

Doc. No.: MSDS-0001E Rev.2

LAST UPDATE: January 12, 2010

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**SECTION 1: IDENTIFICATION**

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**CHEMICAL NAME** : Sodium azide  
**TRADE NAME AND SYNONYMS** : Sodium azide or NaN<sub>3</sub>

**COMPANY NAME**

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**SECTION 2: HAZARDS IDENTIFICATION**

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**GHS PRODUCT IDENTIFIER**

**SYMBOL**



**SIGNAL WORD** Danger

**HAZARD STATEMENT**

- Fatal if swallowed
- Fatal in contact with skin
- Causes severe skin burns and eye damage
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction
- Causes damage to organs <Circulatory>
- Causes damage to organs through prolonged or repeated exposure <Circulatory>
- Very toxic to aquatic life
- Very toxic to aquatic life with long lasting effects

**PREVENTION**

- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Avoid release to the environment.
- Do not get in eyes, on skin, or on clothing.

Wear protective gloves/protective clothing.  
Do not breathe dusts or mists.  
Avoid breathing dust/fume/gas/must/vapours spray.  
In case of inadequate ventilation wear respiratory protection.  
Contaminated work clothing should not be allowed out of the workplace.

## RESPONSE

Immediately call a Poison center or doctor/Physician.  
Rinse mouth.  
Remove/Take off immediately all contaminated clothing.  
Wash contaminated clothing before reuse.  
Get medical advice/attention if you feel unwell.  
Collect spillage.  
IF SWALLOWED: Immediately call a Poison center or doctor/Physician.  
IF ON SKIN: Gently wash with plenty of soap and water.  
Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
IF EXPOSED: Call a Poison center or doctor/Physician.  
IF EXPERIENCING RESPIRATORY SYMPTOMS: Call a Poison center or doctor/Physician.  
IF SKIN IRRITATION OR RASH OCCURS: Get medical advice/attention.

STORAGE Store locked up.

DISPOSAL Dispose of contents/container to in accordance with local/regional/national/international regulations.

## COUNTRY AND REGIONAL INFORMATION

### US CLASSIFICATION IDENTIFIER

NFPA RATINGS (SCALE 0-4): HEALTH=4 FIRE=1 REACTIVITY=3  
CARCINOGEN STATUS: OSHA: No  
NTP: No

### EU CLASSIFICATION IDENTIFIER

CLASSIFICATION T+: Very toxic; R28-R32  
N: Dangerous for the environment; R50-53

SPECIFIC Not available  
JPN CLASSIFICATION IDENTIFIER Fire and Disaster Management Act. Class 5.  
Poisonous and Deleterious Substances Control Act  
Law for PRTR and Promotion of Chemical Management

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**SECTION 3: COMPOSITION, INFORMATION ON INGREDIENTS**

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COMPONENT : Sodium azide (Single product)  
CHEMICAL FAMILY : Azide  
FORMULA :  $\text{NaN}_3$   
CAS NUMBER : 26628-22-8  
EC NUMBER (EINECS) : 247-852-1  
UN NUMBER : 1687  
PHYSICAL FORM : White crystals  
PURITY (wt. %) : 100%

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**SECTION 4 FIRST AID MEASURES**

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**IF INHALED:** Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
If breathing is difficult, remove victim to fresh air/oxygen and keep at rest in a position comfortable for breathing. Seek medical advice.

**IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continue rinsing. Seek medical advice.

**IF ON SKIN:** Gently wash with plenty of soap and water. Seek medical advice.  
Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

**IF SWALLOWED:** Immediately call a Poison center or doctor/Physician.  
Do not induce vomiting.  
Do not give anything by mouth to unconscious or convulsive person.

**NOTE TO PHYSICIAN:** For inhalation, consider oxygen. For ingestion, consider gastric lavage, activated charcoal slurry and catharsis.

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**SECTION 5 FIRE FIGHTING MEASURES**

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**FIRE AND EXPLOSION HAZARDS:**

Slight fire hazard.  
Severe explosion hazard.

**EXTINGUISHING MEDIA:**

use extinguishers whose the main component is dry graphite, Sodium chloride, or Anhydrous sodium carbonate.  
Never use extinguishing media that use water, foam, acid, alkali, halogenated compounds, carbon dioxide, sodium hydrogencarbonate, potassium hydrogencarbonate, or sodium dihydrogenphosphate.

**FIRE FIGHTING:**

- Move container from fire area if it can be done without risk.
- Wear self-contained breathing apparatus as the material evolve large amount of irritating gas.
- Keep unnecessary people away, isolate hazard area and deny entry.

