**QUALIKEMS FINE CHEMICALS PVT. LTD.**
**5531,BASTI HARPHOOL SINGH,SADAR THANA ROAD,DELHI-06.**

Material Safety Data Sheet
Arsenic Trioxide

## Section 1 - Chemical Product and Company Identification

**MSDS Name:** Arsenic Trioxide
**Synonyms:** Arsenic Oxide; Arsenic Sesquioxide; Arsenous Oxide; Arsenous Acid Anhydride; Arsenous Acid

## Section 2 - Composition, Information on Ingredients

| CAS# | Chemical Name | Percent | EINECS/ELINCS |
|---|---|---|---|
| 1327-53-3 | Arsenic trioxide | 100.0 | 215-481-4 |

## Section 3 - Hazards Identification

### EMERGENCY OVERVIEW

Appearance: white solid.
**Danger!** May be fatal if swallowed. Cancer hazard. Poison! Contains inorganic arsenic. Harmful if inhaled. Causes eye and skin irritation. May cause severe respiratory and digestive tract irritation with possible burns. May cause central nervous system effects. May cause blood abnormalities. May cause lung damage. May cause cardiac disturbances. May cause liver and kidney damage. This substance has caused adverse reproductive and fetal effects in animals.
**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.
**Chronic:** 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, 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:** Treat symptomatically and supportively.

## 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.
**Flash Point:** Not applicable.
**Autoignition Temperature:** Not applicable.
**Explosion Limits, Lower:**Not available.
**Upper:** Not available.
**NFPA Rating:** (estimated) 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

**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**

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|---|---|---|---|
| Arsenic trioxide | 0.01 mg/m3 TWA (listed under Arsenic). | 5 mg/m3 IDLH (listed under Arsenic).5 mg/m3 IDLH (as As) (listed under Arsenic, inorganic compounds). | 0.5 mg/m3 TWA (listed under Arsenic).5 æg/m3 Action Level (as As); 10 æg/m3 PEL (as As. Cancer hazard - see 29 CFR 1 910.1018. Arsine excepted) (listed under Arsenic, inorganic compounds). |

**OSHA Vacated PELs:** Arsenic trioxide: No OSHA Vacated PELs are listed for this chemical.
**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

**Appearance:** 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
**Freezing/Melting Point:**312 deg C
**Decomposition Temperature:**Not available.
**Solubility:** 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:** Incompatible with chlorine trifluoride, fluorine, hydrogen fluoride, oxygen difluoride, and sodium chlorate. Can generate arsine, which is an extremely poisonous gas, when arsenic compounds contact acid, alkalies, or water in the presence of an active metal (zinc, aluminum, magnesium, manganese, sodium, iron, etc).
**Hazardous Decomposition Products:** Irritating and toxic fumes and gases, oxides of arsenic, arsine.
**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

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

- **ACGIH:** A1 - Confirmed Human Carcinogen (listed as 'Arsenic').A1 - Confirmed Human Carcinogen (listed as 'Arsenic, inorganic compounds').
- **California:** carcinogen, initial date 2/27/87 (listed as Arsenic, inorganic compounds).
- **NTP:** Known carcinogen (listed as Arsenic, inorganic compounds).
- **IARC:** Group 1 carcinogen (listed as Arsenic).

**Epidemiology:** In a large number of studies, exposure to inorganic arsenic compounds in drugs, food,

and water as well as in an occupational setting have been causally associated with the developmental of cancer, primarily of the skin and lungs.
**Teratogenicity:** Teratogenic effects, including exencephaly, skeletal defects, and genitourinay system defects, of arsenic compounds administered intravenously or intraperitoneally t high doses have been demonstrated in hamsters, rats and mice.
**Reproductive Effects:** May cause reproductive effects.
**Mutagenicity:** No information available.
**Neurotoxicity:** No information available.
**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Water flea Daphnia: LC50 = 0.038 mg/L; 24 Hr.; UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 31.43-73.73 mg/L; 5,15,30 minutes; Microtox test No data available.
**Environmental:** Terrestrial: Half-life in soil 6.5 years. Aquatic: Tends to bioaccumulate. Will biodegrade to arsine and will bioconcentrate.
**Physical:** No information available.
**Other:** No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
**RCRA P-Series:** CAS# 1327-53-3: waste number P012.
**RCRA U-Series:** None listed.

## Section 14 - Transport Information

| | IATA | |
|---|---|---|
| **Shipping Name:** | ARSENIC TRIOXIDE | ARSENIC TRIOXIDE |
| **Hazard Class:** | 6.1 | 6.1 |
| **UN Number:** | UN1561 | UN1561 |
| **Packing Group:** | II | II |

## Section 15 - Regulatory Information

**European / International Regulations**
**European Labeling in Accordance with EC Directives**
**Hazard Symbols:**
T+ N
**Risk Phrases:**
R 28 Very toxic if swallowed.
R 34 Causes burns.
R 45 May cause cancer.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Phrases:**
S 45 In case of accident or if you feel unwell, seek medical advice

immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.
S 60 This material and its container must be disposed of as hazardou
s waste.
S 61 Avoid release to the environment. Refer to special instructions
/safety data sheets.

## Section 16 - Additional Information

**MSDS Creation Date:** 6/21/1999
Revision #6 Date: 08/29/2004
Revision #7 Date: 08/28/2009
Revision #8 Date: 08/27/2014
Revision #9 Date: 08/26/2019
Revision #10Date: 08/25/2024



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