

Material Safety Data Sheet

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Version 1.8

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 HYDRAZINE HYDRATE
Product Number 225819

Company Sigma-Aldrich Pty. Ltd.
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number	
HYDRAZINE HYDRATE	10217-52-4	206-114-9	007-008-00-3	
Ingredient Name	Percent	CAS #	EC no	Annex I Index Number
HAZARDOUS COMPONENTS:		None	None	None
HYDRAZINE ANHYDROUS	>= 50 <= 60	302-01-2	206-114-9	007-008-00-3

Carc. Cat.2

Symbols: T N

R-Phrases: 45 10 23/24/25 34 43 50/53

May cause cancer. Flammable. Also toxic by inhalation, in contact with skin and if swallowed. Causes burns. May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Formula H4N2⁺XH2O
Molecular Weight 50.05 AMU

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

May cause cancer. Flammable. Also toxic by inhalation, in contact with skin and if swallowed. Causes burns. May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Carc. Cat.2

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. Do not induce vomiting.

5 - Fire Fighting Measures

CONDITIONS OF FLAMMABILITY

Warning: hydrazine vapor in air is flammable at 4.7 to 100% hydrazine by volume - handle under nitrogen! Some metals and alloys including monel, bronze, brass, cadmium, gold, molybdenum, and stainless steel with more than 0.5% molybdenum or rust cause decomposition of hydrazine

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide. Dry chemical powder.

SPECIAL RISKS

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

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

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

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

STORAGE

Conditions of Storage: Keep tightly closed.

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. Discard contaminated shoes. Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

Special Protective Measures: Faceshield (8-inch minimum).

9 - Physical and Chemical Properties

Appearance	Physical State: Clear liquid Color: Colorless	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Flash Point	96 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 3.5 % Upper: 99.99 %	
Vapor Pressure	5 mmHg	25 °C
SG/Density	1.029 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	> 1 g/l	
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	N/A	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Oxidizing agents, Oxygen, Copper, Zinc, Organic materials.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: MV4590000

SENSITIZATION

Skin: May cause allergic skin reaction.

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause: CNS stimulation. Cyanosis. Salivation. Seizures. Diarrhea. Fever. Confusion. Hypoglycemia. Anorexia. Convulsions. Coma.

ROUTE OF EXPOSURE

Skin Contact: Causes burns.
Skin Absorption: Toxic if absorbed through skin. Readily absorbed through skin.
Eye Contact: Causes burns.
Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Toxic if inhaled.
Ingestion: Toxic if swallowed.

TARGET ORGAN INFORMATION

Nerves. Blood. Liver. Kidneys.

CHRONIC EXPOSURE - CARCINOGEN

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

IARC CARCINOGEN LIST

Rating: Group 2B Group 2B

CHRONIC EXPOSURE - MUTAGEN

Result: Laboratory experiments have shown mutagenic effects.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

CMR CAT.: Carc. Cat.2

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 2030
Class: 8
PG: II
Proper Shipping Name: Hydrazine hydrate

IMDG

UN#: 2030
Class: 8
PG: II
Subrisk: 6.1
Proper Shipping Name: Hydrazine hydrate
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 2030
Class: 8
PG: II
Subrisk: 6.1
Proper Shipping Name: Hydrazine, aqueous solution
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 007-008-00-3

NOTA: E

INDICATION OF DANGER: T N

Toxic. Dangerous for the environment.

R-PHRASES: 45 10 23/24/25 34 43 50/53

May cause cancer. Flammable. Also toxic by inhalation, in contact with skin and if swallowed. Causes burns. May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 53 45 60 61

Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. 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: 3

SWITZERLAND

SWISS POISON CLASS: 1

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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