



LABORATORY CHEMICALS AND CONSUMABLES

# MATERIAL SAFETY DATA SHEET

## ARSENIC TRIOXIDE

### 1. Chemical Product and Company information.

**Product name:** Arsenic Trioxide

**Contact Information:**

Radchem cc  
PO Box 166982  
Brackendowns  
Alberton 1454  
Telephone : **011 867 3726 / 2864**

### 2. Hazard Identification

Very hazardous in case of ingestion. Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Severe over-exposure can result in death.

### 3. Composition / information on ingredients

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

**Synonym:** Arsenic oxide; Arsenic Trioxide

**Chemical Name:** Di-arsenic trioxide

**Chemical Formula:** As<sub>2</sub>O<sub>3</sub>

### 4. First Aid Measures

**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. Cold water may be used. Get medical attention.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact:** Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.



**Serious Inhalation:** Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**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

**Serious Ingestion:** Not available.

## **5. Fire-fighting measures**

**Flammability of the Product:** Non-flammable

**Fire Hazards in Presence of Various Substances:** Not available

**Explosion Hazards in Presence of Various Substances:** 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. Slightly explosive in presence of heat.

**Fire Fighting Media and Instructions:** Not applicable

**Special Remarks on Fire Hazards:** When heated to decomposition it emits toxic fumes. Arsenic trioxide + sodium chlorate for a spontaneously flammable mixture. Hydrogen fluoride + Arsenic trioxide react with incandescence.

**Special Remarks on Explosion Hazards:** Arsenic trioxide + zinc will explode on heating.

## **6. Accidental release measures**

**Small Spill:** Use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large Spill:** Poisonous solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapours. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## **7. Handling and storage**

**Precautions:** Keep locked up. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. 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, metals, acids.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 24°C

## **8. Exposure controls/personal protection**

**Engineering Controls:** 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.

**Personal Protection:** Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:** 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.



## **9. Physical and chemical properties**

**Physical state and appearance:** Solid (Amorphous solid powder or lumps)

**Odour:** Odourless

**Taste:** Tasteless

**Colour:** White

**Boiling Point:** 465°C

**Melting Point:** 312.3°C

**Critical Temperature:** Not available

**Specific Gravity:** 3.74 (Water = 1)

**Odour Threshold:** Not available

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water

**Solubility:** Partially soluble in cold water, hot water. Very slightly soluble in diethyl ether. Soluble in dilute hydrochloric acid, in alkali hydroxide. Soluble in carbonate solution. Practically insoluble in alcohol. Practically insoluble in chloroform. Soluble in glycerine.

**Vapour Density:** Not available

**Volatility:** Not available

## **10. Stability and reactivity**

**Stability:** The product is stable

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials, moisture, dust generation, excess heat

**Incompatibility with various substances:** Reactive with oxidizing agents, metals, acids

**Corrosivity:** Non-corrosive in presence of glass

**Special Remarks on Reactivity:** Dangerous when heated to decomposition. It emits toxic fumes of Arsenic. Dissolves in alkali to form arsenites. Incompatible with tannic acid, infusion of Chincona & other vegetable astringent infusions & decoctions, iron (in solution). Forms toxic volatile halides in contact with halide acids. Forms volatile, highly toxic Arsine when reduced in acid solution. A vigorous reaction occurs between Oxygen Difluoride, Aluminium Chloride and Arsenic Trioxide. Chlorine Trifluoride + Arsenic Trioxide produces a violent reaction without flame. Can generate Arsine, which is an extremely poisonous gas, when arsenic compounds contact acid, alkalise, or water in the presence of an active metal (zinc, aluminium, manganese, sodium, iron, etc.)

**Special Remarks on Corrosivity:** Corrosive to metals in presence of moisture

**Polymerization:** Will not occur.

## **11. Toxicological information**

**Routes of Entry:** Inhalation. Ingestion

**Toxicity to Animals:** Acute oral toxicity (LD50): 14.6 mg/kg [Rat.].

**Chronic Effects on Humans:** CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. TERATOGENIC EFFECTS: Classified POSSIBLE for human. May cause damage to the following organs: blood, kidneys, liver, cardiovascular system, central nervous system (CNS).

**Other Toxic Effects on Humans:** Very hazardous in case of ingestion. Hazardous in case of skin contact (irritant), of inhalation



**Special Remarks on Toxicity to Animals:** Not available

**Special Remarks on Chronic Effects on Humans:** Passes through the placental barrier in human. May affect genetic material. May cause adverse reproductive (paternal and maternal effects as well as fetotoxicity or post implantation mortality) and birth defects (teratogen). May cause cancer (tumorigenic)

**Special Remarks on other Toxic Effects on Humans:** Acute Potential Health Effects: Skin: May cause skin irritation. Eyes: May cause eye irritation. May also affect vision. Inhalation: May cause respiratory tract irritation with sore throat, coughing, shortness of breath, and delayed lung edema. Ingestion: May be fatal if swallowed. Causes severe digestive tract irritation. Symptoms may include garlic-like odour of breath, garlic taste, possible bloody diarrhoea, Mee's Lines (transverse white lines on nails), abdominal pain, nausea, vomiting. May also affect the liver, blood (anaemia, haemolysis, pancytopenia), urinary tract (Kidneys), cardiovascular system (lowering of blood pressure and changes in EKG), behaviour/Central Nervous System, metabolism, and brain. Chronic Potential Health Effects: Skin: May cause dermatitis. Symptoms may include cracking, thickening, pigmentation and drying of the skin. Eyes: May cause irritation, and affect vision (photophobia, dimness of vision, diplopia).

## **12. Ecological information**

**Ecotoxicity:** Not available

**BOD5 and COD:** Not available

**Products of Biodegradation:** Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available

## **13. Disposal considerations**

**Waste Disposal:** Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## **14. Transport information**

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification :** Arsenic trioxide UNNA: 1561 PG: II

**Special Provisions for Transport:** Not available

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