



# SIGMA-ALDRICH

## Material Safety Data Sheet

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Version 1.10

### Section 1 - Product and Company Information

**Product Name** SODIUM NITRITE, 97+% A.C.S. REAGENT  
**Product Number** 237213  
**Brand** Aldrich Chemical  
**Company** Sigma-Aldrich  
**Street Address** 3050 Spruce Street  
**City, State, Zip, Country** SAINT LOUIS, MO 63103 US  
**Technical Phone:** 314 771 9765  
**Fax:** 800 325 5052  
**Emergency Phone:**

### Section 2 - Composition/Information on Ingredient

**Substance Name** SODIUM NITRITE **CAS #** 7632-00-0 **SARA 313**  
**Yes**

**Formula** HNO<sub>2</sub>Na  
**Synonyms** Anti-rust; Diazonizing salts; Dusitan sodny (Czech); Ernitt; Firmerine; Azodyn sodowy (Polish); Natrium nitrit (German); NCl-C02084; Nitrite de sodium (French); Sodium nitrite

### Section 3 - Hazards Identification

#### Emergency Overview

Oxidizing. Toxic.  
Contact with combustible material may cause fire. Toxic if swallowed. Harmful by inhalation. Irritating to eyes, respiratory system, and skin. Possible risk of irreversible effects.  
Target organ(s): Blood; Cardiovascular system.

#### HMS Rating

Health: 2 Flammability: 1 Reactivity: 3

#### NFPA Rating

Health: 2 Flammability: 1 Reactivity: 3

For additional information on toxicity, please refer to Section 11.

### Section 4 - First Aid Measures

**Oral Exposure**  
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

**Inhalation Exposure**  
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

**Dermal Exposure**  
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

**Eye Exposure**  
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

#### Extinguishing Media

**Suitable**  
Carbon dioxide, dry chemical powder, or appropriate foam.

#### Firefighting

**Protective Equipment**  
Wear self-contained breathing apparatus to prevent contact with skin and eyes.  
**Specific Hazards**  
Emits toxic fumes under fire conditions. Contact with other material may cause fire. May accelerate combustion.

### Section 6 - Accidental Release Measures

**Procedure to be Followed in Case of Leak or Spill**  
Evacuate area.

**Procedure(s) of Personal Precaution(s)**  
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

**Methods for Cleaning Up**  
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

### Section 7 - Handling and Storage

#### Handling

**User Exposure**  
Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### Storage

**Suitable**  
Keep away from combustible materials, heat, sparks, and open flame. Keep tightly closed. Store in a cool dry place.

### Section 8 - Exposure Controls / PPE

#### Engineering Controls

Use only in a chemical fume hood. Safety shower and eye bath.

#### Personal Protective Equipment

**Respiratory**  
NIOSH/MSHA-approved respirator.  
**Hand**  
Compatible chemical-resistant gloves.  
**Eye**  
Chemical safety goggles.

#### General Hygiene Measures

Wash thoroughly after handling. Remove and wash contaminated clothing promptly. Discard contaminated shoes.

### Section 9 - Physical/Chemical Properties

#### Appearance

**Color**  
Family yellow  
**Form**  
Fine crystals

**Molecular Weight:** 69 AMU

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pH	9
BP/BP Range	320 °C
MP/MP Range	271 °C
Freezing Point	N/A
Vapor Pressure	N/A
Saturated Vapor Conc.	N/A
SG/Density	2.168 g/cm <sup>3</sup>
Bulk Density	N/A
Odor Threshold	N/A
Volatile%	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A
Partition Coefficient	N/A
Decomposition Temp.	N/A
Flash Point °F	N/A
Flash Point °C	N/A
Explosion Limits	N/A
Flammability	N/A
Autoignition Temp	490 °C
Solubility	N/A

#### Section 10 - Stability and Reactivity

##### Stability

Conditions to Avoid  
Protect from moisture.

##### Materials to Avoid

Avoid contact with acid, Ammonia, Cyanides, Amines, Activated carbon.

##### Hazardous Decomposition Products

Hazardous Decomposition Products  
Carbon monoxide, Carbon dioxide.

##### Hazardous Polymerization

Hazardous Polymerization  
Will not occur.

#### Section 11 - Toxicological Information

##### Route of Exposure

##### Skin Absorption

May be harmful if absorbed through the skin.

##### Inhalation

Harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

##### Ingestion

Toxic if swallowed.

