

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Hydrazine

Product Number : 215155
Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
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Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Combustible Liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Highly toxic by skin absorption, Skin sensitiser, Corrosive

Target Organs

Nerves., Blood, Liver, Kidney, Lungs

GHS Classification

Flammable liquids (Category 3)
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 1)
Acute toxicity, Dermal (Category 2)
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Skin sensitization (Category 1)
Carcinogenicity (Category 1B)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H226 Flammable liquid and vapour.
H301 Toxic if swallowed.
H310 + H330 Fatal in contact with skin or if inhaled
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H350 May cause cancer.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201 Obtain special instructions before use.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.
P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.
P501 Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard: 3
Chronic Health Hazard: *
Flammability: 2
Physical hazards: 0

NFPA Rating

Health hazard: 4
Fire: 2
Reactivity Hazard: 0

Potential Health Effects

Inhalation Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin May be fatal if absorbed through skin. Causes skin burns.
Eyes Causes eye burns.
Ingestion Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : H₄N₂
Molecular Weight : 32.05 g/mol

Component	Concentration
Hydrazine Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)	
CAS-No.	302-01-2
EC-No.	206-114-9
Index-No.	007-008-00-3

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx)

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Hydrazine	302-01-2	TWA	0.01 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Upper Respiratory Tract cancer Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption			
		TWA	0.1 ppm 0.1 mg/m ³	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		TWA	1 ppm 1.3 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Skin designation The value in mg/m ³ is approximate.			
		C	0.03 ppm 0.04 mg/m ³	USA. NIOSH Recommended Exposure Limits

Personal protective equipment**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Form	liquid, clear
Colour	colourless

Safety data

pH	no data available
Melting point/freezing point	1.4 °C (34.5 °F)
Boiling point	113.5 °C (236.3 °F) at 1,013 hPa (760 mmHg)
Flash point	52 °C (126 °F) - closed cup
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	4.7 %(V)
Upper explosion limit	99.99 %(V)
Vapour pressure	13 hPa (10 mmHg) at 30.70 °C (87.26 °F)
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	1.11 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Oxidizing agents, Oxygen, Copper, Zinc, Organic materials

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx)

Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - rat - 60 mg/kg

Inhalation LC50

LC50 Inhalation - mouse - 4 h - 252 ppm

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea.

Dermal LD50

LD50 Dermal - rabbit - 91 mg/kg

Other information on acute toxicity

no data available

Skin corrosion/irritation

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

May cause allergic skin reaction.

Germ cell mutagenicity

no data available

Carcinogenicity

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Hydrazine)

NTP: Reasonably anticipated to be a human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Hydrazine)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	Toxic if swallowed.
Skin	May be fatal if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.

Signs and Symptoms of Exposure

spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

Synergistic effects

no data available

Additional Information

RTECS: MU7175000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - <i>Poecilia reticulata</i> (guppy) - 0.28 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - <i>Daphnia pulex</i> (Water flea) - 0.16 mg/l - 48 h
Toxicity to algae	Growth inhibition NOEC - <i>Pseudokirchneriella subcapitata</i> - 0.001 mg/l - 3 d EC50 - <i>Pseudokirchneriella subcapitata</i> (green algae) - 0.071 mg/l - 72 h

Persistence and degradability

Biodegradability	Biotic/Aerobic Result: 28 % - Not readily biodegradable.
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Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2029 Class: 8 (3, 6.1) Packing group: I
Proper shipping name: Hydrazine, anhydrous
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN number: 2029 Class: 8 (3, 6.1) Packing group: I EMS-No: F-E, S-C
Proper shipping name: HYDRAZINE, ANHYDROUS
Marine pollutant: No

IATA

UN number: 2029 Class: 8 (3, 6.1) Packing group: I
Proper shipping name: Hydrazine, anhydrous
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

OSHA Hazards

Combustible Liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Highly toxic by skin absorption, Skin sensitiser, Corrosive

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Hydrazine	302-01-2	2007-07-01

SARA 313 Components

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

	CAS-No.	Revision Date
Hydrazine	302-01-2	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Hydrazine	302-01-2	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Hydrazine	302-01-2	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Hydrazine	302-01-2	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer.	302-01-2	2007-09-28

16. OTHER INFORMATION

Further information

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