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**SECTION 6 ACCIDENTAL RELEASE MEASURES**

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**OCCUPATIONAL RELEASE:**

- Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- Do not touch spilled material.
- Stop leak if possible without personal risk.
- Reduce vapors with water spray.
- Keep unnecessary people away, isolate hazard area and deny entry.
- Small spills:           Absorb with sand or other non-combustible material.  
Collect spilled material in appropriate container for disposal. Small dry spills: Move containers away from spill to a safe area.
- Large spills:           Dike for later disposal. Ventilate closed spaces before entering.

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**SECTION 7 HANDLING AND STORAGE**

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- Store and handle in accordance with all current regulations and standards.
- Store in a tightly closed container. – Store locked up.
- Store in a normal temperature, dry place. Store in a well-ventilated area.
- Store away from other materials.
- Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

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**SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION**

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**EXPOSURE LIMITS:**

**SODIUM AZIDE:**                                   0.1 ppm OSHA ceiling (skin) (vacated by 58 FR 35338, June 30, 1993)

**MEASUREMENT METHOD:**                   Particulate filter/Silica gel tube (with special coating); Sodium bicarbonate/Sodium carbonate; Ion chromatography/Ultraviolet-visible spectrophotometry

**VENTILATION:**                               Provide local exhaust or process enclosure ventilation system.  
Ensure compliance with applicable exposure limits.

**EYE PROTECTION:**                       Wear splash resistant safety goggles with a faceshield.  
Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:**                                   Wear appropriate chemical resistant clothing.

**GLOVES:**                                     Wear appropriate chemical resistant gloves.

**RESPIRATOR:**                               Under conditions of frequent use or heavy exposure, respiratory protection

may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any supplied-air respirator with a full facepiece that is operated in a pressure demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

For Unknown Concentrations or Immediately Dangerous to Life or Health

-Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

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## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

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PHYSICAL STATE: solid

COLOR:	White crystals
PHYSICAL FORM:	Crystals
ODOR:	Not available
MOLECULAR WEIGHT:	65.01
MOLECULAR FORMULA:	NaN <sub>3</sub>
BOILING POINT:	Not applicable
MELTING POINT:	Not available
DECOMPOSITION POINT:	> 290 C
VAPOR PRESSURE:	Not applicable
VAPOR DENSITY:	Not applicable
SPECIFIC GRAVITY (water=1):	1.846
WATER SOLUBILITY:	29wt% at 20 C
PH:	Not applicable
VOLATILITY:	Not applicable
ODOR THRESHOLD:	Not available
EVAPORATION RATE:	Not applicable
SOLVENT SOLUBILITY:	
Soluble:	liquid ammonia
Slightly Soluble:	alcohol, benzene
Insoluble:	ether

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## SECTION 10 STABILITY AND REACTIVITY

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REACTIVITY: May explode when heated.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition.  
Avoid friction or contamination.

**INCOMPATIBILITIES:** acids, metal salts, halogens, reducing agents, metals, combustible materials, oxidizing materials

**SODIUM AZIDE:**

<b>ACIDS:</b>	Produces explosive compound.
<b>COPPER:</b>	Formation of an explosive compound.
<b>METALS (HEAVY):</b>	May form extremely explosive azides.

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## **SECTION 11 TOXICOLOGICAL INFORMATION**

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**TOXICITY DATA:** 27mg/kg intraperitoneal-mouse LD50

### **HEALTH EFFECTS:**

#### **INHALATION:**

**ACUTE EXPOSURE:** Vapors or fumes may cause irritation to the mucous membranes with coughing and sore throat. Other symptoms may include vasodilation with a moderate reduction in blood pressure, variable pulse rate, slight shortness of breath, bronchitis, pulmonary edema, headache, dizziness, unsteadiness, throbbing headaches, palpitation, fatigue, nausea, faintness, weakness in arms and legs, bradycardia, cyanosis, and collapse. Exposure to high concentrations may result in convulsions and death.

**CHRONIC EXPOSURE:** Workers exposed to 0.5 ppm reported headache and nasal stuffiness. Repeated or prolonged exposure may cause nose irritation, episodes of falling blood pressure, dizziness, and bronchitis.

#### **SKIN CONTACT:**

**ACUTE EXPOSURE:** May cause irritation with redness and pain. May be absorbed through the skin resulting in systemic toxicity as detailed in acute ingestion. The lethal dose reported in rabbits was 20 mg/kg.

**CHRONIC EXPOSURE:** Repeated or prolonged exposure to irritants may cause dermatitis.

#### **EYE CONTACT:**

**ACUTE EXPOSURE:** May cause irritation with redness, pain and blurred vision. Systemic toxic effects may occur.

**CHRONIC EXPOSURE:** Repeated or prolonged exposure to irritants may cause conjunctivitis.

#### **INGESTION:**

**ACUTE EXPOSURE:** Vasodilation with a prompt fall in blood pressure, lasting 10-15 minutes has resulted from human ingestion. Dizziness, pounding of the heart, faintness and myocardial ischemia were reported from 10-20 mg.

