Chemical Safety Data Sheet MSDS / SDS

2-chloro-4-nitroaniline 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: 2-chloro-4-nitroaniline

CAS: 121-87-9

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 4, Oral
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H302 Harmful if swallowed
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.
P273 Avoid release to the environment.

Response

P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.
P391 Collect spillage.

Storage

none

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:	2-chloro-4-nitroaniline
Common names and synonyms:	2-chloro-4-nitroaniline
CAS number:	121-87-9
EC number:	204-502-2
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention. See Notes.

Following skin contact

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

Rest. Refer for medical attention . See Notes.

Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 153 [Substances - Toxic and/or Corrosive (Combustible)]: TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2016)

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

IN ALL CASES CONSULT A DOCTOR. INHALATION: Symptoms: Blue skin. Blue lips or finger nails. Dizziness. Headache. Nausea. Shortness of breath. Confusion. Convulsions. Unconsciousness. Symptoms may be delayed. First aid: Fresh air, rest. Refer for medical attention. SKIN: Symptoms: Redness. First aid: Remove contaminated clothes. Rinse skin with plenty of water or shower.

EYES: Symptoms: Redness. Pain. First aid: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. INGESTION: Symptoms: Blue skin. Blue lips or finger nails. Dizziness. Headache. Nausea. Shortness of breath. Confusion. Convulsions. Unconsciousness. Symptoms may be delayed. First aid: Rest. Refer for medical attention.

SECTION 5: Firefighting measures

Suitable extinguishing media

Powder, alcohol-resistant foam, water spray, carbon dioxide.

Specific hazards arising from the chemical

Excerpt from ERG Guide 153 [Substances - Toxic and/or Corrosive (Combustible)]: Combustible material: may burn but does not ignite readily. When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. Runoff may pollute waterways. Substance may be transported in a molten form. (ERG, 2016)

Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: P2 filter respirator for harmful particles. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: P2 filter respirator for harmful particles. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove

to safe place. (Extra personal protection: P2 filter respirator for harmful particles). Do NOT let this chemical enter the environment.

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 food and feedstuffs.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

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 safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Solid. Crystalline.
Colour:	Yellow.
Odour:	no data available
Melting point/freezing point:	>= 108 - <= 112 °C. Atm. press.:101.3 kPa.
Boiling point or initial boiling point and boiling range:	>= 297.62 - <= 320 °C. Atm. press.:101.3 kPa.
Flammability:	Combustible.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	205 °C. Atm. press.:101.3 kPa.
Auto-ignition temperature:	522°C
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Very soluble in ether, ethanol, acetic acid

Partition coefficient n-octanol/water:	log Pow = >= 2.14 - <= 2.17. Temperature:25 °C.
Vapour pressure:	0 mm Hg. Temperature:25 °C. Remarks:US EPA; Estimation Program Interface (EPI) Suite. Ver.3.12. Nov 30, 2004. Available from, as of Oct 10, 2007:, HSDB Database.;>= 0.001 - <= 0.007 Torr. Temperature:> 62.53 °C. Remarks:Journal of Chemical Thermodynamics; vol. 35; nb. 8; (2003); p. 1343 - 1359 (REAXYS Database).
Density and/or relative density:	<= 1 g/cm3. Temperature:20 °C.
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on burning. This produces toxic and corrosive gases including nitrogen oxides.

Chemical stability

no data available

Possibility of hazardous reactions

2-CHLORO-4-NITROANILINE can react with oxidizing materials. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

The substance decomposes on burning producing toxic and corrosive gases, including nitrogen oxides.

Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat - 6 430 mg/kg bw.

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 available

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the skin. The substance may cause effects on the blood. This may result in the formation of methaemoglobin. Medical observation is indicated. The effects may be delayed.

STOT-repeated exposure

no data available

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: LC50 - Pimephales promelas - 20.4 mg/L - 96 d.

Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna (/water flea/) 10-18 mg/L/48 hr; immobilization.

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: The biodegradability of 2-chloro-4-nitroaniline was measured using both the semistatic OECD test and the dynamic system, Pitter test. 2-Chloro-4-nitroaniline is considered non-biodegradable (half-life of much greater than 4 weeks) using both non-adapted and adapted inoculum for both tests(1). Using a modification of the Pitter test where the first step is an acclimation of a mixed microbial population to 2-chloro-4-nitroaniline (at 25 mg/L) in a semi-continuous activated sludge system followed by a die-away test in closed flasks, only a slight amount of degradation occurred. The initial inoculum was a 1:1 mixture of activated sludge from a domestic sewage plant and a solution containing organic material extracted from river mud. In the semi-continuous activated sludge system, 80% of the added 2-chloro-4-nitroaniline was still present after 17 days using both the mixed inoculum and an activated sewage sludge(2). 2-Chloro-4-nitroaniline is regarded as non-biodegradable in the aquatic environment as well as in communal and industrial sewage treatment plants(2).

Bioaccumulative potential

An estimated BCF of 9 was calculated in fish for 2-chloro-4-nitroaniline(SRC), using a log Kow of 2.14(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The Koc of 2-chloro-4-nitroaniline is estimated as 350(SRC), using a log Kow of 2.14(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 2-chloro-4-nitroaniline is expected to moderate mobility in soil. However, anilines are expected to bind strongly to humus or organic matter in soils due to the high reactivity of the aromatic amino group(4,5), suggesting that mobility may be much lower in some soils(SRC). The log Koc of 2-chloro-4-nitroaniline was measured as 2.36 in Yangtze river sediment (37.1% sand, 49.3% silt, 13.6% clay, 1.28% organic carbon, pH 7.44)(1). The log Koc was also measured as 3.63 in modified clay(6). These values correspond to Koc values of 230 and 4300, respectively(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: UN2237 (For reference only, please check.)
IMDG: UN2237 (For reference only, please check.)
IATA: UN2237 (For reference only, please check.)

UN Proper Shipping Name

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

Depending on the degree of exposure, periodic medical examination is indicated.Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.