



MATERIAL SAFETY DATA SHEET

according to the Global Harmonized System

Date of issue: 02/04/2013

Version 1.0

SECTION 1. Identification

Product identifier

Product number 841692
Product name N,N,N',N'',N''-Pentamethyldiethylenetriamine for synthesis

Relevant identified uses of the substance or mixture and uses advised against

Identified uses Chemical for synthesis

Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-751-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Acute toxicity, Category 3, Dermal, H311
Acute toxicity, Category 4, Oral, H302
Skin corrosion, Category 1B, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word
Danger

Hazard Statements

H302 Harmful if swallowed.
H311 Toxic in contact with skin.

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H314 Causes severe skin burns and eye damage.

Precautionary Statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P302 + P352 IF ON SKIN: 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.
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula C₉H₂₃N₃ (Hill)
CAS-No. 3030-47-5
Molar mass 173.3 g/mol

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.
Bis(2-dimethylaminoethyl)(methyl)amine (>= 90 % - <= 100 %)
3030-47-5

SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air. Get medical attention.

Skin contact

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Cough, Shortness of breath

Indication of any immediate medical attention and special treatment needed

No information available.

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SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible material, Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

nitrous gases

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system. Suppress (knock down) gases/vapors/mists with a water spray jet.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols.

Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® OH⁻, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

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Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Work under hood. Do not inhale substance/mixture.

Eye/face protection

Tightly fitting safety goggles

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

Acid-resistant protective clothing.

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	amine-like
Odor Threshold	No information available.
pH	11.9 at 100 g/l 68 °F (20 °C)
Melting point	< -18 °C
Boiling point/boiling range	390 °F (199 °C) at 1,013 hPa

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Flash point	171 °F (77 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.1 %(V)
Upper explosion limit	5.7 %(V)
Vapor pressure	0.3 hPa at 68 °F (20 °C) 2.4 hPa at 122 °F (50 °C)
Relative vapor density	No information available.
Relative density	0.828 g/cm ³ at 68 °F (20 °C)
Water solubility	at 68 °F (20 °C) miscible
Partition coefficient: n-octanol/water	log Pow: < -2.1 (External MSDS) Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	291 °F (144 °C)
Viscosity, dynamic	1.52 mPa.s at 68 °F (20 °C)
Explosive properties	No information available.
Ignition temperature	311 °F (155 °C)

SECTION 10. Stability and reactivity

Reactivity

Forms explosive mixtures with air on intense heating.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

A risk of explosion and/or of toxic gas formation exists with the following substances:

Strong acids, Strong oxidizing agents, Isocyanates

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Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitosamines!

Conditions to avoid

Strong heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Incompatible materials

no information available

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact

Acute oral toxicity

LD50 rat: 1,330 mg/kg (External MSDS)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

absorption

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract, After a latency period: Lung edema

Corrosive to respiratory system

Acute dermal toxicity

LD50 rabbit: 230 mg/kg

(External MSDS)

absorption

Skin irritation

rabbit

Result: Causes burns.

(External MSDS)

Causes severe burns.

Eye irritation

Causes serious eye damage.

Risk of blindness!

Genotoxicity in vitro

Ames test

Result: negative

(External MSDS)

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Systemic effects:

Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.

Convulsions, Headache, Nausea, Vomiting

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 *Leuciscus idus* (Golden orfe): 220 mg/l; 96 h (External MSDS)

Persistence and degradability

Biodegradability

< 20 %

OECD Test Guideline 301E
(External MSDS)

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: < -2.1

(External MSDS) Bioaccumulation is not expected (log Pow <1).

Mobility in soil

No information available.

Other adverse effects

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Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number UN 2922
Proper shipping name CORROSIVE LIQUID, TOXIC, N.O.S. (N,N,N',N',N'-PENTAMETHYLDIETHYLENE TRIAMINE)
Class 8 (6.1)
Packing group II
Environmentally hazardous --

Air transport (IATA)

UN number UN 2922
Proper shipping name CORROSIVE LIQUID, TOXIC, N.O.S. (N,N,N',N',N'-PENTAMETHYLDIETHYLENE TRIAMINE)
Class 8 (6.1)
Packing group II
Environmentally hazardous --
Special precautions for user no

Sea transport (IMDG)

UN number UN 2922
Proper shipping name CORROSIVE LIQUID, TOXIC, N.O.S. (N,N,N',N',N'-PENTAMETHYLDIETHYLENE TRIAMINE)
Class 8 (6.1)
Packing group II
Environmentally hazardous --
Special precautions for user yes
EmS F-A S-B
Segregation Group 0018 Alkalis

SECTION 15. Regulatory information

United States of America

Canada

WHMIS Classification

B3 Combustible Liquid
D1B Toxic Material Causing Immediate and Serious Toxic Effects

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E Corrosive Material

Combustible Liquid, Toxic by skin absorption, Corrosive to eyes, Corrosive by inhalation.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

Notification status

TSCA: On TSCA Inventory

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H302 Harmful if swallowed.

H311 Toxic in contact with skin.

H314 Causes severe skin burns and eye damage.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Date of issue: 02/04/2013

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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