

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

SECTION 1: Identification

1.1 GHS Product identifier

Product name 3-chloroaniline

1.2 Other means of identification

Product number -

Other names Orange GC Base; m-Aminochlorobenzene; Benzenamine,3-chloro

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.

Uses advised against no data available

1.4 Supplier's details

Company Shanghai Baishun Biotechnology Co., Ltd
Address No. 26, Lane 918, Lianye Road, Zhelin Town, Fengxian District, Shanghai, 201400, China
Telephone +86-21-37581181

1.5 Emergency phone number

Emergency phone number +86-21-37581181

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 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

2.2 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.

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
3-chloroaniline	3-chloroaniline	108-42-9	203-581-0	100%

SECTION 4: First-aid measures

4.1 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 .

4.2 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)

4.3 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: Fire-fighting measures**5.1 Suitable extinguishing media**

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

5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use powder, AFFF, foam, carbon dioxide.

SECTION 6: Accidental release measures**6.1 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.

6.2 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.

6.3 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**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. Keep in the dark. Well closed.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

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

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 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/cm³. Temperature:30 °C.
Relative vapour density	4.41 (NTP, 1992) (Relative to Air)

SECTION 10: Stability and reactivity

10.1 Reactivity

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

10.2 Chemical stability

Tends to darken during storage.

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 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

12.1 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.

12.2 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).

12.3 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).

12.4 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).

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: UN2019 (For reference only, please check.)

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

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

14.2 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.)

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: II (For reference only, please check.)

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

IATA: II (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
3-chloroaniline	3-chloroaniline	108-42-9	203-581-0
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

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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.

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

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