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 Benzoyl chloride

1.2 Other means of identification

Product number -
Other names Benzoyl chloride; benzoic chloride; benzoic acid chloride

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 Yansheng Internet Technology Co., Ltd
Address 513, A3 / F, green space future center, Fengxian District, Shanghai, 201400, China
Telephone +86-4000-6969-66

1.5 Emergency phone number

Emergency phone number +86-4000-6969-66
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
Acute toxicity - Category 4, Dermal
Skin corrosion, Sub-category 1B
Skin sensitization, Category 1
Acute toxicity - Category 4, Inhalation

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger
Hazard statement(s) H302 Harmful if swallowed
H312 Harmful in contact with skin
H314 Causes severe skin burns and eye damage
H317 May cause an allergic skin reaction
H332 Harmful if inhaled

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/... P260 Do not breathe dust/fume/gas/mist/vapours/spray. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P271 Use only outdoors or in a well-ventilated area.
Response	P301+P317 IF SWALLOWED: Get medical help. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P317 Get medical help. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P363 Wash contaminated clothing before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P316 Get emergency medical help immediately. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P333+P317 If skin irritation or rash occurs: Get medical help.
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.

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
Benzoyl chloride	Benzoyl chloride	98-88-4	202-710-8	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention. See Notes.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention . Wear protective gloves when administering first aid.

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. Rest. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

INHALATION: may irritate eyes, nose and throat. INGESTION: causes acute discomfort. SKIN: causes irritation and burning. (USCG, 1999)

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

Basic Treatment: Establish a patent airway. Suction if necessary. Encourage patient to take deep breaths. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool . Irritating materials

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use foam, carbon dioxide, dry chemical and water fog. /Do not use/ water spray. Do not allow water to enter container.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Highly poisonous phosgene gas may be formed in fires. Behavior in Fire: At fire temperatures the compound may react violently with water or steam. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use alcohol-resistant foam, powder, carbon dioxide. NO water. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.2 Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.3 Methods and materials for containment and cleaning up

Neutralizing agents for acids and caustics: soda ash and water: lime.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. NO contact with incompatible substances. See Chemical Dangers. NO contact with hot surfaces. Above 72°C use a closed system, ventilation and explosion-proof electrical equipment. 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

See Chemical Dangers. Separated from food and feedstuffs and incompatible materials. Dry. Well closed.Store in a cool, dry, well-ventilated location. Outside or detached storage is preferred. Store away from oxidizing materials.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: (ceiling value): 0.5 ppm as STEL.MAK: skin absorption (H); carcinogen category: 1

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 face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Avoid inhalation of dust and mist. Use closed system or ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid.
Colour	Colorless.
Odour	Penetrating odor
Melting point/freezing point	-1 °C.
Boiling point or initial boiling point and boiling range	197.2 °C. Atm. press.:760 mm Hg.;100 °C. Atm. press.:35 mm Hg.;82.3 °C. Atm. press.:15 mm Hg.
Flammability	Combustible. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 1.1% by volume; Upper flammable limit: 7.1% by volume
Flash point	72 °C. Atm. press.:1 atm.
Auto-ignition temperature	600 °C. Atm. press.:1 atm. Remarks:Assumed at 1 atm.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Decomposes (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = 1.44. Temperature:21 °C.
Vapour pressure	0.084 kPa. Temperature:25 °C.;100 Pa. Temperature:27.5 °C.;0.402 kPa. Temperature:50 °C.
Density and/or relative density	1.21. Temperature:20 °C.
Relative vapour density	4.88 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on contact with hot surfaces or flames. This produces highly toxic and corrosive gases (phosgene and hydrogen chloride). Decomposes rapidly on heating and on contact with alkalis, alcohols, amines and dimethyl sulphoxide (see ICSC 0459). This generates fire and explosion hazard. Reacts violently with strong oxidants. Reacts with water and steam. This produces heat and corrosive fumes (hydrogen chloride - see ICSC 0163). Attacks many metals. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Contact with metal salts generates flammable/explosive gas (hydrogen - see ICSC 0001).

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Moderate, when exposed to heat or flame.The vapour is heavier than air.BENZOYL CHLORIDE reacts violently with protic solvents such as alcohols, with amines and amides (for example dimethylformamide [Bretherick 1979 p. 6]) and with inorganic bases. Causes the violent decomposition of dimethyl sulfoxide [Chem. Eng. News 35(9): 87 1957]. May react vigorously or explosively if mixed with diisopropyl ether or other ethers in the presence of trace amounts of metal salts [J. Haz. Mat., 1981, 4, 291]. Friedel-Crafts acylation of naphthalene using benzoyl chloride, catalyzed by AlCl3, must be conducted above the melting point of the mixture, or the reaction may be violent [Clar, E. et al., Tetrahedron, 1974, 30, 3296].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Dimethyl sulfoxide decomposition is violent on contact with... benzoyl chloride. ...

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of hydrogen chloride

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male) - 3 619 mg/kg bw.
- Inhalation: LC50 - rat (male) - ca. 1 450 mg/m³ air.
- Dermal: LD0 - (male/female) - 2 000 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

Evaluation: There is limited evidence in humans for the carcinogenicity of ... benzoyl chloride. ... There is inadequate evidence in experimental animals for the carcinogenicity of benzoyl chloride. Overall evaluation: Combined exposures to alpha-chlorinated toluenes and benzoyl chloride are probably carcinogenic to humans (Group 2A). alpha-Chlorinated toluenes & benzoyl chloride

Reproductive toxicity

no data available

STOT-single exposure

Lachrymation. The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation of the vapour or aerosol may cause lung oedema. See Notes.

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.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Pimephales promelas - 34.7 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: LC50 - Palaemonetes pugio - 180 mg/L - 96 h.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 45 mg/L - 72 h.
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

No data were available, but since benzoyl chloride hydrolysis is so rapid, biodegradation is not expected to be an important factor in the fate of benzoyl chloride. (SRC)

12.3 Bioaccumulative potential

No data were available, but due to the rapid rate of hydrolysis of benzoyl chloride, bioconcentration is not expected to be an important factor in the fate of benzoyl chloride. (SRC)

12.4 Mobility in soil

No data were available, but due to the rapid rate of hydrolysis of benzoyl chloride, the compound is not expected to persist in the soil. (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: UN1736 (For reference only, please check.)	IMDG: UN1736 (For reference only, please	IATA: UN1736 (For reference only, please

check.) check.)

14.2 UN Proper Shipping Name

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

14.3 Transport hazard class(es)

ADR/RID: 8 (For reference only, please check.) IMDG: 8 (For reference only, please check.) IATA: 8 (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: No IMDG: No IATA: No

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
Benzoyl chloride	Benzoyl chloride	98-88-4	202-710-8
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 July 15, 2019

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

Reacts violently with fire extinguishing agents such as water.The occupational exposure limit value should not be exceeded during any part of the working exposure.The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.Immediate administration of an appropriate inhalation therapy by a doctor, or by an authorized person, should be considered.

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