

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

- **Product identifier**
- **Trade name:** *N,N,N',N'-Tetramethylethylenediamine, molecular biology reagent*
- **Article number:** 194019
- **CAS Number:**
110-18-9
- **EC number:**
203-744-6
- **Index number:**
612-103-00-3
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
MP Biomedicals, LLC
29525 Fountain Parkway
Solon, OH 44139
United States
www.mpbio.com
- **Information department:** Product safety department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

2 Hazards identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Corrosive

Causes burns.



Harmful

Harmful by inhalation and if swallowed.



Highly flammable

Highly flammable.

- **Information concerning particular hazards for human and environment:** Not applicable.

(Contd. on page 2)

Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/10/2012

Reviewed on 12/10/2012

Trade name: *N,N,N',N'*-Tetramethylethylenediamine, molecular biology reagent

(Contd. of page 1)

- **Label elements**

- **GHS label elements**

The substance is classified and labelled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



- **Signal word** *Danger*

- **Hazard-determining components of labelling:**

N,N,N',N'-tetramethylethylenediamine

- **Hazard statements**

Highly flammable liquid and vapour.

Harmful if swallowed or if inhaled.

Causes severe skin burns and eye damage.

- **Precautionary statements**

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Store locked up.

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

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**

- **CAS No. Description**

110-18-9 *N,N,N',N'*-tetramethylethylenediamine

- **Identification number(s)**

- **EC number:** 203-744-6

(Contd. on page 3)

Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/10/2012

Reviewed on 12/10/2012

Trade name: N,N,N',N'-Tetramethylethylenediamine, molecular biology reagent

· **Index number:** 612-103-00-3

(Contd. of page 2)

4 First aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. 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:**

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Firefighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **For safety reasons unsuitable extinguishing agents:** Water with full jet

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

· **Environmental precautions:** 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 7 for information on safe handling.

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.

(Contd. on page 4)

Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/10/2012

Reviewed on 12/10/2012

Trade name: N,N,N',N'-Tetramethylethylenediamine, molecular biology reagent

(Contd. of page 3)

- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** 15-30°C
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Store in nitrogen.
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **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.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **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.
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

- The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
 - **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.

(Contd. on page 5)

USA

Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/10/2012

Reviewed on 12/10/2012

Trade name: N,N,N',N'-Tetramethylethylenediamine, molecular biology reagent

(Contd. of page 4)

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	Fluid
· Color:	Not determined.
· Odor:	Characteristic
· Odour threshold:	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	120°C (248 °F)

· **Flash point:** 10°C (50 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

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

· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapor pressure:** Not determined.

· **Density at 20°C (68 °F):** 0.78 g/cm³ (6.509 lbs/gal)

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

· **Water:** Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

· **Dynamic:** Not determined.

· **Kinematic:** Not determined.

· **Organic solvents:** 100.0 %

· **VOC content:** 100.0 %

780.0 g/l / 6.51 lb/gl

(Contd. on page 6)

USA

Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/10/2012

Reviewed on 12/10/2012

Trade name: N,N,N',N'-Tetramethylethylenediamine, molecular biology reagent

(Contd. of page 5)

· **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

110-18-9 N,N,N',N'-tetramethylethylenediamine

Oral	LD50	1580 mg/kg (rat)
Dermal	LD50	5390 mg/kg (rabbit)

· **Primary irritant effect:**

· **on the skin:** Caustic effect on skin and mucous membranes.

· **on the eye:** Strong caustic effect.

· **Sensitization:** No sensitizing effects known.

· **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.

· **Carcinogenic categories**

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

12 Ecological information

· **Toxicity**

· **Aquatic 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.

· **Mobility in soil** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

(Contd. on page 7)

Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/10/2012

Reviewed on 12/10/2012

Trade name: N,N,N',N'-Tetramethylethylenediamine, molecular biology reagent



(Contd. of page 6)

- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|------------------------------------|
| · UN-Number | UN2372 |
| · DOT, ADR, IMDG, IATA | UN2372 |
| · UN proper shipping name | 1,2-DI-(DIMETHYLAMINO) ETHANE |
| · DOT, IMDG, IATA | 2372 1,2-DI-(DIMETHYLAMINO) ETHANE |
| · ADR | 2372 1,2-DI-(DIMETHYLAMINO) ETHANE |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 3 Flammable liquids. |
| · Label | 3 |
| · ADR, IMDG, IATA | |
|  | |
| · Class | 3 Flammable liquids |
| · Label | 3 |
| · Packing group | II |
| · DOT, ADR, IMDG, IATA | II |
| · Environmental hazards: | |
| · Marine pollutant: | No |
| · Special precautions for user | Warning: Flammable liquids |
| · Danger code (Kemler): | 33 |
| · EMS Number: | F-E,S-D |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |

(Contd. on page 8)

USA

Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/10/2012

Reviewed on 12/10/2012

Trade name: *N,N,N',N'-Tetramethylethylenediamine, molecular biology reagent*

(Contd. of page 7)

· **UN "Model Regulation":** UN2372, ,2-DI-(DIMETHYLAMINO) ETHANE, 3, II

15 Regulatory information

- *Safety, health and environmental regulations/legislation specific for the substance or mixture*
- *Sara*

- **Section 355 (extremely hazardous substances):**

Substance is not listed.

- **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

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

Substance is listed.

- **Proposition 65**

- **Chemicals known to cause cancer:**

Substance is not listed.

- **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

- **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

- **Chemicals known to cause developmental toxicity:**

Substance is not listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

- **GHS label elements**

The substance is classified and labelled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02 GHS05 GHS07

- **Signal word** *Danger*

- **Hazard-determining components of labelling:**

N,N,N',N'-tetramethylethylenediamine

- **Hazard statements**

Highly flammable liquid and vapour.

Harmful if swallowed or if inhaled.

(Contd. on page 9)

Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 12/10/2012

Reviewed on 12/10/2012

Trade name: N,N,N',N'-Tetramethylethylenediamine, molecular biology reagent

(Contd. of page 8)

Causes severe skin burns and eye damage.

· **Precautionary statements**

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Store locked up.

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

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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:** Product safety department

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

USA