

p-Aminophenyl Arsenoxide

sc-212497

Material Safety Data Sheet



The Power to Question

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

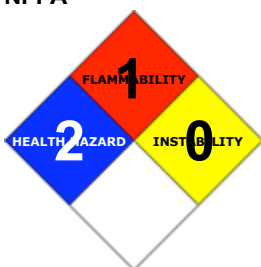
PRODUCT NAME

p-Aminophenyl Arsenoxide

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
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EMERGENCY:

ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

C6-H6-As-N-O, H₂NC₆H₄As=O, "aniline, p-arsenoso-", p-arsenosoaniline, "4-aminophenylarsine oxide dihydrate [CAS RN: 73791-39-6]"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	3		
Body Contact:	2		
Reactivity:	1		
Chronic:	4		
			Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Limited evidence of a carcinogenic effect.

Toxic by inhalation and if swallowed.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

■ The substance and/or its metabolites may bind to hemoglobin inhibiting normal uptake of oxygen.

This condition, known as "methemoglobinemia", is a form of oxygen starvation (anoxia).

■ Ingestion may produce nausea, vomiting and diarrhea, bloody stools, shock, rapid pulse and coma.

Severe gastritis or gastroenteritis may occur as a result of lesions produced by vascular damage from absorbed arsenic (and not local corrosion); symptoms may be delayed for several hours.

EYE

■ Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn).

Slight abrasive damage may also result.

SKIN

■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

■ There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Arsenic can cause skin irritation characterized by eczema, scaling, sensitization, and discoloration and thickening of the palms and soles.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ Inhalation of dusts, generated by the material, during the course of normal handling, may produce toxic effects.

■ There is some evidence to suggest that the material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

■ Inhaling materials containing arsenic can cause severe irritation to the nose, throat and lungs.

Prolonged exposure can cause severe structural damage to the nose.

CHRONIC HEALTH EFFECTS

■ There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

There is limited evidence that, skin contact with this product is more likely to cause a sensitization reaction in some persons compared to the general population.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Long-term exposure to arsenic and its inorganic salts may produce loss of appetite, nausea and vomiting, low fever, persistent headache, pallor, weakness and phlegm. Skin effects include redness, eczema, pigmentation, diffuse hair loss, scaling of the palms and soles, sloughing, brittle nails, white lines or bands on the nails, loss of hair and nails, and localized swelling.

Most arylamines are powerful poisons to the blood-making system. High chronic doses cause congestion of the spleen and tumor formation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
4-aminophenylarsine oxide	1122-90-3	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

■ For acute or short term repeated exposures to arsenic, soluble compounds: Treat as per arsenic poisoning.

· Acute skin lesions such as contact dermatitis usually do not require other treatment than removal from exposure.

· If more severe symptoms of the respiratory system, the skin or the gastro-intestinal tract occur, British Anti-Lewisite (BAL, dimercaprol) may be given. Prompt administration in such cases is vital; to obtain maximum benefit such treatment should be administered within 4 hours of poisoning.

* Preplacement and periodic medical examinations are essential for workers exposed to arsenic on a regular basis. Preplacement physical examinations should give particular attention to allergic and chronic skin lesions, eye disease, psoriasis, chronic eczematous dermatitis, hyperpigmentation of the skin, keratosis and warts, baseline weight, baseline blood and haemoglobin counts, baseline urinary arsenic determinations.

Annual physical examinations should give attention to general health, weight, skin condition, and any evidence of excessive exposure or absorption of arsenic.

The material may induce methemoglobinemia following exposure.

· Initial attention should be directed at oxygen delivery and assisted ventilation if necessary. Hyperbaric oxygen has not demonstrated substantial benefits.

· Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Negligible
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

· Water spray or fog.
· Foam.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Combustible solid which burns but propagates flame with difficulty.

· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.

Combustion products include: carbon monoxide (CO), carbon dioxide (CO₂), nitrogen oxides (NO_x), sulfur oxides (SO_x), metal oxides, arsenic compounds, other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Gloves:
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

· Clean up waste regularly and abnormal spills immediately.

- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).
- Dampen with water to prevent dusting before sweeping.
- Place in suitable containers for disposal.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS

- Lined metal can, Lined metal pail/drum
- Plastic pail.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	4-aminophenylarsine oxide (Arsenic and compounds (as As))	-	0.5	-	0.5				
Canada - Ontario Occupational Exposure Limits	4-aminophenylarsine oxide (*Arsenic, elemental arsenic and inorganic compounds, and organic compounds (only where both inorganic and organic compounds are present), as As. / Arsenic, arsenic composés inorganiques, et composés organiques (seulement lorsque les composés inorganiques et organiques sont tous les deux présents), en As)		0.01		0.05				

Canada - Northwest Territories Occupational Exposure Limits (English)	4-aminophenylarsine oxide (Arsenic & soluble compounds (as As))	0.2	0.6
US - Oregon Permissible Exposure Limits (Z-1)	4-aminophenylarsine oxide (Arsenic, Organic - Compounds (as As))	0.5	
US - California Permissible Exposure Limits for Chemical Contaminants	4-aminophenylarsine oxide (Arsenic, organic compounds, as As)	0.2	
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.5	
US - Idaho - Limits for Air Contaminants	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.5	
US - Minnesota Permissible Exposure Limits (PELs)	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.5	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.5	
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.5	
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.5	
US - Hawaii Air Contaminant Limits	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.2	
US - Washington Permissible exposure limits of air contaminants	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.2	0.6
US - Alaska Limits for Air Contaminants	4-aminophenylarsine oxide (Arsenic, organic cmpds (as As))	0.5	
US OSHA Permissible Exposure Levels (PELs) - Table Z1	4-aminophenylarsine oxide (Arsenic, organic compounds (as As))	0.5	

US - Michigan
Exposure Limits
for Air
Contaminants
ENDOELTABLE

4-aminophenylarsine
oxide (Arsenic, organic
compounds (as As))

0.5

PERSONAL PROTECTION



RESPIRATOR

- particulate.

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

- Wear chemical protective gloves, eg. PVC.

NOTE: The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

OTHER

- Overalls.
- Eyewash unit.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	183.04
Melting Range (°F)	Not available	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

APPEARANCE

Off-white powder; mixes with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Contact with acids produces toxic fumes.
- Many arylamines (aromatic amines such as aniline, N-ethylaniline, o-toluidine, xylidine etc. and their mixtures) are hypergolic (ignite spontaneously) with red fuming nitric acid. When the amines are dissolved in triethylamine, ignition occurs at -60 deg. C. or less.
- Various metal oxides and their salts may promote ignition of amine-red fuming nitric acid systems. Soluble materials such as copper(I) oxide, ammonium metavanadate are effective; insoluble materials such as copper(II) oxide, iron(II) oxide, potassium dichromate are also effective.
- Avoid oxidizing agents, acids, acid chlorides, acid anhydrides.
- Arsine, an extremely poisonous (lethal) gas with a garlic odour can be generated when the material reacts with acids, alkalis or water in the presence of an active metal (zinc, aluminium, magnesium, sodium, iron etc.).
- Avoid strong acids, bases.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

4-aminophenylarsine oxide

TOXICITY AND IRRITATION

4-AMINOPHENYLARSINE OXIDE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Intraperitoneal (mouse) LD50: 4 mg/kg	Nil Reported

■ Arsenic is a potent toxicant that may exist in several oxidation states and in a number of inorganic and organic forms. Most cases of arsenic-induced toxicity in humans are due to exposure to inorganic arsenic, and there is an extensive database on the human health effects of the common arsenic oxides and oxyacids. Although there may be some differences in the potency of different chemical forms (e.g., arsenites tend to be somewhat more toxic than arsenates), these differences are usually minor. Humans may be exposed to organic arsenicals (mainly methyl and phenyl derivatives of arsenic acid) that are used in agriculture and to organic arsenicals found in fish and shellfish (arsenobetaine and arsenocholine). Although the toxicity of organic arsenicals has not been as extensively investigated as inorganic arsenicals, there are sufficient animal data to evaluate the toxicity of methyl arsenates (e.g., monomethylarsonic acid [MMA] and dimethylarsinic acid [DMA]) and roxarsone. The so-called "fish arsenic" compounds (e.g., arsenobetaine) are not thought to be toxic. The methylation of inorganic arsenic may yield metabolites that alter the cellular oxidation status by potentially inhibiting the reduction of glutathione disulfide. The alteration of the oxidation status of the cell by these arsenicals may lead to more serious cytotoxic effects.

