

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 15, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2-Chloro-4-Nitroaniline

1.2 Other means of identification

Product number CCEM500263

Other names -

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral

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

2.2 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.
P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.
P391 Collect spillage.

Response

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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

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

SECTION 4: First-aid measures

4.1 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.

4.2 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)

4.3 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: Fire-fighting measures

5.1 Suitable extinguishing media

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

5.2 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)

5.3 Special protective actions for fire-fighters

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

SECTION 6: Accidental release measures

6.1 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.

6.2 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.

6.3 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

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 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.

8.3 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	$\geq 108 - \leq 112$ °C. Atm. press.:101.3 kPa.
Boiling point or initial boiling point and boiling range	$\geq 297.62 - \leq 320$ °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 = $\geq 2.14 - \leq 2.17$. 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.; $\geq 0.001 - \leq 0.007$ 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/cm ³ . Temperature:20 °C.
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

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

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

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

10.6 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

12.1 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

12.2 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).

12.3 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).

12.4 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).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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

14.1 UN Number

ADR/RID: UN2237 (For reference only, please check.) IMDG: UN2237 (For reference only, please check.) IATA: UN2237 (For reference only, please check.)

14.2 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.)

14.3 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.)

14.4 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.)

14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
2-chloro-4-nitroaniline	2-chloro-4-nitroaniline	121-87-9	204-502-2
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.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019

Revision Date April 15, 2024

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.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.