SAFETY DATA SHEET

Version 6.8
Revision Date 10/27/2023
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Arsenic(III) oxide

Product Number : 311383
Brand : SIGALD
Index-No. : 033-003-00-0
CAS-No. : 1327-53-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Quimica S de RL de CV
Parque Industrial Toluca 2000
Calle 6 Norte No. 107
50200 TOLUCA
MEXICO

Telephone : +52 (0)1 800 007 5300
Fax : +52 (0)1 800 712 9920

1.4 Emergency telephone

Emergency Phone # : 800-00-214-00 (SETIQ)
800-681-9531 (CHEMTREC)
(55) 55-59-15-88

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 2), H300
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350
Specific target organ toxicity - repeated exposure (Category 1), Respiratory system, Cardio-vascular system, Gastrointestinal tract, H372
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 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.
H372	Causes damage to organs (Respiratory system, Cardio-vascular system, Gastrointestinal tract) through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	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.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Arsenous acid
Arsenic trioxide

Formula	:	As_2O_3
Molecular weight	:	197.84 g/mol
CAS-No.	:	1327-53-3
EC-No.	:	215-481-4
Index-No.	:	033-003-00-0

Component	Classification	Concentration
Arsenic trioxide		
	Acute Tox. 2; Skin Corr. 1B; Eye Dam. 1; Carc. 1A; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H314, H318, H350, H372, H400, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Arsenic oxides
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Arsenic trioxide	1327-53-3	TWA	0.01 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed human carcinogen		
		PEL	0.01 mg/m3	OSHA Specifically Regulated Chemicals/Carcinogens
		OSHA specifically regulated carcinogen		
		C	0.002 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen		
		PEL	0.01 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Color: white, light gray
b)	Odor	odorless
c)	Odor Threshold	Not applicable
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 313 °C (595 °F)
f)	Initial boiling point and boiling range	460 °C 860 °F at 1,013 hPa
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available

i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	0.000001 hPa at 66 °C (151 °F)
l)	Vapor density	No data available
m)	Density	3.738 g/cm3
	Relative density	3.8722.3 °C - OECD Test Guideline 109
n)	Water solubility	17.8 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - completely soluble
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of explosion with:
Aluminum
magnesium
Zinc
Violent reactions possible with:
halogens
Hydrogen halides
strong reducing agents
Bromine
Fluorine
halogen-halogen compounds
Hydrogen fluoride

nitrates
chlorates
Mercury

10.4 Conditions to avoid
Heat.
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 14.6 mg/kg
Remarks: (IUCLID)
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Remarks: Causes skin burns.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Remarks: Causes serious eye damage.

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Remarks: (in analogy to similar products)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli
Result: negative
Remarks: (ECHA)
The value is given in analogy to the following substances: sodium arsenite**Carcinogenicity**
May cause cancer. Positive evidence from human epidemiological studies.

IARC:	1 - Group 1: Carcinogenic to humans (Arsenic trioxide)
NTP:	Known - Known to be human carcinogen (Arsenic trioxide)
OSHA:	OSHA specifically regulated carcinogen (Arsenic trioxide)

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.
- Respiratory system, Cardio-vascular system, Gastrointestinal tract

Aspiration hazard
No data available

11.2 Additional Information

RTECS: CG3325000
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 12.6 mg/l - 96 h (US-EPA) Remarks: The value is given in analogy to the following substances: Disodium arsenate heptahydrate
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Daphnia magna (Water flea) - 1.5 mg/l - 48 h Remarks: (ECHA) The value is given in analogy to the following substances: sodium arsenite
Toxicity to bacteria	static test EC50 - activated sludge - 6.1 mg/l - 60 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 3.8 mg/l - 28 d Remarks: (ECHA) The value is given in analogy to the following substances: Disodium arsenate heptahydrate
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	LOEC - Daphnia magna (Water flea) - 10 mg/l - 21 d Remarks: (ECOTOX Database)
	NOEC - Daphnia magna (Water flea) - 1.85 mg/l - 21 d

Remarks: (ECOTOX Database)

12.2 Persistence and degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential
Bioaccumulation Lepomis cyanellus(Arsenic trioxide)

Bioconcentration factor (BCF): 236

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1561 Class: 6.1 Packing group: II
Proper shipping name: Arsenic trioxide
Reportable Quantity (RQ): 1 lbs
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 : yes

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

SECTION 15: Regulatory information

SARA 302 Components

	CAS-No.	Revision Date
Arsenic trioxide	1327-53-3	2010-08-02

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	2010-08-02

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Arsenic trioxide	1327-53-3	2010-08-02

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Arsenic trioxide	1327-53-3	2010-08-02

California Prop. 65 Components

	CAS-No.	Revision Date
, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.Arsenic trioxide	1327-53-3	2007-09-28

SECTION 16: Other information

Further information
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 and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.