

SAFETY DATA SHEET

Version 6.8
Revision Date 12/18/2024
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SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Sodium selenite
Product Number : 71950
Brand : Sigma-Aldrich
Index-No. : 034-003-00-3
CAS-No. : 10102-18-8

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

Identified uses : Laboratory chemicals, Synthesis of substances
Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES
Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity (Oral) : Category 2

Acute toxicity (Inhalation) : Category 2

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitization : Category 1

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 2

GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H300 + H330 Fatal if swallowed or if inhaled.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P260 Do not breathe dust.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
P284 Wear respiratory protection.

Response:
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Contact with acids liberates toxic gas.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Components

Chemical name	CAS-No.	Concentration (% w/w)
Sodium selenite	10102-18-8	>= 90 - <= 100

Actual concentration is withheld as a trade secret

SECTION 4. 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. Immediately call in physician.
If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

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

In case of eye contact : After eye contact: rinse out with plenty of water. 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 with-

in 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.

- 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
- Protection of first-aiders : For personal protection see section 8.
- Notes to physician : No data available

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water
Foam
Carbon dioxide (CO₂)
Dry powder
- Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.
- Specific hazards during fire fighting : Combustible.
- Development of hazardous combustion gases or vapours possible in the event of fire.
- Hazardous combustion products : Sodium oxides
Selenium/selenium oxides
- Specific extinguishing methods : No data available
- Further information : Suppress (knock down) gases/vapors/mists with a water spray jet.
Prevent fire extinguishing water from contaminating surface water or the ground water system.
- Special protective equipment for fire-fighters : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- 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.
Advice for emergency responders:
For personal protection see section 8.
- Environmental precautions : Do not let product enter drains.
- 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.

SECTION 7. HANDLING AND STORAGE

- For precautions see section 2.2.
- Advice on safe handling : Work under hood. Do not inhale substance/mixture.
- Further information on 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.
- Materials to avoid : Do not store near acids.
- Storage class : 6.1A, Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials
- Recommended storage temperature : Recommended storage temperature see product label.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis

Sodium selenite	10102-18-8	TWA	0.2 mg/m ³ (selenium)	OSHA Z-1
		TWA	0.2 mg/m ³ (selenium)	ACGIH
		TWA	0.2 mg/m ³ (selenium)	NIOSH REL

Engineering measures : No data available

Personal protective equipment

Respiratory protection : 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.

Recommended Filter type: : Filter type P3

The entrepreneur 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.

Hand protection

Material : Nitrile rubber
 Break through time : 480 min
 Glove thickness : 0.11 mm
 Protective index : Full contact
 Manufacturer : KCL 741 Dermatril® L

Material : Nitrile rubber
 Break through time : 480 min
 Glove thickness : 0.11 mm
 Protective index : Splash contact
 Manufacturer : KCL 741 Dermatril® L

Remarks : 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).

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Safety glasses

Skin and body protection : protective clothing

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder

Color : beige

Odor : odorless

Odor Threshold : No data available
pH : No data available

Melting point/ range : > 662 °F / > 350 °C

Boiling point/boiling range : No data available

Flash point : Not applicable

Evaporation rate : No data available

Burning rate : No data available

Self-ignition : > 752 °F / > 400 °C
1,013.25 hPa
Method: Relative self-ignition temperature for solids
not auto-flammable

Upper explosion limit /
Upper flammability limit : No data available

Lower explosion limit /
Lower flammability limit : No data available

Vapor pressure : < 0.00133 hPa (68 °F / 20 °C)
(Lit.)

Relative vapor density : No data available

Relative density : 3.1 (68 °F / 20 °C)

Density	:	3.1 g/cm ³ (68 °F / 20 °C)
Solubility(ies)		
Water solubility	:	898 g/l soluble, (Lit.) (77 °F / 25 °C)
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	Not applicable
Decomposition temperature	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Explosive properties	:	Not classified as explosive.
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Method: Regulation (EC) No. 440/2008, Annex, A.17
Molecular weight	:	172.94 g/mol
Particle characteristics		
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.
Reactivity	:	Contact with acids liberates toxic gas.
Chemical stability	:	The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	:	A risk of explosion and/or of toxic gas formation exists with the following substances: Acids Generates dangerous gases or fumes in contact with: Acids
Conditions to avoid	:	no information available
Incompatible materials	:	No data available

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

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 7 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity).

