

## Material Safety Data Sheet

Version 4.5

Revision Date 03/04/2013

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## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Arsenic(III) oxide

Product Number : 311383

Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

## 2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Carcinogen, Target Organ Effect, Highly toxic by ingestion, Corrosive

## GHS Classification

Acute toxicity, Oral (Category 2)

Skin corrosion (Category 1B)

Serious eye damage (Category 1)

Carcinogenicity (Category 1A)

Acute aquatic toxicity (Category 1)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H300

Fatal if swallowed.

H314

Causes severe skin burns and eye damage.

H350

May cause cancer.

H400

Very toxic to aquatic life.

Precautionary statement(s)

P201

Obtain special instructions before use.

P264

Wash hands thoroughly after handling.

P273

Avoid release to the environment.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER or doctor/ physician.

## HMIS Classification

Health hazard:

3

**Chronic Health Hazard:** \*  
**Flammability:** 0  
**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 3  
**Fire:** 0  
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
**Skin** May be harmful if absorbed through skin. Causes skin burns.  
**Eyes** Causes eye burns.  
**Ingestion** May be fatal if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Synonyms** : Arsenous acid  
Arsenic trioxide

**Formula** : As<sub>2</sub>O<sub>3</sub>  
**Molecular Weight** : 197.84 g/mol

Component		Concentration
<b>Arsenic trioxide</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
CAS-No.	1327-53-3	-
EC-No.	215-481-4	
Index-No.	033-003-00-0	

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**4. FIRST AID MEASURES**

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES**

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Arsenic oxides

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Remarks	Substance listed; for more information see OSHA document 1910.1017			
Arsenic trioxide	1327-53-3	TWA	0.01 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Lung cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen varies			
	See 1910.1018			
		C	0.002 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen OSHA considers 'Inorganic Arsenic' to mean copper acetoarsenite & all inorganic compounds containing arsenic except ARSINE. See Appendix A 15 minute ceiling value			

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Splash contact  
Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374  
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	powder
Colour	white

### Safety data

pH	no data available
Melting point/freezing point	Melting point/range: 312.3 °C (594.1 °F)
Boiling point	457.2 °C (855.0 °F) at 1,013 hPa (760 mmHg)
Flash point	not applicable
Ignition temperature	no data available
Auto-ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	0.000001 hPa (0.000001 mmHg) at 66 °C (151 °F)
Density	3.738 g/cm <sup>3</sup>
Water solubility	17.8 g/l at 20 °C (68 °F) - OECD Test Guideline 105
Partition coefficient: n-octanol/water	log Pow: 5
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

Heat.

**Materials to avoid**

Oxidizing agents, Metals

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Arsenic oxides

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 14.6 mg/kg

**Inhalation LC50**

no data available

**Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC: 1 - Group 1: Carcinogenic to humans (Arsenic trioxide)

1 - Group 1: Carcinogenic to humans (Arsenic trioxide)

NTP: Known to be human carcinogen (Arsenic trioxide)

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
<b>Ingestion</b>	May be fatal if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache

**Synergistic effects**

no data available

**Additional Information**

RTECS: CG3325000

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**12. ECOLOGICAL INFORMATION**

**Toxicity**

Toxicity to fish	mortality LOEC - Oncorhynchus gorbuscha - 16 mg/l - 3.0 d mortality NOEC - Oncorhynchus gorbuscha - 9.5 mg/l - 3.0 d LC50 - Oncorhynchus mykiss (rainbow trout) - > 1.000 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 8.23 mg/l - 24 h

**Persistence and degradability**

no data available

**Bioaccumulative potential**

Bioaccumulation	Lepomis cyanellus - Bioconcentration factor (BCF): 236
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**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life.

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**13. DISPOSAL CONSIDERATIONS**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 1561 Class: 6.1 Packing group: II  
Proper shipping name: Arsenic trioxide  
Reportable Quantity (RQ): 1 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 1561 Class: 6.1 Packing group: II EMS-No: F-A, S-A  
Proper shipping name: ARSENIC TRIOXIDE  
Marine pollutant: No

**IATA**

UN number: 1561 Class: 6.1 Packing group: II  
Proper shipping name: Arsenic trioxide

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**15. REGULATORY INFORMATION****OSHA Hazards**

Carcinogen, Target Organ Effect, Highly toxic by ingestion, Corrosive

**SARA 302 Components**

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Arsenic trioxide	1327-53-3	2008-11-03

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Arsenic trioxide	1327-53-3	2008-11-03

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Arsenic trioxide	1327-53-3	2008-11-03

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Arsenic trioxide	1327-53-3	2008-11-03

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Arsenic trioxide	1327-53-3	2008-11-03

**California Prop. 65 Components**

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. Arsenic trioxide	1327-53-3	2007-09-28

**California Prop. 65 Components**

	CAS-No.	Revision Date
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	1327-53-3	2007-09-28

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## 16. OTHER INFORMATION

### Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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