

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** Anhydrous Hydrazine
- **Catalog or product number:** 1706820
- **CAS Number:**
302-01-2
- **EC number:**
206-114-9
- **Index number:**
007-008-00-3
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Composition/information on ingredients

- **Chemical characterization:** Substances
- **CAS No. Description:**
302-01-2 hydrazine
- **Identification number(s):**
- **EC number:** 206-114-9
- **Index number:** 007-008-00-3
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Toxic by ingestion.
Toxic by dermal absorption.
Toxic by inhalation.
Contains a suspect carcinogen.
Corrosive.
Irritant to skin.
Sensitizer by dermal contact.
Flammable.
May cause irreversible eye damage.
Irritant to respiratory system and skin.



T; Toxic

R45-23/24/25: May cause cancer. Toxic by inhalation, in contact with skin and if swallowed.

(Contd. on page 2)

USA


Material Safety Data Sheet

Printing date 08/01/2011


Reviewed on 09/09/2010

Trade name: Anhydrous Hydrazine


(Contd. of page 1)

 C; Corrosive

R34: Causes burns.

 Xi; Irritant

R43: May cause sensitization by skin contact.

 N; Dangerous for the environment

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

R10: Flammable.

Classification system:

The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.

Label elements**Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

Code letter and hazard designation of product:

Carc. Cat. 2

T Toxic

N Dangerous for the environment

Risk phrases:

45 May cause cancer.

10 Flammable.

23/24/25 Also toxic by inhalation, in contact with skin and if swallowed.

34 Causes burns.

43 May cause sensitization by skin contact.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

53 Avoid exposure - obtain special instructions before use.

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

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

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

Emergency overview:**Routes of exposure:**

Ingestion

Inhalation

Skin

Classification system**Special Hazards** Carcinogen.**4 First aid measures****General information**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air or oxygen; call for doctor.

(Contd. on page 3)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Anhydrous Hydrazine

(Contd. of page 2)

- In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact** Immediately wash with water and soap and rinse thoroughly.
 - **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
 - **After swallowing**
Do not induce vomiting; immediately call for medical help.
Drink copious amounts of water and provide fresh air. Immediately call a doctor.

5 Firefighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:**
Mount respiratory protective device.
Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

(Contd. on page 4)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Anhydrous Hydrazine

(Contd. of page 3)

· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Components with limit values that require monitoring at the workplace:**

302-01-2 hydrazine

PEL	1.3 mg/m ³ , 1 ppm Skin
REL	Short-term value: C 0.04* mg/m ³ , C 0.03* ppm *120-min
TLV	0.013 mg/m ³ , 0.01 ppm Skin

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Personal protective equipment**

· **General protective and hygienic measures**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:** Protective gloves.

· **Material of gloves** Synthetic gloves

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

- Safety glasses
- Tightly sealed goggles.

9 Physical and chemical properties

· **General Information**

· **Appearance:**

Form:	liquid
Color:	Colorless
Odor:	Ammonia-like

· **Change in condition**

Melting point/Melting range:	1.54°C
Boiling point/Boiling range:	113°C

· **Flash point:** 21 - 55°C

· **Ignition temperature:** 270°C

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

(Contd. on page 5)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Anhydrous Hydrazine

(Contd. of page 4)

- **Explosion limits:**
 - Lower:** 4.7 Vol %
 - Upper:** 100 Vol %
- **Vapor pressure at 20°C:** 21 hPa
- **Density at 20°C:** 1.0083 g/cm³
- **Solubility in / Miscibility with Water at 20°C:** 1.000 g/l
Fully miscible
- **Organic solvents:** 0.0 %
- **Other information** No further relevant information available.

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
 - **on the skin:** Caustic effect on skin and mucous membranes.
 - **on the eye:** Strong caustic effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- **Target organs:**
Skin.
Respiratory tract.

12 Ecological information

- **Acquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**
Water danger class 3 (Internal calculation) (Assessment by list): extremely hazardous for water.
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.

(Contd. on page 6)

USA

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Anhydrous Hydrazine

Very toxic for aquatic organisms

(Contd. of page 5)

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**
- **DOT** UN2029
- **ADR, IMDG, IATA** 2029
- **UN proper shipping name**
- **DOT, IMDG, IATA** HYDRAZINE, ANHYDROUS
- **ADR** 2029 HYDRAZINE, ANHYDROUS
Hydrazine, anhydrous
- **Transport hazard class(es)**
- **DOT, IMDG, IATA**
- **Class** 8 Corrosive substances.
- **Label** 8+3+6.1
- **ADR**
- **Class** 8 Corrosive substances
- **Label** 8+3+6.1
- **Packing group**
- **DOT, ADR, IMDG, IATA** I
- **Environmental hazards:**
- **Marine pollutant:** No
- **Special marking (ADR):** Symbol (fish and tree)
- **Special precautions for user** Warning: Corrosive substances
- **Danger code (Kemler):** 886
- **EMS Number:** F-E,S-C
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

(Contd. on page 7)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Anhydrous Hydrazine

(Contd. of page 6)

- **Transport/Additional information:**
- **DOT**
- **Remarks:**

15 Regulatory information

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance is listed.

· **Section 313 (40CFR372.65):**

Substance is listed.

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **California Proposition 65:**

· **Chemicals known to cause cancer:**

302-01-2 | hydrazine

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

302-01-2 | hydrazine

B2

· **IARC (International Agency for Research on Cancer)**

302-01-2 | hydrazine

2B

· **NTP (National Toxicology Program)**

302-01-2 | hydrazine

R

· **TLV (Threshold Limit Value established by ACGIH)**

302-01-2 | hydrazine

A3

· **MAK (German Maximum Workplace Concentration)**

302-01-2 | hydrazine

2

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

· **Markings according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**

Carc. Cat. 2

T Toxic

N Dangerous for the environment

· **Risk phrases:**

45 May cause cancer.

10 Flammable.

23/24/25 Also toxic by inhalation, in contact with skin and if swallowed.

(Contd. on page 8)

Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Anhydrous Hydrazine

(Contd. of page 7)

- 34 Causes burns.
- 43 May cause sensitization by skin contact.
- 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

· Safety phrases:

- 53 Avoid exposure - obtain special instructions before use.
- 45 In case of accident or if you feel unwell, seek medical advice immediately.
- 60 This material and its container must be disposed of as hazardous waste.
- 61 Avoid release to the environment. Refer to special instructions/Safety data sheets

· National regulations

· Technical instructions (air):

Class	Share in %
III	100.0

- Water hazard class:** Water danger class 3 (Assessment by list): extremely hazardous for water.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing MSDS:** Environmental Health and Safety.

· Contact:

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

- * Data compared to the previous version altered.**