

SAFETY DATA SHEET

Preparation Date: 01/27/2015

Revision date 03/21/2019

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: N3266
Product Name: N-NITROSODIETHANOLAMINE

Other means of identification

Synonyms: Diethanolnitrosamine
 Diethanolnitrosoamine
 Diethylamine, 2,2'-dihydroxy-N-nitroso-
 Bis(beta-hydroxyethyl)nitrosamine
 2,2'-Iminodi-N-nitrosoethanol
 N-Nitrosoaminodiethanol
 N-Nitrosobis(2-hydroxyethyl)amine
 N-Nitrosodiethanolamine
 2,2'-(Nitrosoimino)bisethanol
 Nitrosoimino diethanol

CAS #: 1116-54-7
RTECS # KL9550000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>
Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Tom Tyner (USA - West Coast)
Contact Person: Ibad Tirmiz (USA - East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Carcinogenicity	Category 2
Flammable liquids	Category 2

Label elements

Danger**Hazard statements**

Suspected of causing cancer
Highly flammable liquid and vapor

**Hazards not otherwise classified (HNOC)**

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/.../equipment
Use only non-sparking tools
Take precautionary measures against static discharge

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
In case of fire: Use CO₂, dry chemical, or foam to extinguish.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
N-Nitrosodiethanolamine	1116-54-7	100

4. FIRST AID MEASURES**First aid measures****General Advice:**

National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact: Flush eyes with water for 15 minutes. Get medical attention.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms May cause eye/skin irritation
May cause digestive tract irritation
May cause irritation of respiratory tract

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Carbon dioxide (CO₂). Dry chemical. Water spray. Alcohol-resistant foam.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous combustion products Carbon monoxide. Carbon dioxide (CO₂). Nitrogen oxides (NO_x).

Specific hazards Flammable. May be ignited by heat, sparks or flames. Container explosion may occur under fire conditions or when heated. Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks).

Special Protective Actions for Firefighters

Specific Methods: Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep refrigerated. Keep tightly closed in a dry, cool and well-ventilated place. Store away from incompatible materials. Keep away from heat and sources of ignition.

Incompatible Materials:

Acid anhydrides
Acids
Aluminum
Halogenated compounds
Strong oxidizing agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
N-Nitrosodiethanolamine	1116-54-7	None	None	None	None

Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
N-Nitrosodiethanolamine	1116-54-7	None	None	None	None

Australia and Mexico

Component	CAS No	Australia	Mexico
N-Nitrosodiethanolamine	1116-54-7	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

- Eye protection:** Goggles or Safety glasses with side-shields.
- Skin and body protection:** Long sleeved clothing
Chemical resistant apron
Gloves
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid	Appearance: No information available.	Color: Yellow. Reddish yellow.
Odor: No information available.	Taste No information available.	Formula C4H10N2O3
Molecular/Formula weight (g/mole): 134.1	Flammability (solid, gas) no data available	Flashpoint (°C/°F): 11°C/52°F
Flash Point Tested according to: Not available	Autoignition Temperature (°C/°F): No information available	Lower Explosion Limit (%): No information available
Upper Explosion Limit (%): No information available	Melting point/range(°C/°F): No information available	Decomposition temperature(°C/°F): No information available
Boiling point/range(°C/°F):		

114°C/237°F @ 0.2 kPa

Bulk density:
No information available

Density (g/cm3):
1.26

Specific gravity:
No information available

pH
No information available

Vapor pressure @ 20°C (kPa):
0.07 Pa

Evaporation rate:
No information available

Vapor density:
No information available

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

**Partition coefficient
(n-octanol/water):**
No information available

Viscosity:
No information available

Miscibility:
Miscible with water

Solubility:
Soluble in acetonitrile

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials.

Incompatible Materials: Acid anhydrides
Acids
Aluminum
Halogenated compounds
Strong oxidizing agents

Hazardous decomposition products: Carbon oxides. Nitrogen oxides (NO_x).

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Eyes. Ingestion. Inhalation. Skin.

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 7500 mg/kg

Component Information

N-Nitrosodiethanolamine

CAS No	1116-54-7
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LD50/oral/rat = = 7500 mg/kg Oral LD50 Rat
LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = 11 gm/kg, subcutaneous, hamster, LDLo

Product Information

LD50/oral/rat =
Value - Acute Tox = 7500 mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
Value - Acute Tox = No information available

LD50/dermal/rat
VALUE - Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: May cause skin irritation.
Eye Contact: May cause eye irritation.
Inhalation May cause irritation of respiratory tract.
Ingestion Health injuries are not known or expected under normal use.
Aspiration hazard No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity No information available.
Sensitization: No information available.
Mutagenic Effects: No information available
Carcinogenic effects: Suspected of causing cancer.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
N-Nitrosodiethanolamine	1116-54-7	Monograph 77 [2000] Supplement 7 [1987] Monograph 17 [1978]	Not listed	Reasonably Anticipated To Be A Human Carcinogen	Present	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.
STOT - repeated exposure No information available.
Target Organs: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility in soil No information available
Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
N-Nitrosodiethanolamine	1116-54-7	None	None	None	U173