##### Multiple Routes

Causes eye and skin irritation.

##### Target Organ(s) or System(s)

Blood; Cardiovascular system; Smooth muscle.

##### Signs and Symptoms of Exposure

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. Exposure can cause: Headache, Nausea, Incoordination. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

##### Toxicity Data

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Oral - Rat: 180 mg/kg(LD50)

Oral - Rabbit: 186 mg/kg(LD50)

Eyes - Rabbit: 500 mg/kg MILD EYE IRRITATION)

Oral - Man: 321 mg/kg (LDLO)

Remarks: Behavioral/Coma

Lungs: Thorax, or Respiration;Cyanosis.

Blood;Methemoglobinemia-Carboxyhemoglobin.

Oral - Human: 71 mg/kg (LDLO)

Remarks: Behavioral/Coma.

Gastrointestinal;Nausea or vomiting.

Blood;Methemoglobinemia-Carboxyhemoglobin.

Oral - Child: 22 mg/kg (LDLO)

Remarks: Vascular;Other changes.

Oral - Rat: 180 mg/kg (LD50)

Inhalation - Rat: 5.5 mg/m<sup>3</sup> (LC50)

Subcutaneous - Rat: 96600 UG/KG (LD50)

Intravenous - Rat: 65 MG/KG (LD50)

Oral - Mouse: 175 mg/kg (LD50)

Remarks: Vascular;BP lowering not characterized in autonomic section.

Vascular;Regional or general arterial or venous dilation.

Intraperitoneal - Mouse: 158 MG/KG (LD50)

Oral - Rabbit: 186 mg/kg (LD50)

Oral - Chicken: 28,944 mg/kg (LD50)

##### Irritation Data

Eyes - Rabbit: 500 mg 24H

Remarks: Mild irritation effect

##### Chronic Exposure Carcinogen

Rat - Oral: 2190 GM/KG 2Y C  
Result: Tumorigenic;Carcinogenic by RTECS criteria. Gastrointestinal;Tumors.

Mouse - Oral:  
Result: Tumorigenic;Carcinogenic by RTECS criteria. Tumorigenic Effects: Uterine tumors. Lungs. Thorax, or Respiration;Tumors.

Rat - Oral: 63 GM/KG 95W C  
Result: Tumorigenic;Equivocal tumorigenic agent by RTECS criteria. Gastrointestinal;Tumors.

Rat - Oral: 91 GM/KG 2Y C  
Result: Tumorigenic;Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages; Other: Tumors. Tumorigenic Effects: Testicular tumors.

Rat - Oral: 183 GM/KG 2Y C  
Result: Tumorigenic;Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages; Other: Tumors. Tumorigenic Effects: Testicular tumors.

Rat - Oral: 100 GM/KG 2Y 1  
Result: Tumorigenic;Neoplastic by RTECS criteria. Liver;Tumors.

Rat - Oral: 40 GM/KG 56W C  
Result: Tumorigenic;Neoplastic by RTECS criteria. Liver;Tumors.

Rat - Oral: 365 GM/KG 2Y 1  
Result: Tumorigenic;Carcinogenic by RTECS criteria. Gastrointestinal;Tumors.

Chronic Exposure - Teratogen

Species Dose Route of Application Exposure Time

Rat 660 MG/KG Oral (1-22D PREG)

Result: Effects on Embryo or Fetus: Fetal death

Effects on Newborn: Growth statistics (e.g., reduced weight gain).

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Rat 400 MG/KG Intraperitoneal (10-19D PREG)  
 Result: Specific Developmental Abnormalities: Central nervous system.  
 Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).  
 Effects on Newborn: Behavioral.

Mouse 280 MG/KG Oral (1-14D PREG)  
 Result: Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).  
 Cattle, Horse 36 MG/KG Intravenous (30-31W PREG)  
 Result: Effects on Embryo or Fetus: Other effects to embryo.

