



# SAFETY DATA SHEET

**MATERION**

## 1. Identification

**Product identifier** Arsenic oxide (As<sub>2</sub>O<sub>3</sub>) powder

**Other means of identification**

SDS number 1BU

Materion Code 1BU

CAS number 1327-53-3

Synonyms diarseentrioxide \* Arsenous acid anhydride (arsenic(III) oxide) \* diarsenic trioxide; arsenic trioxide

### Manufacturer/Importer/Supplier/Distributor information

#### Manufacturer

**Company name** Materion Advanced Chemicals Inc.

**Address** 407 N 13th Street  
1316 W. St. Paul Avenue  
Milwaukee, WI 53233  
United States

**Telephone** 414.212.0257

**E-mail** advancedmaterials@materion.com

**Contact person** Noreen Atkinson

**Emergency phone number** Chemtrec 800.424.9300

## 2. Hazard(s) identification

**Physical hazards** Not classified.

**Health hazards**

Acute toxicity, oral	Category 2
Acute toxicity, inhalation	Category 3
Skin corrosion/irritation	Category 1B
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 1A

**Environmental hazards**

Hazardous to the aquatic environment, acute hazard	Category 1
Hazardous to the aquatic environment, long-term hazard	Category 1

**OSHA defined hazards** Not classified.

#### Label elements



**Signal word**

Danger

**Hazard statement**

Fatal if swallowed. May cause cancer. Causes severe skin burns and eye damage. Causes serious eye damage. Toxic if inhaled. Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to organs (). Causes damage to organs (respiratory system) through prolonged or repeated exposure. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

## Precautionary statement

### Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear eye protection/face protection. Wear protective gloves/protective clothing/eye protection/face protection.

### Response

If swallowed: Immediately call a poison center/doctor. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment (see this label). Wash contaminated clothing before reuse. Collect spillage.

### Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

### Hazard(s) not otherwise classified (HNOC)

None known.

### Supplemental information

None.

## 3. Composition/information on ingredients

### Substances

Chemical name	Common name and synonyms	CAS number	%
Arsenic oxide	diarseentrioxide Arsenous acid anhydride (arsenic(III) oxide) diarsenic trioxide; arsenic trioxide	1327-53-3	100

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

## 4. First-aid measures

### Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician if symptoms develop or persist.

### Skin contact

Take off immediately all contaminated clothing. Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. For minor skin contact, avoid spreading material on unaffected skin. Wash contaminated clothing before reuse.

### Eye contact

Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

### Ingestion

Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

### Most important symptoms/effects, acute and delayed

Corrosive effects. Burning pain and severe corrosive skin damage. Decrease in motor functions. May cause temporary blindness and severe eye damage. Behavioral changes. Narcosis. Jaundice. Liver enlargement. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Proteinuria. Permanent eye damage including blindness could result. Defatting of the skin. Edema. Prolonged exposure may cause chronic effects.

### Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

<b>General information</b>	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.
<b>5. Fire-fighting measures</b>	
<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Wear suitable protective equipment.
<b>Fire fighting equipment/instructions</b>	Use water spray to cool unopened containers. Water runoff can cause environmental damage.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.
<b>6. Accidental release measures</b>	
<b>Personal precautions, protective equipment and emergency procedures</b>	Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Absorb in vermiculite, dry sand or earth and place into containers. Collect dust using a vacuum cleaner equipped with HEPA filter.  Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.  Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.  Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
<b>Environmental precautions</b>	Avoid release to the environment. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.
<b>7. Handling and storage</b>	
<b>Precautions for safe handling</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Do not get this material on clothing. Do not taste or swallow. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains. Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Store locked up. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. ACGIH Threshold Limit Values

Material	Type	Value
Arsenic oxide (CAS 1327-53-3)	TWA	0.01 mg/m <sup>3</sup>

#### US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Arsenic oxide (CAS 1327-53-3)	Ceiling	0.002 mg/m <sup>3</sup>

#### US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

Material	Type	Value
Arsenic oxide (CAS 1327-53-3)	PEL	0.01 mg/m <sup>3</sup>
	TWA	0.005 mg/m <sup>3</sup>

### Biological limit values

#### ACGIH Biological Exposure Indices

Material	Value	Determinant	Specimen	Sampling Time
Arsenic oxide (CAS 1327-53-3)	35 µg/l	Inorganic arsenic, plus methylated metabolites, as As	Urine	*

\* - For sampling details, please see the source document.

### Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust/particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. Eye wash facilities and emergency shower must be available when handling this product.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear eye/face protection. Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.

#### Skin protection

**Hand protection** Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

**Other** Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. It may provide little or no thermal protection. Wear protective gloves.

**Respiratory protection** Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

When using, do not eat, drink or smoke. Do not get this material on clothing. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

## 9. Physical and chemical properties

**Appearance** Powder.

<b>Physical state</b>	Solid.
<b>Form</b>	Powder.
<b>Color</b>	Not available.
<b>Odor</b>	Not available.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	525.2 °F (274 °C) 595.4 °F (313 °C)
<b>Initial boiling point and boiling range</b>	860 °F (460 °C)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	< 0.0000001 kPa at 25 °C
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Density</b>	4.15 g/cm <sup>3</sup> estimated
<b>Explosive properties</b>	Not explosive.
<b>Molecular formula</b>	As <sub>2</sub> O <sub>3</sub>
<b>Molecular weight</b>	197.84 g/mol
<b>Oxidizing properties</b>	Not oxidizing.
<b>Specific gravity</b>	4.15

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Contact with incompatible materials.
<b>Incompatible materials</b>	None known.
<b>Hazardous decomposition products</b>	Arsenic.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Toxic if inhaled.
<b>Skin contact</b>	Causes severe skin burns.
<b>Eye contact</b>	Causes severe eye burns. Causes serious eye damage.
<b>Ingestion</b>	Fatal if swallowed. Causes digestive tract burns.

