

MATERIAL SAFETY DATA SHEET

Date Printed: 06/30/2008

Date Updated: 06/26/2008

Version 1.8

Section 1 - Product and Company Information

Product Name SODIUM AZIDE
Product Number 13412
Brand SIAL

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
SODIUM AZIDE	26628-22-8	Yes

Formula NaN₃
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

RTECS Number: VY8050000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Highly Toxic (USA) Very Toxic (EU).

Heating may cause an explosion. Very toxic by inhalation, in contact with skin and if swallowed. Contact with acids liberates very toxic gas. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Readily absorbed through skin. Sodium azide may react with lead and copper plumbing to form highly explosive metal azides. Target organ(s): Nerves. Heart.

HMIS RATING

HEALTH: 4*

FLAMMABILITY: 0

REACTIVITY: 2

NFPA RATING

HEALTH: 4

FLAMMABILITY: 0

REACTIVITY: 2

*additional chronic hazards present.

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 immediately.

INHALATION EXPOSURE

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

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.

Section 5 - Fire Fighting Measures

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.

FLASH POINT

300 °C

EXTINGUISHING MEDIA

Suitable: Dry chemical powder.
Unsuitable: Do not use water.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

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 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.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

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

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	Ceiling	co0.29 MG/M3 (SODIUM AZIDE)
New Zealand	OEL		
Remarks: check ACGIH TLV			
USA	NIOSH	Ceiling	co0.1 PPM (SK)

EXPOSURE LIMITS

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

Section 9 - Physical/Chemical Properties

Appearance Physical State: Solid
Odor: Odorless

Property	Value	At Temperature or Pressure
Molecular Weight	65.01 AMU	
pH	10	
MP/MP Range	275 °C	
Vapor Pressure	0.01 hPa	20 °C
Vapor Density	2.2 g/l	

SG/Density 1.85 g/cm³ 20 °C
Bulk Density 0.8 kg/l
Decomposition Temp. 300 °C
Flash Point 300 °C
Solubility Solubility in Water:complete, colorless 1 M
in H₂O, 20°C
Solvent: Ethanol

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: Heat sensitive.

Conditions to Avoid: Do not grind or subject to frictional heat.

Keep from contact with oxidizing materials. Fire or excessive heat may cause explosive decomposition. Do not attempt to loosen or remove material from container with any tool.

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

Section 11 - Toxicological Information

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(S) OR SYSTEM(S)

Nerves. Heart. Brain.

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.

TOXICITY DATA

Oral

Woman

786 mg/kg

LDLO

Remarks: Cardiac:Arrythmias (including changes it conduction).

Behavioral:Coma. Behavioral:Convulsions or effect on seizure threshold.

Oral
Man
29 mg/kg
LDLO
Remarks: Lungs, Thorax, or Respiration:Acute pulmonary edema.
Brain and Coverings:Increased intracranial pressure.
Cardiac:Pulse rate.

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

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

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

Oral
Rat
27 mg/kg
LD50

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

Skin
Rat
50 mg/kg
LD50

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

Intratracheal
Rat
47500 UG/KG

LD50
Remarks: Peripheral Nerve and Sensation:Spastic paralysis with or without sensory change. Lungs, Thorax, or Respiration:Other changes.

Oral
Mouse
27 mg/kg
LD50

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

Intraperitoneal
Mouse
28 MG/KG
LD50
Remarks: Lungs, Thorax, or Respiration:Respiratory stimulation. Behavioral:Change in motor activity (specific assay). Behavioral:Convulsions or effect on seizure threshold.

Subcutaneous
Mouse
23060 UG/KG
LD50
Remarks: Lungs, Thorax, or Respiration:Other changes. Peripheral Nerve and Sensation:Spastic paralysis with or without sensory change.

Intravenous
Mouse
19 MG/KG
LD50

Skin
Rabbit
20 mg/kg
LD50

Oral
Bird (wild)
23.7 mg/kg
LD50

CHRONIC EXPOSURE - CARCINOGEN

Species: Rat
Route of Application: Oral
Dose: 2730 MG/KG
Exposure Time: 78W
Frequency: C
Result: Endocrine:Tumors. Skin and Appendages: Other: Tumors.
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria.

Species: Rat
Route of Application: Oral

Dose: 5460 MG/KG
Exposure Time: 78W
Frequency: C
Result: Skin and Appendages: Other: Tumors. Endocrine:Tumors.
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria.

NTP CARCINOGEN LIST

Rating: No evidence.
Species: Rat
Route: Gavage

ACGIH CARCINOGEN LIST

Rating: A4

CHRONIC EXPOSURE - MUTAGEN

Species: other insects
Route: Oral
Dose: 100 MG/L
Mutation test: Heritable translocation test

Species: Human
Dose: 30 MMOL/L
Cell Type: HeLa cell
Mutation test: DNA inhibition

Species: Human
Dose: 50 MG/L
Cell Type: fibroblast
Mutation test: DNA inhibition

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

Species: Mouse
Dose: 500 MG/L
Exposure Time: 2H
Cell Type: lymphocyte
Mutation test: Mutation in mammalian somatic cells.

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

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

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

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 azide
UN#: 1687
Class: 6.1
Packing Group: Packing Group II
Hazard Label: Toxic substances.
PIH: Not PIH

IATA

Proper Shipping Name: Sodium azide
IATA UN Number: 1687
Hazard Class: 6.1
Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: T+-N
Indication of Danger: Very toxic. Dangerous for the environment.
R: 28-32-50/53
Risk Statements: 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: 28-60-45-61
Safety Statements: After contact with skin, wash immediately with plenty of soap-suds. This material and its container must be disposed of as hazardous waste. 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.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Very Toxic (EU).
Risk Statements: Heating may cause an explosion. Very toxic by inhalation, in contact with skin and if swallowed. Contact with acids liberates very toxic gas. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Statements: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Wear suitable protective clothing, gloves, and eye/face protection. Do not breathe dust.
US Statements: Readily absorbed through skin. Sodium azide may react with lead and copper plumbing to form highly explosive metal azides. Target organ(s): Nerves. Heart.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

DEMINIMIS: 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.

DSL: Yes

NDSL: No

Section 16 - Other Information
