin contact can produce inflammation and blistering. Skin contact may produce burns. Severe over-exposure can result in death.
Eye Contact : Extremely hazardous in case of eye contact (corrosive). Eye contact can result in corneal damage or blindness.
Aggravating conditions : Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

5. Fire-fighting measures

- Flammability of the Product** : May be combustible at high temperature.
- Extinguishing Media**
- Suitable** : SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
- Hazardous thermal (de)composition products** : These products are carbon oxides (CO, CO₂). Some metallic oxides.
- Special fire-fighting procedures** : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
- Protection of fire-fighters** : Be sure to use an approved/certified respirator or equivalent.

6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
- Small Spill and Leak** : Use appropriate tools to put the spilled solid in a convenient waste disposal container.
- Large Spill and Leak** : Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

7. Handling and storage

- Handling** : Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Never add water to this product. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 20°C (68°F).
- Packaging materials**
- Recommended use** : Use original container.

8. Exposure controls/personal protection

- Engineering measures** : Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Hygiene measures** : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
Phenylarsine Oxide	OSHA (United States, 1989). TWA: 0.5 mg/m ³ (1997). AFS (Sweden, 1996). NGV: 0.03 mg/m ³ (Belgium, 1998). mg/m ³ SUVA VL: 0.2 (Switzerland, 1997). MAK: 0.1 mg/m ³ Työterveyslaitos (Finland, 1998). TWA: 0.01 mg/m ³ Lijst Grenswaarden (Belgium, 2002). VL: 0.1 mg/m ³ 8 hour(s). Arbejdstilsynet (Denmark, 2002). GV: 0.01 mg/m ³ 8 hour(s). INSHT (Spain, 2003). TWA: 0.1 mg/m ³ 8 hour(s). Työterveyslaitos (Finland, 2002). TWA: 0.01 mg/m ³ 8 hour(s). NAOSH (Ireland, 2002). OEL: 0.1 mg/m ³ 8 hour(s). Nationale MAC-lijst (Netherlands, 2003). Notes: Legal TGG 15 min: 0.05 mg/m ³ 15 minute(s). TGG 8 uur: 0.025 mg/m ³ 8 hour(s). Arbejdstilsynet (Norway, 2001). AN: 0.01 mg/m ³ 8 hour(s). EH40-MEL (United Kingdom (UK), 2002). TWA: 0.1 mg/m ³ 8 hour(s). OSHA PEL (United States, 1993). TWA: 0.5 mg/m ³ 8 hour(s). TWA: 10 µg/m ³ 8 hour(s). OSHA PEL 1989 (United States, 1989). TWA: 0.5 mg/m ³ 8 hour(s). TWA: 10 µg/m ³ 8 hour(s).

Personal protective equipment

- Respiratory system** : Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
- Skin and body** : Synthetic apron.
- Hands** : Gloves.
- Eyes** : Splash goggles.



9. Physical and chemical properties

Physical state	: Solid. (Solid powder.)
Color	: Off-white.
Molecular Weight	: 168 g/mole
Melting Point	: 145.06 to 148.06°C (293.1 to 298.5°F)
Solubility	: Not available.
Flash point	: Not available.
Explosive properties	: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

10. Stability and reactivity

Stability	: The product is stable.
Conditions to avoid	: Not available.
Materials to avoid	: Reactive with oxidizing agents.
Hazardous Decomposition Products	: These products are carbon oxides (CO, CO ₂). Some metallic oxides.

11. Toxicological information

RTECS #	: CH8100000
Local effects	
Skin irritation	: Extremely hazardous in case of skin contact (corrosive).
Acute toxicity	: LD50: Not available. LC50: Not available.
Chronic toxicity	: Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Other Toxic Effects on Humans	: Toxic for humans or animal life. Extremely hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive), of ingestion, of inhalation (lung corrosive). May cause tumors. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract.
Specific effects	
Carcinogenic effects	: Classified + (Proven.) by OSHA. Classified 3 (Possible for human.) by European Union. Classified None. by NIOSH.
Mutagenic effects	: Not available.
Reproduction toxicity	: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [PROVEN].
Teratogenic effects	: Not available.

12. Ecological information

Ecotoxicity	: Not available.
Toxicity of the Products of Biodegradation	: The products of degradation are less toxic than the product itself.

13. Disposal considerations

Methods of disposal; Waste of residues; Contaminated packaging	: Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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14. Transport information

International transport regulations

UN number : UN1557
Land - Road/Railway
Proper shipping name : Arsenic compound, solid, n.o.s.*
ADR/RID Class : CLASS 6.1: Toxic substance.
Packing Group : II
ADR/RID label :



Sea

Proper shipping name : Arsenic compound, solid, n.o.s.*
IMDG Class : CLASS 6.1: Toxic substance.
Packing Group : II
IMDG label :



Air

Proper shipping name : Arsenic compound, solid, n.o.s.*
UN/ID Number : UN1557
IATA-DGR Class : CLASS 6.1: Toxic substance.
Packing Group : II
IATA label :



Special Provisions for Transport : Not available.

15. Regulatory information

EU Regulations

Hazard symbol(s) :



Classification :

Very toxic

Risk Phrases :

R27/28- Very toxic in contact with skin and if swallowed.
R34- Causes burns.
R40- Limited evidence of a carcinogenic effect.

Safety Phrases :

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S27- Take off immediately all contaminated clothing.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains :

- phenylarsine oxide

U.S. Federal Regulations

TSCA 8(b) inventory: phenylarsine oxide
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: phenylarsine oxide
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: phenylarsine oxide: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
SARA 313 toxic chemical notification and release reporting: phenylarsine oxide
Clean Water Act (CWA) 307: phenylarsine oxide
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

HCS Classification :

CLASS: May cause cancer.
CLASS: Highly toxic.
CLASS: Corrosive material

State Regulations :

Pennsylvania RTK: phenylarsine oxide: (environmental hazard, generic environmental hazard)
New Jersey: phenylarsine oxide

CEPA DSL: phenylarsine oxide

16. Other information

**Hazardous Material
Information System
(U.S.A.)**

Health	*	3
Fire Hazard		1
Reactivity		0
Personal Protection		

**National Fire
Protection Association
(U.S.A.)**



Notice to Reader

*To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. **This product is intended for research use only.***

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