

Material Safety Data Sheet

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Version 1.3

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	SODIUM AZIDE, 99.99+%
Product Number	438456
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
SODIUM AZIDE	26628-22-8	247-852-1	011-004-00-7

Formula	NaN ₃
Molecular Weight	65.01 AMU
Synonyms	Azide, sodium * Azoture de sodium (French) * Azydek sodu (Polish) * Kazoe * Natriumazid (German) * Natriummazide (Dutch) * NCI-C06462 * Nemazyd * NSC 3072 * RCRA waste number P105 * Smite * Sodium azide (ACGIH) * Sodium, azoture de (French) * Sodium, azoturo di (Italian) * U-3886

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Very toxic if swallowed. Contact with acids liberates very toxic gas. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

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

AFTER EYE CONTACT

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.

AFTER INGESTION

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

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Dry chemical powder.

Unsuitable: Do not use water.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

Explosion Hazards: Container explosion may occur under fire conditions. Azide reacts with many heavy metals such as lead, copper, mercury, silver, gold to form explosive compounds.

Copper and lead azides are more sensitive than nitroglycerine.

Azide reacts with metal halides to give a range of metal azide halides, many of which are explosive. Incompatible with chromyl chloride, hydrazine, bromine, carbon disulfide, dimethyl sulfate, dibromomalonitrile. An explosion occurred when a mixture of sodium azide, methylene chloride, dimethyl sulfoxide, and sulfuric acid were being concentrated on a rotary evaporator.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES 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.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Store in a cool dry place.

Incompatible Materials: Azide reacts with many heavy metals such as lead, copper, mercury, silver, gold to form explosive compounds. Copper and lead azides are more sensitive than nitroglycerine. Azide reacts with metal halides to give a range of metal azide halides, many of which are explosive.

Incompatible with chromyl chloride, hydrazine, bromine, carbon disulfide, dimethyl sulfate, dibromomalonitrile.

SPECIAL REQUIREMENTS: Heat sensitive.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

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

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	0.1 mg/m3
Poland		NDSCh	0.3 mg/m3
Poland		NDSP	

EXPOSURE LIMITS - EUROPEAN UNION

Source	Type	Value
OEL	OEL	0.1 mg/m3
Remarks: Skin		

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	0.3 mg/m3
Remarks: L		

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	0.2 mg/m3

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	0.3 mg/m3
Remarks: HT		

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	0.2 mg/m3
		0.07 ppm

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	STEL	0.3 mg/m3

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance Physical State: Solid
 Color: White
 Form: Fine crystals

Property	Value	At Temperature or Pressure
pH	10	
BP/BP Range	N/A	
MP/MP Range	275 °C	
Flash Point	N/A	
Flammability	N/A	

Autoignition Temp	N/A
Oxidizing Properties	N/A
Explosive Properties	N/A
Explosion Limits	N/A
Vapor Pressure	N/A
SG/Density	1.85 g/cm3
Partition Coefficient	N/A
Viscosity	N/A
Vapor Density	N/A
Saturated Vapor Conc.	N/A
Evaporation Rate	N/A
Bulk Density	N/A
Decomposition Temp.	N/A
Solvent Content	N/A
Water Content	N/A
Surface Tension	N/A
Conductivity	N/A
Miscellaneous Data	N/A
Solubility	Solubility in Water:1 M in H2O, 20°C complete, colorless

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: Heat sensitive.

Conditions to Avoid: Explodes when heated.

Materials to Avoid: Halogenated solvents Avoid contact with metals. Avoid contact with acid., Acid chlorides

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Nitrogen oxides Reacts with protic solvents (water, alcohols, amines, etc.) to release toxic hydrazoic acid

Hazardous Decomposition Products Formed Upon Contact with Water: Reacts with protic solvents (water, alcohols, amines, etc.) to release toxic hydrazoic acid

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: VY8050000

ACUTE TOXICITY

LDLO

Oral

Woman

786 mg/kg

Remarks: Behavioral:Convulsions or effect on seizure threshold.

Behavioral:Coma. Cardiac:Arrythmias (including changes in conduction).

LDLO

Oral

Man

29 mg/kg

Remarks: Brain and Coverings:Increased intracranial pressure.