**Symptoms related to the physical, chemical and toxicological characteristics** Burning pain and severe corrosive skin damage. Behavioral changes. Decrease in motor functions. Narcosis. Jaundice. Causes serious eye damage. Liver enlargement. Proteinuria. Dusts may irritate the respiratory tract, skin and eyes. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Edema. Defatting of the skin.

### Information on toxicological effects

<b>Acute toxicity</b>	Fatal if swallowed. Causes severe skin burns and eye damage. Toxic if inhaled.
<b>Skin corrosion/irritation</b>	Causes severe skin burns and eye damage.
<b>Serious eye damage/eye irritation</b>	Causes severe eye burns. Causes serious eye damage.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Due to lack of data the classification is not possible.
<b>Skin sensitization</b>	Due to lack of data the classification is not possible.
<b>Germ cell mutagenicity</b>	Suspected of causing genetic defects.
<b>Carcinogenicity</b>	Cancer hazard.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Arsenic oxide (CAS 1327-53-3) 1 Carcinogenic to humans.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Arsenic oxide (CAS 1327-53-3) Cancer

#### US. National Toxicology Program (NTP) Report on Carcinogens

Arsenic oxide (CAS 1327-53-3) Known To Be Human Carcinogen.

<b>Reproductive toxicity</b>	May damage fertility or the unborn child.
<b>Specific target organ toxicity - single exposure</b>	Causes damage to organs ().
<b>Specific target organ toxicity - repeated exposure</b>	Causes damage to organs () through prolonged or repeated exposure.
<b>Aspiration hazard</b>	Due to lack of data the classification is not possible.
<b>Chronic effects</b>	Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
Arsenic oxide (CAS 1327-53-3)			
<b>Aquatic</b>			
Crustacea	EC50	Snail (Potamopyrgus antipodarum)	34.6 mg/l, 48 hours
Fish	LC50	Snake-head catfish (Channa punctata)	9.9 - 12.8 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	No data available.
<b>Mobility in soil</b>	No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

#### US RCRA Hazardous Waste P List: Reference

Arsenic oxide (CAS 1327-53-3) P012

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. Transport information

#### DOT

**UN number** UN1561  
**UN proper shipping name** Arsenic trioxide  
**Transport hazard class(es)**  
**Class** 6.1(PGI, II)  
**Subsidiary risk** -  
**Label(s)** 6.1  
**Packing group** II  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.  
**Special provisions** IB8, IP2, IP4, T3, TP33  
**Packaging exceptions** 153  
**Packaging non bulk** 212  
**Packaging bulk** 242

#### IATA

**UN number** UN1561  
**UN proper shipping name** Arsenic trioxide  
**Transport hazard class(es)**  
**Class** 6.1(PGI, II)  
**Subsidiary risk** -  
**Packing group** II  
**Environmental hazards** No.  
**ERG Code** 6L  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.  
**Other information**  
**Passenger and cargo aircraft** Allowed with restrictions.  
**Cargo aircraft only** Allowed with restrictions.

#### IMDG

**UN number** UN1561  
**UN proper shipping name** ARSENIC TRIOXIDE  
**Transport hazard class(es)**  
**Class** 6.1(PGI, II)  
**Subsidiary risk** -

<b>Packing group</b>	II
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-A, S-A
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

**DOT**



**IATA; IMDG**



**15. Regulatory information**

**US federal regulations**

All components are on the U.S. EPA TSCA Inventory List.  
 This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Arsenic oxide (CAS 1327-53-3)	Listed.
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**SARA 304 Emergency release notification**

Arsenic oxide (CAS 1327-53-3)	1 LBS
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**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Arsenic oxide (CAS 1327-53-3)	Cancer
	Liver
	Skin
	Respiratory irritation
	Nervous system
	Acute toxicity

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Arsenic oxide	1327-53-3	1		100	10000

**SARA 311/312 Hazardous chemical** Yes

**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Arsenic oxide	1327-53-3	100

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Arsenic oxide (CAS 1327-53-3)

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)**  
 Hazardous substance  
 Priority pollutant  
 Toxic pollutant

**Safe Drinking Water Act (SDWA)**  
 0 mg/l  
 0.010 mg/l

**US state regulations** WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Arsenic oxide (CAS 1327-53-3) Listed: February 27, 1987

**US - California Proposition 65 - CRT: Listed date/Developmental toxin**

Arsenic oxide (CAS 1327-53-3) Listed: May 1, 1997

**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

Arsenic oxide (CAS 1327-53-3)

**16. Other information, including date of preparation or last revision**

**Issue date** 05-26-2015

**Revision date** 02-22-2018

**Version #** 03

**Disclaimer**

Materion Advanced Chemicals Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.