**Chronic Exposure - Mutagen**

Species	Dose	Cell Type	Mutation Test
Human	6 MMOL/L	Hela cell	Unscheduled DNA synthesis
Human	2000 PPM	Fibroblast	DNA inhibition
Human	725 UMOL/L	Other cell types	DNA inhibition
Human	200 MMOL/L	S. typhimurium	Body fluid assay
Human	265 MG/L	Hela cell	Cytogenetic analysis
Rat	100 MG/KG		Cytogenetic analysis
Rat	2730 MG/KG	Oral	Cytogenetic analysis
Rat	69 MG/KG	Intraperitoneal	Cytogenetic analysis
Mouse	10 MMOL/L	Fibroblast	Morphological transformation.
Mouse	105 MMOL/L	Lymphocyte	DNA damage
Mouse	60 MG/KG	Oral	Cytogenetic analysis
Mouse	10 MMOL/L	Oral	Cytogenetic analysis
Mouse	5 MG/KG	Intraperitoneal	Sister chromatid exchange
Mouse	70400 UMOL/L	Lymphocyte	Mutation in mammalian somatic cells.
Mouse	1 MMOL/L	2D	Mutation in mammalian somatic cells.
Mouse	362 UMOL/KG	S. pombe	Host-mediated assay
Mouse	840 MG/KG	Oral	2W
Mouse	500 MG/KG	Oral	
Hamster	100 MG/KG	Oral	
Hamster	100 MMOL/L	24H	Other cell types
Hamster	50 MMOL/L	3H	Fibroblast
Hamster	100 PPM	3H	Lung
Hamster	530 MG/L	34H	Fibroblast
Hamster	20 MMOL/L		Embryo
Hamster	400 MG/L		Lung
Hamster	3 MMOL/L	Oral	Fibroblast
Hamster	100 MG/KG		Mutation in mammalian somatic cells.
Hamster	1000 PPM		Mutation in mammalian somatic cells.
Monkey	265 MG/L		Cytogenetic analysis
Mammal	1 MOL		DNA damage

**Chronic Exposure - Reproductive Hazard**

Species	Dose	Route of Application	Exposure Time
Rat	11 GM/KG	Oral	(1-22D PREG, 21D POST)
Rat			Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Biochemical and metabolic.
Rat	10280 MG/KG	Oral	(1-22D PREG/20D POST)
Rat			Result: Effects on Newborn: Wearing or lactation index (e.g., # alive at weaning per # alive at day 4).
Rat	6080 MG/KG	Oral	(20D POST)
Rat			Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Other postnatal measures or effects.
Mouse	1200 MG/KG	Oral	(6-15D PREG)
Mouse			Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female, total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetal death.
Mouse	1690 MG/KG	Oral	(14D MALE)
Mouse			Result: Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).

Mouse 840 MG/KG Oral (14D MALE)  
 Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

**Section 12 - Ecological Information**

No data available.

**Acute Toxicity Tests**

**Test Type**  
 EC50 Daphnia

**Species**  
 Daphnia magna

**Time:** 48.0 h  
**Value:** 66 mg/l

**Test Type**  
 LC50 Fish

**Species**  
 Oncorhynchus mykiss (Rainbow trout)

**Time:** 96.0 h  
**Value:** 0.20 mg/l

**Section 13 - Disposal Considerations**

**Appropriate Method of Disposal of Substance or Preparation**  
 Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

**Section 14 - Transport Information**

**DOT**

**Proper Shipping Name:** Sodium nitrite  
**UN#:** 1500  
**Class:** 5.1  
**Packing Group:** Packing Group III  
**Hazard Label:** Oxidizer  
**PIH:** Not PIH

**IATA**

**Proper Shipping Name:** Sodium nitrite  
**IATA Number:** 1500  
**Hazard Class:** 5.1  
**Packing Group:** III

**Section 15 - Regulatory Information**

**EU Directives Classification**  
**Symbol of Danger:** O T N

**Indication of Danger**  
 Oxidizing, Toxic, Dangerous for the environment.

**Risk Statements**  
 R: 8 25 50

**Safety Statements**  
 S: 45 61

**US Classification and Label Text**  
**Indication of Danger**  
 Oxidizing, Toxic

**Risk Statements**  
 Contact with combustible material may cause fire. Toxic if swallowed. Very toxic to aquatic organisms. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

**Safety Statements**

Keep away from combustible material. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.

**US Statements**

Target organ(s): Blood, Cardiovascular system.

**United States Regulatory Information**

SARA Listed: Yes

Densitrimils: 1 %

Notes: This product is subject to SARA section 313 reporting requirements.

TSCA Inventory Item: Yes

**Canada Regulatory Information**

**WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**Section 16 - Other Information**

**Disclaimer**

For R&D use only. Not for drug, household or other uses.

**Warranty**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Sigma-Aldrich Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2001 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.