An aqueous solution containing 150 mg produced breathlessness, respiratory

distress, rapid pulse, and tachycardia within 5 minutes; nausea, vomiting, headache, restlessness, and diarrhea within 15 minutes. Later polydipsia, ECG changes, and leukocytosis occurred. Weakness and dizziness continued for 10 days. Cardiac arrhythmia, decreased cardiac output, altered mental status, pronounced acidosis, and noncardiogenic pulmonary edema preceded the death of an individual who ingested 10-20 grams of sodium azide. Ingestions of "several grams" caused collapse and death within 40 minutes. The pathologic findings included swelling of the brain and lungs, and mild fatty degeneration of the liver.

Other reported symptoms include: Abdominal pain and spasms, throbbing at base of brain, violent heart stimulation, general anesthesia, sweating, hypothermia, somnolence, kidney changes, urinary incontinence, loss of vision, rigidity, injury to the heart muscles, loss of consciousness, convulsions, coma, respiratory arrest, heart failure and death. In animals, hematuria and lesions in optic nerves and tracts have been reported.

**CHRONIC EXPOSURE:**

In humans, the administration of small amounts as an antihypertensive agent has caused hypotension and transient pounding sensations in the head. No other side effects were noted. Chronic feeding studies on dogs with doses of 3 and 10 mg/kg/day produced ataxia in the 27th week. Pathologic findings revealed lesions of the anterior and middle cerebral sections. Lethargy, labored breathing, lung congestion, hemorrhage and edema, and necrosis of the cerebrum and thalamus occurred in rats chronically fed 20 mg/kg of sodium azide in the diet. Oral administration of half the LD50 to rats caused death in 3 days, with accumulation of the compound in internal organs, and histopathological changes of the heart, lungs, kidneys, spleen, adrenals, and brain. Hepatic effects were also reported. Female rats fed 100 ppm of sodium azide in the diet for 18 months showed a significant increase in the incidence of pituitary chromophobe adenoma.

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**SECTION 12 ECOLOGICAL INFORMATION**

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**ECOTOXICITY DATA:**

FISH TOXICITY: 5460 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (*Pimephales promelas*)

INVERTEBRATE TOXICITY: 1000 ug/L 96 hour(s) LETH (Mortality) Crayfish (*Orconectes rusticus*)

PHYTOTOXICITY: 64 ug/L 72 month(s) (Physiological) Duckweed (*Lemna minor*)

ENVIRONMENTAL SUMMARY: Toxic to aquatic life.

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**SECTION 13 DISPOSAL CONSIDERATIONS**

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Dispose of contents/container to in accordance with local/regional/national/international regulations

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**SECTION 14 TRANSPORT INFORMATION**

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PROPER SHIPPING NAME: Sodium azide  
ID NUMBER: UN1687  
HAZARD CLASS OR DIVISION: 6.1  
PACKING GROUP: II  
LABELING REQUIREMENTS: Poison

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**SECTION 15 REGULATORY INFORMATION**

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U.S. REGULATIONS: TSCA INVENTORY STATUS: Yes  
JAPAN REGULATIONS Fire and Disaster Management Act. Class 5.  
Poisonous and Deleterious Substances Control Act  
Law for PRTR and Promotion of Chemical Management

**EUROPEAN REGULATIONS:****Export and Import of Dangerous Chemicals Information:**

This substance is not listed in the Annex I of Regulation (EC) No 689/2008.

**European Priority Lists and Risk Assessment Information:**

This substance is not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 on the evaluation and control of the risks of existing substances.).

**BIOCIDAL PRODUCTS DIRECTIVE INFORMATION:**

There is no information in ESIS for this substance with respect to the BPD(Directive 98/8/EC) .

EC CLASSIFICATION (ASSIGNED):T+ : Very Toxic

N : Dangerous for the environment

Symbol and Indications of danger



T+ : Very toxic



N : Dangerous for the environment

Risk Phrases :

R28 : Very toxic if swallowed.

R32 : Contact with acids liberates very toxic gas.

R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases :

S1/2 : Keep locked up and out of the reach of children.

S28 : After contact with skin, wash immediately with plenty of . . . (to be specified by the manufacturer).



S45 : In case of accident or if you feel unwell, seek medical advice immediately.

S60 : This material and its container must be disposed of as hazardous waste.

S61 : Avoid release to the environment. Refer to special instructions/Safety data sheets.

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#### **SECTION 16 OTHER INFORMATION**

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- The description above has been prepared on the basis of data and information obtained at the moment and may be revised with new knowledge in the future.
- The content of the description is the supply of information and not guaranteed values.
- Precautions described are applicable when the chemical is handled by the ordinary method, so if it is handled in a special manner, take special safety precautions necessary for the application.
- This SDS has been prepared according to the following Directives and all of their subsequent amendments: Directive 67-548-EEC, Directive 91-155-EEC, Directive 1999-45-EC and 2001/58/EC.

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