Lungs, Thorax, or Respiration:Dyspnea.

Diarrhea

(RTECS)

LC50 Inhalation - Rat - male and female - 4 h - > 0.052 - 0.51 mg/l - dust/mist

(OECD Test Guideline 403)

Dermal: No data available

No data available

Skin corrosion/irritation

Skin - human keratinocytes

Result: irritating

(OECD Test Guideline 439)

Serious eye damage/eye irritation

Remarks: No data available

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

May cause allergic skin reaction.

(OECD Test Guideline 429)

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster fibroblasts

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Species: Mouse

Cell type: Bone marrow

Application Route: Intraperitoneal

Result: negative
Remarks: (ECHA)

Carcinogenicity

- IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

Salivation, Tremors, Alopecia., Vomiting, Dermatitis

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The following applies to selenium compounds in general: strong irritant effect on mucous membranes, especially in the eye and in the respiratory tract (broncho-pneumonia, pulmonary oedema); selenium acts as an enzyme toxin already after the absorption of small doses; typical garlic odour of perspiration and breath; dermatitis is possible; long-term exposure results in impairments in the intermediary metabolism; toxic effect on liver, kidneys, urinary tract, gastrointestinal tract, spleen, bone marrow, heart, nerves (paralysis symptoms). Selenium is an essential trace element for man.

After absorption:

Other dangerous properties can not be excluded.

We have no description of any toxic symptoms.

This substance should be handled with particular care.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Sodium selenite:

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1.7 mg/l
End point: mortality
Exposure time: 96 h
Remarks: (ECOTOX Database)
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.1 mg/l
End point: mortality
Exposure time: 48 h
Test Type: static test
Remarks: (ECOTOX Database)
- Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.16 mg/l
End point: Growth inhibition
Exposure time: 30 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.24 mg/l
End point: mortality
Exposure time: 21 d
Remarks: (ECOTOX Database)

Persistence and degradability

Components:

Sodium selenite:

- Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential

Components:

Sodium selenite:

- Bioaccumulation : Species: Lepomis macrochirus
Bioconcentration factor (BCF): 1,850
Exposure time: 120 d
Concentration: 10 µg/l
- Partition coefficient: n-octanol/water : Remarks: Not applicable

Mobility in soil

No data available

Other adverse effects**Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : 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**International Regulations****IATA-DGR**

UN/ID No. : UN 2630
Proper shipping name : Selenites
(Sodium selenite)
Class : 6.1
Packing group : I
Labels : Division 6.1 - Toxic substances
Packing instruction (cargo : 673
aircraft)
Packing instruction (pas- : 666
senger aircraft)

IMDG-Code

UN number : UN 2630
Proper shipping name : SELENITES
(Sodium selenite)
Class : 6.1
Packing group : I
Labels : 6.1
EmS Code : F-A, S-A
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National regulation

49 CFR Road

UN/ID/NA number : UN 2630
Proper shipping name : Selenites
(Sodium selenite)
Class : 6.1
Packing group : I
Labels : Division 6.1 - Toxic substances
ERG Code : 151
Marine pollutant : no

Poison Inhalation Hazard : No

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Sodium selenite	10102-18-8		100
Sodium selenite	10102-18-8	100	100

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Sodium selenite	10102-18-8	100	100

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
Sodium selenite	10102-18-8	10000
Sodium selenite	10102-18-8	100*

*: Solid in the molten or powdered form (particles < 100 microns), in solution, or meeting the NFPA reactivity criteria

SARA 311/312 Hazards : Acute Health Hazard

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

Sodium selenite 10102-18-8 >= 90 - <= 100 %

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA Z-1 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); EC_x - Concentration associated with x% response; EHS - Extremely Hazardous Substance; EL_x - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErC_x - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC₅₀ - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC₅₀ - Lethal Concentration to 50 % of a test population; LD₅₀ - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or

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