Fisher Scientific

Material Safety Data Sheet

Arsenic Trioxide

Keep.

MSDS# 02070

Section 1 - Chemical Product and Company Identification

MSDS Name: Arsenic Trioxide

Catalog Numbers: A59I-100, A889-60

Synonyms: Arsenic Oxide; Arsenic Sesquioxide; Arsenous Oxide; Arsenous Acid Anhydride; Arsenous Acid

Company Identification:	Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410
For information in the US, call:	201-796-7100
Emergency Number US:	201-796-7100
CHEMTREC Phone Number, US:	800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#:	1327-53-3
Chemical Name:	Arsenic trioxide
%:	100.0
EINECS#:	215-481-4

Hazard Symbols: T+ N

Risk Phrases: 45 28 34 50/53

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! May be fatal if swallowed. Harmful if inhaled. This substance has caused adverse reproductive and fetal effects in animals. Poison! May cause central nervous system effects. May cause cardiac disturbances. May cause lung damage. May cause liver and kidney damage. Causes eye and skin irritation. May cause severe respiratory and digestive tract irritation with possible burns. Cancer hazard. May cause blood abnormalities. Contains inorganic arsenic. Target Organs: Kidneys, central nervous system, liver, lungs, cardiovascular system, red blood cells, skin.

Potential Health Effects

Eye: Contact produces irritation, tearing, and burning pain. May cause conjunctivitis.

Skin: Causes irritation with burning pain, itching, and redness. May cause dermatitis. Exposure to arsenic compounds may produce hyperpigmentation of the skin and hyperkeratoses of plantar and palmar surfaces as well as both primary irritation and sensitization types.

Ingestion: May be fatal if swallowed. Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause hemorrhaging of the digestive tract. Ingestion of arsenical compounds may cause burning of the lips, throat constriction, swallowing difficulties, severe abdominal pain, severe nausea, projectile vomiting, and profuse diarrhea. Ingestion of arsenic compounds can produce convulsions, coma, and possibly death within 24 hours.

Inhalation: May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Inhalation of arsenic compounds may lead to irritation of the respiratory tract and to possible nasal perforation. Long-term exposure to arsenic compounds may produce impairment of peripheral circulation.

May cause liver and kidney damage. Chronic inhalation may cause nasal septum ulceration and perforation. May cause anemia and other blood cell abnormalities. Chronic skin effects include: cracking, thickening, pigmentation,

Chronic: and drying of the skin. Arsenic trioxide can cause cancer in humans. Other long term effects include: anemia, liver and kidney damage. Chronic exposure to arsenical dust may cause shortness of breath, nausea, chest pains, and garlic odor.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Call a poison control center. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use extinguishing media appropriate to the surrounding fire. Substance is noncombustible.

Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Do NOT get water inside containers.

Autoignition Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: health: 3; flammability: 0; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Do not get water inside containers.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Do not allow contact with water. Use only with adequate ventilation or respiratory protection.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store in metal containers.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Arsenic trioxide	0.01 mg/m3 TWA (as As) (listed under Arsenic, inorganic compounds).	5 mg/m3 IDLH (as As) (listed under Arsenic, inorganic compounds).	10 æg/m3 TWA (as As) (listed under Arsenic, inorganic compounds).5 æg/m3 Action Level (as As); 10 æg/m3 TWA (as As, Cancer hazard - see 29

			CFR 19 10.1018, except Arsine) (listed under Arsenic,

OSHA Vacated PELs: Arsenic trioxide: None listed

Engineering Controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. See 29CFR 1910.1018 for regulatory requirements pertaining to all occupational exposures to inorganic arsenic.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Color: white

Odor: odorless

pH: Not available

Vapor Pressure: 66 mm Hg @ 312C

Vapor Density: Not available

Evaporation Rate: Negligible.

Viscosity: Not available

Boiling Point: 465 deg C (869.00°F)

Freezing/Melting Point: 312 deg C (593.60°F)

Decomposition Temperature: Not available

Solubility in water: 3.7% in water.

Specific Gravity/Density: 3.738

Molecular Formula: As2O3

Molecular Weight: 197.8414

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Dust generation, moisture, metals, excess heat.

Incompatibilities with Other Materials: Not available

Hazardous Decomposition Products: Excess heat, oxides of arsenic, arsine.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 1327-53-3: CG3325000

RTECS:

LD50/LC50: **CAS# 1327-53-3:** Oral, mouse: LD50 = 20 mg/kg; Oral, rabbit: LD50 = 20190 ug/kg; Oral, rat: LD50 = 10 mg/kg;

Carcinogenicity: Arsenic trioxide - California: carcinogen, initial date 2/27/87 (Arsenic, inorganic compounds). NTP: Known carcinogen (Arsenic, inorganic compounds). IARC: Group 1 carcinogen

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: Water flea Daphnia: LC50 = 0.038 mg/L; 24 Hr.; Unspecified
Bacteria: Phytobacterium phosphoreum: EC50 = 31.43-73.73 mg/L; 5,15,30 minutes; Microtox test

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: ARSENIC TRIOXIDE
Hazard Class: 6.1
UN Number: UN1561
Packing Group: II
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

USA RQ: CAS# 1327-53-3: 1 lb final RQ; 0.454 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T+ N

Risk Phrases:

R 45 May cause cancer.

R 28 Very toxic if swallowed.

R 34 Causes burns.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 53 Avoid exposure - obtain special instructions before use.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 1327-53-3: 3

Canada

CAS# 1327-53-3 is listed on Canada's DSL List

Canadian WHMIS Classifications: D1A, D2A

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 1327-53-3 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 1327-53-3 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 6/21/1999

Revision #8 Date 7/20/2009