It is generally accepted that the arsenic-carbon bond is quite strong and most mammalian species do not have the capacity to break this bond; thus, inorganic arsenic is not formed during the metabolism of organic arsenicals. In most species, including humans, ingested (or exogenous) MMA(V) and DMA(V) undergo limited metabolism, do not readily enter the cell, and are primarily excreted unchanged in the urine. This is in contrast to inorganic arsenic, which undergoes sequential reduction and methylation reactions leading to the formation of MMA and DMA. Inorganic As(V) is readily reduced to inorganic As(III), which is taken up by the cell. Within the cell (primarily in the liver), As(III) is methylated to form MMA(V), which is reduced to MMA(III); MMA(III) subsequently undergoes oxidative methylations to form DMA(V). DMA(V) is the primary excretion product in humans. Because inorganic and organic arsenicals exhibit distinct toxicokinetic characteristics, the health effects and MRLs are considered separately.

There are limited data on the toxicity of organic arsenicals following inhalation exposure in humans and animals and these data do not allow for identification of critical effects. Keratosis was observed in workers exposed to 0.065 mg/m³ arsenic acid (i.e., 4-aminophenyl arsenic acid); no alterations in gastrointestinal symptoms or haematological alterations were observed. In animals, very high concentrations (>3,000 mg/m³) of DMA results in respiratory distress, diarrhea, and erythematous lesions on the feet and ears. No adverse effects were observed in rats exposed to DMA concentrations as high as 100 mg DMA/m³ for 95 days.

Similarly, the available dermal toxicity data do not allow for identification of critical effects. Contact dermatitis was observed in workers applying DMA (and its sodium salt) and mild dermal irritation was observed in a Draize test in rabbits (adverse effect level not reported). Intermediate duration (21 days) exposure studies in rabbits did not result in systemic toxicity or skin irritation following 5 day/week exposure to 1,000 mg/kg/day MMA or DMA.

The preponderance of toxicity data for organic arsenicals involves oral exposure. Human data are limited to three case reports of individuals intentionally ingesting pesticides containing organic arsenicals. Gastrointestinal irritation (vomiting, nausea, and diarrhea) were consistently reported in these cases.

Animal data has primarily focused on the toxicity of MMA, DMA, and roxarsone; these data suggest that the targets of toxicity may differ between the compounds. Common signs of toxicity of the organic arsenicals in mice include depression of motility and respiration, irritability, ataxia and convulsions. Death appears to be due to respiratory depression. For DMA and TMAO, a period of increased spontaneous motility preceded the death of the mice. More than half of the mice that received a lethal dose of MMA, DMA or TMAO had diarrhoea, which may have contributed to their deaths.

The LD50s for the organic arsenicals are lower after parenteral administration than after oral administration.

Inorganic arsenic but not organic arsenic induces keratinocyte hyperproliferation and disrupts the process of terminal epidermal

differentiation in the epidermis.

Since methylation serves to expedite the excretion of inorganic arsenic, which is more toxic than organoarsenicals, issues such as whether demethylation occurs and if methylation is saturable, inducible, or inhibitable under expected environmental exposure conditions are critical.

Genotoxic effects induced by the organic arsenicals include excess tetraploids (DMA, TMAO), and mitotic arrest (MMA, DMA and TMAO) in Chinese hamster lung (V79) cells. Arsenocholine and arsenobetaine are not genotoxic in V79 cells. In mouse lymphoma cells (L5178Y/TK+/-), incubation of organic arsenicals for 4 h induced cytotoxicity and clastogenicity. MMA was more potent than DMA, but less so than the inorganic arsenicals.