14. TRANSPORT INFORMATION

DOT

UN-No: UN1993
Proper Shipping Name: Flammable liquids, n.o.s.
Hazard Class 3
Subsidiary Class No information available
Packing group: II
Emergency Response Guide Number 128
Marine Pollutant Severe Marine Pollutant
DOT RQ (lbs): No information available
Special Provisions IB2, T7, TP1, TP8, TP28
Symbol(s): [DOT]: (G) - Identifies proper shipping names for which one or more technical names of the hazardous material must be entered in parentheses, in association with the basic description.
Description: UN1993, Flammable liquids, n.o.s., 3, II

TDG (Canada)

UN-No: UN1993
Proper Shipping Name: Flammable liquid, n.o.s.
Hazard Class 3
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No Information available
Description: UN1993, Flammable liquid, n.o.s., 3, II

ADR

UN Number UN1993
Proper Shipping Name: Flammable liquid, n.o.s.
Transport hazard class(es) 3
Packing group II
Subsidiary Risk: No information available
Special Provisions 274, 601, 640C
Description: UN1993, Flammable liquid, n.o.s., 3, II

IMDG

UN-No: UN1993
Proper Shipping Name: Flammable liquids, n.o.s.
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No information available
EMS: F-E
Special Provisions 274
Description UN1993, Flammable liquid, n.o.s. (N-NITROSODIETHANOLAMINE), 3, II

RID

UN Number UN1993
Proper Shipping Name: Flammable liquid, n.o.s.
Transport hazard class(es) 3
Subsidiary Risk: No information available
Packing group II
Special Provisions 274, 601, 640D
Description: UN1993, Flammable liquid, n.o.s., 3, II

ICAO (air)

Product code: N3266

Product name:
N-NITROSODIETHANOLAMINE

Page

UN-No: UN1993
Proper Shipping Name: Flammable liquid, n.o.s.
Hazard Class 3
Subsidiary Risk: No information available
Packing Group: II
Description: UN1993, Flammable liquid, n.o.s., 3, II
Special Provisions A3

IATA

UN Number UN1993
Proper Shipping Name: Flammable liquid, n.o.s.
Transport hazard class(es) 3
Subsidiary Risk: No information available
Packing group II
Precautionary Statements - Response 3H
Special Provisions No information available
Description: UN1993, Flammable liquid, n.o.s., 3, II

15. REGULATORY INFORMATION

International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
<i>N-Nitrosodiethanolamine</i>	1116-54-7	PresentACTIVE	Not present	Present	Not present	Present	Present	Present 214-237-4

U.S. Regulations

N-Nitrosodiethanolamine

- Massachusetts RTK:** Present
- New Jersey RTK Hazardous Substance List:** 1403
- New Jersey - Discharge Prevention - List of Hazardous Substances:** Present
- Pennsylvania RTK:** Environmental hazard
Special hazardous substance
- Pennsylvania RTK - Environmental Hazard List** Present
- Pennsylvania RTK - Special Hazardous Substances** Present
- Minnesota - Hazardous Substance List:** Present
- New York Release Reporting - List of Hazardous Substances:**
1 lb RQ
- Louisiana Reportable Quantity List for Pollutants:** Listed
- California Directors List of Hazardous Substances:** Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

WARNING: This product contains a chemical known to the State of California to cause cancer. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
N-Nitrosodiethanolamine	1116-54-7	carcinogen	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Component	CAS No	CERCLA - Hazardous	Section 302 Extremely	Section 302 Extremely	Section 313 - Chemical Category	Section 313 - Reporting

		Substances and their Reportable Quantities	Hazardous Substances and TPQs	Hazardous Substances and RQs		de minimis
N-Nitrosodiethanolamine	1116-54-7	1 lb final RQ 0.454 kg final RQ	None	None	None	None

U.S. TSCA

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
N-Nitrosodiethanolamine	1116-54-7	40 CFR 721.3350	Not Applicable

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information: The WHMIS 2015 classification of this product has not been validated or reviewed yet.

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

DSL/NDSL

Component	CAS No	Canada (DSL)	Canada (NDSL)
N-Nitrosodiethanolamine	1116-54-7	Not Listed	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
N-Nitrosodiethanolamine	1116-54-7	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
N-Nitrosodiethanolamine	1116-54-7	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Component	CAS No	EU GHS - SV - CLP (1272/2008)
N-Nitrosodiethanolamine	1116-54-7	Carcinogenicity - Carc. 1B: H350 May cause cancer.612-090-00-4

EU - CLP (1272/2008)

R-phrases

R45 - May cause cancer

S-phrases

S16 - Keep away from sources of ignition - No smoking

S36 - Wear suitable protective clothing

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
N-Nitrosodiethanolamine	1116-54-7	Carc. Cat.2; R45	No information	

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The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

F - Highly flammable

F



16. OTHER INFORMATION

Preparation Date: 01/27/2015
Revision date 03/21/2019
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet