Chemical Safety Data Sheet MSDS / SDS

Dimethylnitrosoamine SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Dimethylnitrosoamine

CAS: 62-75-9

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Acute toxicity - Category 2, Inhalation

Carcinogenicity, Category 1B
Specific target organ toxicity – repeated exposure, Category 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H301 Toxic if swallowed
H330 Fatal if inhaled
H350 May cause cancer
H372 Causes damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P273 Avoid release to the environment.

Response

P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P320 Specific treatment is urgent (see ... on this label).
P318 IF exposed or concerned, get medical advice.
P319 Get medical help if you feel unwell.

P391 Collect spillage.

Storage

P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Dimethylnitrosoamine
Common names and synonyms:	Dimethylnitrosoamine
CAS number:	62-75-9
EC number:	200-549-8
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Give a slurry of activated charcoal in water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact Symptoms: nausea, vomiting, diarrhea, abdominal cramps; headache; fever; enlarged liver, jaundice; decreased liver, kidney, pulmonary function; [Potential occupational carcinogen] Target Organs: Liver, kidneys,lungs Cancer Site [in animals; lung, kidney, liver & nasal cavity tumors] (NIOSH, 2016)

Indication of immediate medical attention and special treatment needed, if necessary

Irrigate eyes with water. Wash contaminated areas of body with soap and water.

SECTION 5: Firefighting measures

Suitable extinguishing media

Fire fighters should wear/ any self-contained breathing apparatus with a full facepiece and operated in a pressure demand or other positive pressure mode.

Specific hazards arising from the chemical

When heated to decomposition, it emits toxic fumes of nitrogen oxides. Avoid exposure to ultraviolet light. (EPA, 1998)

Special protective actions for fire-fighters

Use powder, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Spills of n-nitrosodiethylamine can be absorbed by celite or commercial spill absorbant. after absorbant containing major share of nitrosamine has been picked up (avoid dusts; do not sweep), surface should be thoroughly cleaned with strong detergent soln. if major spill occurs outside of ventilated area, room should be evacuated & cleanup operation should be carried out by persons equipped with self-contained respirators. those involved in this operation should wear rubber gloves, lab coats, & plastic aprons or equivalent protective apparel. n-nitrosodiethylamine, also applicable to other dialkylnitrosamines

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from strong oxidants and food and feedstuffs. Cool. Keep in the dark. Well closed.ALL BOTTLES OF N-NITROSODIETHYLAMINE SHOULD BE STORED & TRANSPORTED WITHIN UNBREAKABLE OUTER CONTAINER; STORAGE SHOULD BE IN VENTILATED STORAGE CABINET (OR IN HOOD). N-NITROSODIETHYLAMINE, ALSO APPLICABLE TO OTHER DIALKYLNITROSAMINES

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: (skin); A3 (confirmed animal carcinogen with unknown relevance to humans).MAK: skin absorption (H); carcinogen category: 2

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	N-nitrosodimethylamine is a yellow oily liquid with a faint characteristic odor. Boiling point 151-153°C. Can reasonably be expected to be a carcinogen. Used as an antioxidant, as an additive for lubricants and as a softener of copolymers. An intermediate in 1,1-dimethylhydrazine production.
Colour:	Yellow, oily liquid
Odour:	Faint, characteristic odor
Melting point/freezing point:	16°C(lit.)
Boiling point or initial boiling point and boiling range:	208°C(lit.)
Flammability:	Combustible Liquid

Lower and upper explosion limit/flammability limit:	no data available
Flash point:	-8°C(lit.)
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	Low
Solubility:	greater than or equal to 100 mg/mL at 66° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = -0.57
Vapour pressure:	5 mm Hg (20 °C)
Density and/or relative density:	1.01 g/mL(lit.)
Relative vapour density:	2.56 (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

NIOSH considers N-nitrosodimethylamine to be a potential occupational carcinogen.
Decomposes on heating. This produces nitrogen oxides. Reacts with strong oxidants and strong bases.

Chemical stability

Stable at room temperature for more than 14 days in neutral or alkaline solutions in the dark; slightly less stable in acidic solutions;

sensitive to UV light.

Possibility of hazardous reactions

CombustibleN-NITROSODIMETHYLAMINE is sensitive to exposure to light, especially ultraviolet light. Is stable at room temperature for more than 14 days in aqueous solution at neutral and alkaline pH in the absence of light. Slightly less stable at strongly acid pH at room temperature. Incompatible with strong oxidizing agents. Also incompatible with strong bases. Can be reduced by reducing agents. Incompatible with hydrogen bromide in acetic acid. Also photochemically reactive. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Oxidants, especially peracids. Sensitive to UV light.

Hazardous decomposition products

When heated to decomp it emits toxic fumes of /oxides of nitrogen/.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 27-41 mg/kg

Inhalation: LC50 Rat inhalation 78 ppm/4 hr

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

NTP: Reasonably anticipated to be a human carcinogen

Reproductive toxicity

No information is available on the reproductive or developmental effects of N-nitrosodimethylamine in humans. In a study of rats exposed to N-nitrosodimethylamine by injection, increased fetal mortality was observed but no birth defects were noted. N-Nitrosodimethylamine, when administered to pregnant rats, mice, and hamsters by several routes, has been shown to cause cancer in the offspring.

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the liver. This may result in jaundice. The effects may be delayed. See Notes. Medical observation is indicated.

STOT-repeated exposure

The substance may have effects on the liver. This may result in liver function impairment and cirrhosis. This substance is probably carcinogenic to humans.

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LD50; Species: Oncorhynchus mykiss (Rainbow trout) ip 1770 mg/kg for 10 days

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: EC50; Species: Anabaena flosaquae (Blue-Green Algae) 10000 cells; Conditions: freshwater, static, 24 deg C; Concentration: 5100 ug/L for 96 hr; Effect: growth, general

Toxicity to microorganisms: no data available

Persistence and degradability

No biodegradation of dimethylnitrosamine was observed in lake water samples during an observation period of 3.5 months, and a lag of nearly 30 days occurred before its slow disappearance from soil. The nitrosamine appeared to be degraded very slowly in sewage, but it was not affected by the anaerobic organisms /found in collected bog sediments/.

Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for N-nitrosodimethylamine(SRC), using a log Kow of -0.57(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests that bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

Kd (soil distribution coefficient) values of 0.45-0.64 L/kg were measured for N-nitrosodimethylamine in turfgrass, ground cover and bare surface soils that corresponded to Koc values 68-118(1). Similar results were observed in a study of subsurface soil samples including sand, sandy loam and loamy sand soils with Kd values ranging from 0.4-1.2 L/kg(2). According to a recommended classification scheme(3), the Koc values suggests that N-nitrosodimethylamine is expected to have high mobility in soil(SRC). N-Nitrosodimethylamine was found to leach through 4 different soils as readily as chloride ion(4). Another study also found that N-nitrosodimethylamine readily leached through soils(5). The leaching risk of N-nitrosodimethylamine in soils receiving reclaimed wastewater depend upon the hydraulic conductivity of the soil and irrigation intensity(6); proper irrigation volumes can reduce the leaching risk(6).

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN3382 (For reference only, please check.)
IMDG: UN3382 (For reference only, please check.)
IATA: UN3382 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: TOXIC BY INHALATION LIQUID, N.O.S. with an LC50 lower than or equal to 1000 ml/m3 and saturated vapour concentration greater than or equal to 10 LC50 (For reference only, please check.)
IMDG: TOXIC BY INHALATION LIQUID, N.O.S. with an LC50 lower than or equal to 1000 ml/m3 and saturated vapour concentration greater than or equal to 10 LC50 (For reference only, please check.)
IATA: TOXIC BY INHALATION LIQUID, N.O.S. with an LC50 lower than or equal to 1000 ml/m3 and saturated vapour concentration greater than or equal to 10 LC50 (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)
IMDG: 6.1 (For reference only, please check.)
IATA: 6.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: I (For reference only, please check.)
IMDG: I (For reference only, please check.)
IATA: I (For reference only, please check.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

The symptoms of jaundice do not become manifest until some hours have passed. TLV Note: Exposure by all routes should be carefully controlled to levels as low as possible.