ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

N-Nitrosodiphenylamine

Revision Date:2025-06-14 Revision Number:1

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

Product identifier

Product name	: N-Nitrosodiphenylamine
CBnumber	: CB7712443
CAS	: 86-30-6
EINECS Number	: 201-663-0
Synonyms	: NDPA,N-Nitrosodiphenylamine

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
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 010-86108875

SECTION 2: Hazards identification

Classification of the substance or mixture

Skin sensitization, Sub-category 1A

Carcinogenicity, Category 2

Reproductive toxicity, Category 2

Specific target organ toxicity – repeated exposure, Category 2

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

Label elements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour

H301 Toxic if swalloed

H302 Harmful if swallowed

H311 Toxic in contact with skin

H315 Causes skin irritation

H319 Causes serious eye irritation

H320 Causes eye irritation

H331 Toxic if inhaled

H341 Suspected of causing genetic defects

H351 Suspected of causing cancer

H370 Causes damage to organs

H371 May cause damage to organs

H373 May cause damage to organs through prolonged or repeated exposure

H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thouroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P311 Call a POISON CENTER or doctor/physician.

P391 Collect spillage. Hazardous to the aquatic environment

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P405 Store locked up.

P501 Dispose of contents/container to.…

Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P203 Obtain, read and follow all safety instructions before use.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

Response

P302+P352 IF ON SKIN: Wash with plenty of water/...

P333+P317 If skin irritation or rash occurs: Get medical help.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P318 IF exposed or concerned, get medical advice.

P319 Get medical help if you feel unwell.

P391 Collect spillage.

Storage

P405 Store locked up.

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

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: N-Nitrosodiphenylamine
Synonyms	: NDPA,N-Nitrosodiphenylamine
CAS	: 86-30-6
EC number	: 201-663-0
MF	: C12H10N2O
MW	: 198.22

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

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

Rinse mouth. Refer for medical attention .

Most important symptoms and effects, both acute and delayed

ACUTE/CHRONIC HAZARDS: When heated to decomposition this compound emits toxic fumes of nitrogen oxides. (NTP, 1992)

Indication of any immediate medical attention and special treatment needed

For immediate first aid: Ensure that adequate decontamination has been carried out. If victim is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep victim quiet and maintain normal body temperature. Obtain medical attention. Nitrates, nitrites, and related compounds

---

SECTION 5: Firefighting measures

Extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

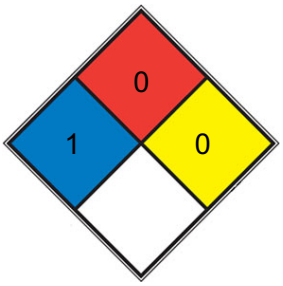
Specific Hazards Arising from the Chemical

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

Advice for firefighters

Use foam, powder, carbon dioxide.

NFPA 704



■	HEALTH	1	Exposure would cause irritation with only minor residual injury (e.g. acetone, sodium bromate, potassium chloride)
■	FIRE	0	Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)
■	REACT	0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,N2)
□	SPEC. HAZ.		

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting.

Environmental precautions

Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting.

Methods and materials for containment and cleaning up

Decontamination of N-nitrosamine contaminated glassware /was described/. N-nitrosamines

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. Store in an area without drain or sewer access.PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practical to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemicophysical properties ...) that bears appropriate label. An inventory ... should be kept, showing quantity of carcinogen & date it was acquired ... Facilities for dispensing ... should be contiguous to storage area. Chemical Carcinogens

---

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK: carcinogen category: 3B

Biological limit values

no data available

Exposure 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

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	Yellow to brown or orange powder or flakes
Colour	Yellow to brown to orange power or flakes
Odour	no data available
Melting point/freezing point	66.5°C
Boiling point or initial boiling point and boiling range	268°C
Flammability	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.

Lower and upper explosion limit/flammability limit	no data available
Flash point	163.4°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	methanol: 0.1 g/mL, clear
Partition coefficient n-octanol/water	Log Kow= 3.13
Vapour pressure	0.1 at 25 °C (assigned by analogy, Mabey et al., 1982)
Density and/or relative density	1.23
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on burning. This produces nitrogen oxides. Reacts vigorously with oxidants.

Chemical stability

The nitrosamines are stable at neutral pH ... Nitrosamines

Possibility of hazardous reactions

N-NITROSODIPHENYLAMINE may be sensitive to moisture at elevated temperatures in strongly acidic solutions. May react vigorously with oxidizing agents. May undergo trans-nitrosation reactions with secondary amines (NTP, 1992).

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

Energy of decomposition (in range 300-500 deg C) measured as 0.65 kJ/g.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- 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

No data are available in humans. Limited evidence of carcinogenicity in animals. OVERALL EVALUATION: Group 3: The agent is not classifiable as to its carcinogenicity to humans.

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

The half-life of N-nitrosodiphenylamine in 86 g/kg sludge soil produced from a wood preserving process was determined to be 88.9 days, from an initial concentration of 697 mg/kg and a final concentration of 19 mg/kg after 287 days; the half-life of N-nitrosodiphenylamine in 172 g/kg sludge soil produced from a wood preserving process was determined to be 166.4 days, from an initial concentration of 887 mg/kg and a final concentration of 58 mg/kg after 287 days(1). In a static biodegradation test that used domestic wastewater as the inoculum, the percent of N-nitrosodiphenylamine biodegraded in the original culture and first, second and third subcultures after 7 days incubation per culture was: (10 mg/l initial concentration N-nitrosodiphenylamine) 47, 63, 95, and 98; at 5 mg/l initial concentration N-nitrosodiphenylamine: 87, 100, 92, and 100, respectively(2). Removal of N-nitrosodiphenylamine at two industrial activated sludge treatment plants averaged >84 percent at an average influent concentration of 5.3 ug/l(3). At an industrial aerated lagoon, 67 percent of an initial N-nitrosodiphenylamine concentration of

3 ug/l was removed(3). Sixty-eight percent of N-nitrosodiphenylamine added to soil at a concentration of 354 ug/g soil was degraded by the end of a 30 day incubation at 30 deg C in the dark(3). In soil amended with wheat straw (organic matter content increased from 2.16 to 17.5 percent), N-nitrosodiphenylamine disappeared completely by day 10 of the incubation(4).

Bioaccumulative potential

A maximum bioconcentration factor (BCF) of 217 was reported for N-nitrosodiphenylamine in Lepomis macrochirus (bluegill sunfish) exposed to an average N-nitrosodiphenylamine concentration of 9.21 ug/l for 14 days(1). According to a classification scheme(3), this BCF suggests that bioconcentration in aquatic organisms is moderately high(SRC).

Mobility in soil

The Koc of N-nitrosodiphenylamine is estimated as approximately 1,200(SRC), using an experimental log Kow of 3.13(1) and a regression-derived equation(2,SRC). According to a recommended classification scheme(3), this estimated Koc value suggests that N-nitrosodiphenylamine is expected to have low mobility in soil(SRC).

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: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (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

Not 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

Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.