Cardiac:Pulse rate. Lungs, Thorax, or Respiration:Acute pulmonary edema.

LDLO
Oral
Man
129 mg/kg
Remarks: Behavioral:Coma. Cardiac:Pulse rate. Cardiac:Other changes.

LDLO
Oral
Woman
14 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Cardiac:Arrhythmias (including changes in conduction). Cardiac:Change in force of contraction.

LDLO
Oral
Man
143 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Mydriasis (pupillary dilation). Behavioral:Somnolence (general depressed activity). Behavioral:Irritability.

LD50
Oral
Rat
27 mg/kg

LC50
Inhalation
Rat
37 mg/m³
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Structural or functional change in trachea or bronchi.

LD50
Skin
Rat
50 mg/kg

LD50
Subcutaneous
Rat
45100 UG/KG
Remarks: Peripheral Nerve and Sensation:Spastic paralysis with or without sensory change. Lungs, Thorax, or Respiration:Other changes.

LD50
Intratracheal
Rat
47500 UG/KG
Remarks: Peripheral Nerve and Sensation:Spastic paralysis with or without sensory change. Lungs, Thorax, or Respiration:Other changes.

LD50
Oral

Mouse
27 mg/kg

LC50
Inhalation
Mouse

32.4 mg/m³

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Structural or functional change in trachea or bronchi.

LD50
Intraperitoneal
Mouse

28 MG/KG

Remarks: Behavioral:Convulsions or effect on seizure threshold. Behavioral:Change in motor activity (specific assay). Lungs, Thorax, or Respiration:Respiratory stimulation.

LD50
Subcutaneous
Mouse

23060 UG/KG

Remarks: Peripheral Nerve and Sensation:Spastic paralysis with or without sensory change. Lungs, Thorax, or Respiration:Other changes.

LD50
Intravenous
Mouse
19 MG/KG

LD50
Skin
Rabbit
20 mg/kg

LD50
Oral
Bird (wild)
23.7 mg/kg

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause: Nausea, headache, and vomiting. Laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, demyelination of myelinated nerve fibers in the central nervous system, testicular damage, blindness, attacks of rigidity, and hepatic and cerebral effects.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be fatal if absorbed through skin.
Eye Contact: May cause eye irritation.
Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be fatal if swallowed.

TARGET ORGAN INFORMATION

Nerves. Heart. Brain.

CHRONIC EXPOSURE - CARCINOGEN

Rat
Route of Application: Oral
Exposure Time: 78W
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS
criteria. Endocrine: Tumors. Skin and Appendages: Other: Tumors.

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Route of Application: Oral
Exposure Time: 78W
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS
criteria. Endocrine: Tumors. Skin and Appendages: Other: Tumors.

CHRONIC EXPOSURE - MUTAGEN

Result: Laboratory experiments have shown mutagenic effects.

other insects
100 MG/L
Oral
Heritable translocation test

Human
30 MMOL/L
Cell Type: HeLa cell
DNA inhibition

Human
50 MG/L
Cell Type: fibroblast
DNA inhibition

Rat
1 MMOL/L
Cell Type: liver
Mutation in mammalian somatic cells.

Mouse
500 MG/L
2H
Cell Type: lymphocyte
Mutation in mammalian somatic cells.

Hamster
1 MMOL/L
Cell Type: lung
Mutation in mammalian somatic cells.

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: EC50 Daphnia
Species: Daphnia pulex
Time: 48 h
Value: 4.2 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 5.46 mg/l

Test Type: LC50 Fish

Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96 h
Value: 3.92 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1687
Class: 6.1
PG: II
Proper Shipping Name: Sodium azide

IMDG

UN#: 1687
Class: 6.1
PG: II
Proper Shipping Name: Sodium azide
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1687
Class: 6.1
PG: II
Proper Shipping Name: Sodium azide
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 011-004-00-7

INDICATION OF DANGER: T+ N

Very toxic. Dangerous for the environment.

R-PHRASES: 28 32 50/53

Very toxic if swallowed. Contact with acids liberates very toxic gas. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 28 45 60 61

After contact with skin, wash immediately with plenty of soap-suds. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

SWITZERLAND

SWISS POISON CLASS: 2

16 - Other Information

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. 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 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 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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