In vitro studies have proven DMA to be a potent clastogenic agent, capable of inducing DNA damage including double strand breaks and cross-link formation.

Reports of successful cancer induction in animals by inorganic arsenic (arsenite and arsenate) have been rare, and most carcinogenic studies have used organic arsenicals such as DMA combined with other tumor initiators. In rats, the methylated arsenicals, dimethylarsinic acid promotes diethylnitrosamine-initiated liver tumors, whereas trimethylarsine oxide induces liver adenomas. There are a variety of potential mechanisms for arsenical-induced hepatocarcinogenesis, such as oxidative DNA damage, impaired DNA damage repair, acquired apoptotic tolerance, hyperproliferation, altered DNA methylation, and aberrant estrogen signaling. Some of these mechanisms may be liver specific/selective. Overall, accumulating evidence clearly indicates that the liver could be an important target of arsenic carcinogenesis.

Arsenic compounds are classified by the European Union as toxic by inhalation and ingestion and toxic to aquatic life and long lasting in the environment. IARC classify arsenic in drinking water as a confirmed human carcinogen (IARC 1).

CARCINOGEN

Arsenobetaine and other organic arsenic compounds that are not metabolized in humans	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3
4-aminophenylarsine oxide	US - Rhode Island Hazardous Substance List	IARC	C
ARSENIC (ORGANIC OR INORGANIC COMPOUNDS)	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC
ARSENIC COMPOUNDS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	HAZMAP, IARC
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IARC; IRIS; NTP 11th ROC
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	IARC

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
4-aminophenylarsine oxide	HIGH	No Data Available	LOW	MED

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Toxicity characteristic: use EPA hazardous waste number D004 (waste code E) if this substance, in a solid waste, produces an extract containing greater than 5 mg/L of arsenic.

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

† Puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible.

· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION



DOT:

Symbols: None Hazard class or Division: 6.1

Identification Numbers: UN3465 PG: III

Label Codes: 6.1 Special provisions: IB8, IP3, T1, TP33

Packaging: Exceptions: 153 Packaging: Non- bulk: 213

Packaging: Exceptions: 153 Quantity limitations: 100 kg

Passenger aircraft/rail:

Quantity Limitations: Cargo 200 kg Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: None

Hazardous materials descriptions and proper shipping names:

Organoarsenic compound, solid, n.o.s.

Air Transport IATA:

UN/ID Number: 3465 Packing Group: III

Special provisions: A3

Cargo Only

Packing Instructions: 200 kg Maximum Qty/Pack: 677

Passenger and Cargo Passenger and Cargo

Packing Instructions: 100 kg Maximum Qty/Pack: 670

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: 10 kg Maximum Qty/Pack: Y645

Shipping Name: ORGANOARSENIC COMPOUND, SOLID, N.O.S.

*(CONTAINS 4-AMINOPHENYLARSINE OXIDE)

Maritime Transport IMDG:

IMDG Class: 6.1 IMDG Subrisk: None

UN Number: 3465 Packing Group: III

EMS Number: F-A , S-A Special provisions: 223 274

Limited Quantities: 5 kg Marine Pollutant: Yes

Shipping Name: ORGANOARSENIC COMPOUND, SOLID, N.O.S.(contains 4-aminophenylarsine oxide)

Section 15 - REGULATORY INFORMATION

4-aminophenylarsine oxide (CAS: 1122-90-3,73791-39-6) is found on the following regulatory lists;

"International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","US - California Permissible Exposure Limits for Chemical Contaminants","US - Oregon Permissible Exposure Limits (Z-1)","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Skin contact may produce health damage*.
- Cumulative effects may result following exposure*.
- May produce discomfort of the respiratory system and skin*.

■ Possible skin sensitiser*.

* (limited evidence).

Ingredients with multiple CAS Nos

Ingredient Name CAS 4-aminophenylarsine oxide 1122-90-3, 73791-39-6

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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