

Chemical Safety Data Sheet MSDS / SDS

3-chloroaniline SDS

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

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

Product name: 3-chloroaniline
CAS: 108-42-9

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 3, Dermal

Skin irritation, Category 2
Eye irritation, Category 2
Acute toxicity - Category 3, Inhalation
Specific target organ toxicity - repeated exposure, Category 2
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H301 Toxic if swallowed
H311 Toxic in contact with skin
H315 Causes skin irritation
H319 Causes serious eye irritation
H331 Toxic if inhaled
H373 May cause damage to organs through prolonged or repeated exposure
H400 Very toxic to aquatic life

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
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.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P316 Get emergency medical help immediately.

P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P332+P317 If skin irritation occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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:	3-chloroaniline
Common names and synonyms:	3-chloroaniline
CAS number:	108-42-9
EC number:	203-581-0
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

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. Give one or two glasses of water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this chemical may include methemoglobinemia and, in large concentrations cyanosis; dermatitis, liver and kidney damage, and death. **ACUTE/CHRONIC HAZARDS:** This compound can cause allergic reactions. It is readily absorbed through the skin. When heated to decomposition it emits toxic fumes. (NTP, 1992)

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

Methylene blue, alone or in combination with oxygen, is indicated as treatment in nitrite-induced methemoglobinemia.

SECTION 5: Firefighting measures**Suitable extinguishing media**

Water, dry chemical, foam or carbon dioxide. 4-Chloroaniline

Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

Special protective actions for fire-fighters

Use powder, AFFF, foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. 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

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. 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

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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. Keep in the dark. Well closed.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK skin absorption (H); MAK sensitization of skin (SH)

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 goggles or face shield.

Skin protection

Protective gloves. Protective clothing.

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:	Liquid.
Colour:	Colourless.
Odour:	Characteristic sweet odor
Melting point/freezing point:	-10.28 °C. Remarks:Other details not available.
Boiling point or initial boiling point and boiling range:	168.8 °C. Atm. press.:960 hPa.
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:	110 °C. Atm. press.:960 hPa.
Auto-ignition temperature:	Atm. press.:960 hPa. Remarks:3-Chloroaniline did not catch fire on being exposed to air at room temperature of 30 degC.
Decomposition temperature:	230°C
pH:	8.02. Remarks:Basic.
Kinematic viscosity:	dynamic viscosity (in mPa s) = 19.414. Temperature:30.0°C. Remarks:16.37 cst (centistoke) when converted into mPa s (dynamic) is equivalent to 19.414.
Solubility:	Insoluble in water
Partition coefficient n-octanol/water:	Pow = 5.89. Temperature:30 °C.
Vapour pressure:	8.799 Pa. Temperature:25 °C.
Density and/or relative density:	1.186 g/cm ³ . Temperature:30 °C.
Relative vapour density:	4.41 (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on burning. This produces toxic fumes including nitrogen oxides and hydrogen chloride (see ICSC 0163).

Chemical stability

Tends to darken during storage.

Possibility of hazardous reactions

M-CHLOROANILINE is incompatible with acids, acid chlorides, acid anhydrides, chloroformates and strong oxidizing agents. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomposition, it emits toxic fumes of /hydrogen chloride and nitrogen oxides/.

SECTION 11: Toxicological information**Acute toxicity**

Oral: LD50 - rat - 256 mg/kg bw.

Inhalation: LC50 - mouse - 550 mg/m³.

Dermal: LD50 - cat - 223 mg/kg bw.

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 irritating to the eyes and 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

The substance may have effects on the blood. This may result in the formation of methaemoglobin.

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 - Danio rerio (previous name: Brachydanio rerio) - 0.147 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 0.35 mg/L - 48 h.

Toxicity to algae: EC50 - Chlorella pyrenoidosa - 21 mg/L - 96 h.

Toxicity to microorganisms: IGC50 - Tetrahymena pyriformis - 99 mg/L - 48 h.

Persistence and degradability

AEROBIC: In a test using a Warburg respirometer, 50% of the theoretical BOD was measured for 3-chloroaniline over a 190 hr incubation period(1). A 100% loss of UV absorbance of 3-chloroaniline in a mineral salts solution, with a soil inoculum, required an excess of 64 days(2). Using an acclimated activated sludge inoculum, 97.2% of initial 3-chloroaniline was degraded under the test

conditions(3). Biological transformation (20% degradation in 6 hr) was observed in an aqueous test system receiving activated sludge from two treatment plants(4). In the Zahn-Wellens test, 100% DOC removal was obtained in 17 days(7). Incubation of 3-chloroaniline (50 mg/50 g soil) in soil for 14 days resulted in formation of 3,3'-dichloroazobenzene(5). No dichloroazobenzene was formed using sterilized soil(5). 3-Chloroaniline was degraded (85-90%) with no lag period by a mixed culture of containing *Pseudomonas* (12 species) and *Bacillus* (15 species), which was isolated from sludge that was acclimated to nitroaniline(6). 3-Chloroaniline may degrade in soil by chemical and microbial processes(8). When 3-chloroaniline (30 ppm) was incubated in Guelph loam with water added to 60% water-holding capacity, levels declined rapidly for 2 weeks after which time the rate of loss decreased(8). The percent of 3-chloroaniline remaining in soil after 2 and 8 weeks were 38% and 18%, respectively(8).

Bioaccumulative potential

The average BCFs in the whole body of carp exposed to 3-chloroaniline in flow-through experiments (25 deg C, 12 L/hr) for 24 to 336 hr at high (14.7 ug/L) and low (0.67 ug/L) exposure levels were 0.8 and 2.2, respectively(1). Excretion was rapid with depuration rates and half-lives of 0.21/hr and 3.3 hr, respectively(1). This conclusion is supported by field data in which the concentration of 3-chloroaniline in water and fish were <0.02 - 0.02 ug/L and <2.0 ng/g(1). Uptake was rapid in static tests (0.17 umol/L, 26 deg C) on zebrafish and a BCF of 11.5 was obtained for 100 hr exposure (2). Elimination was best described by a two compartment first order model(2). After 52 hr of depuration, the concn of 3-chloroaniline in the zebrafish declined to 10.3% of the steady state value. According to a classification scheme(3), these BCF values suggest the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The Koc of 3-chloroaniline is estimated as 250(SRC), using a log Kow of 1.88(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 3-chloroaniline is expected to have moderate mobility in soil. However, aromatic amines 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). In laboratory persistence studies using non-sterilized Hagerstown silty clay loam soil, 73% of applied 3-chloroaniline remained chemically bound to soil particles after 64 days of incubation(6). A related chemical, 2-chloroaniline, has been observed to undergo rapid and reversible covalent bonding with humic materials in aqueous solution; the initial bonding reaction is followed by a slower and much less reversible reaction believed to represent the addition of the amine to quinoidal structures followed by oxidation of the product to give an amino-substituted quinone(7).

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: UN2019 (For reference only, please check.)

IMDG: UN2019 (For reference only, please check.)

IATA: UN2019 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: CHLOROANILINES, LIQUID (For reference only, please check.)

IMDG: CHLOROANILINES, LIQUID (For reference only, please check.)

IATA: CHLOROANILINES, LIQUID (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: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (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

Stabilized with 0.1% Hydrazine hydrate. Depending on the degree of exposure, periodic medical examination is suggested. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.

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