



Benzoyl Chloride CAS No.98-88-4

1. Product Identification

Synonyms: Benzenecarbonyl chloride; Alpha-chlorobenzaldehyde; Benzoic acid, chloride

CAS No.: 98-88-4

Molecular Weight: 140.57

Chemical Formula: C₆H₅COCl

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Hazardous		
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Benzoyl Chloride	98-88-4	90 - 100%
Yes		

3. Hazards Identification

Emergency Overview

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. MAY BE FATAL IF INHALED. HARMFUL IF SWALLOWED. VAPORS CAUSE SEVERE IRRITATION TO EYES AND RESPIRATORY TRACT. COMBUSTIBLE LIQUID AND VAPOR. WATER REACTIVE.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Life)

Flammability Rating: 2 - Moderate

Reactivity Rating: 2 - Moderate

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: White Stripe (Store Separately)

Potential Health Effects

Inhalation:

Corrosive. Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Inhalation may be fatal as a result of spasm inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

Ingestion:

Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach. Can cause sore throat, vomiting, diarrhea.

Skin Contact:

Corrosive. Symptoms of redness, pain, and severe burn can occur.

Eye Contact:

Vapors cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage.

Chronic Exposure:

Chronic exposure may cause skin and respiratory effects.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Flash point: 72C (162F) OC

Autoignition temperature: 600C (1112F)

Flammable limits in air % by volume:

l_{el}: 1.2; u_{el}: 4.9

Combustible. Contact with strong oxidizers may cause fire.

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back.

Fire Extinguishing Media:

Carbon dioxide or dry chemical. Do not use water or foam.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water spray may be used to keep fire exposed containers cool. Keep water from getting inside containers. Sealed containers may rupture when heated. Combustion by-products include phosgene and hydrogen chloride gases. Structural firefighter's protective clothing is ineffective for fires involving this material. Stay away from sealed containers.

6. Accidental Release Measures

Ventilate area of leak or spill. Keep water away from spilled material. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from

entering. Contain and recover liquid when possible. Cover liquid with powder from fire extinguisher and sodium bicarbonate, soda ash or slaked lime. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Use non-sparking tools and equipment. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Protect from moisture. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

ACGIH TLV:

0.5 ppm (Ceiling) A4 - Not classifiable as a human carcinogen.

AIHA Workplace Environmental Exposure Level:

1 ppm (15-minute STEL)

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airtight hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134).

Skin Protection:

Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Colorless, fuming liquid.

Odor:

Penetrating odor.

Solubility:

Decomposed by water; produces heat and corrosive fumes.

Specific Gravity:

1.21 @ 25C/4C

pH:

No information found.

% Volatiles by volume @ 21C (70F):

No information found.

Boiling Point:

197.2C (387F)

Melting Point:

-0.6C (30F)

Vapor Density (Air=1):

4.88

Vapor Pressure (mm Hg):

1 @ 32C (90F)

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable in closed containers under ordinary conditions of use and storage. Exposure to moisture may cause formation of toxic and corrosive hydrogen chloride.

Hazardous Decomposition Products:

May produce carbon monoxide, carbon dioxide, hydrogen chloride and phosgene when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Water, steam, alkalis, oxidizers, DMSO, sodium azide, alcohols, amines and other organic compounds containing reactive hydrogen.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Toxicological Data:

Oral rat LD50: 1900 mg/kg; inhalation rat LC50: 1870 mg/m³/2-hour. Investigated as a tumorigen and mutagen.

Carcinogenicity:

There is limited evidence that the manufacture of this material may cause cancer.

-----\Cancer Lists\-----			
Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Benzoyl Chloride (98-88-4)	No	No	3

12. Ecological Information

Environmental Fate:

When released to moist soil or water, this material is expected to hydrolyze. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material may be moderately degraded by photolysis. When released into the air, this material is expected to have a half-life between 1 and 10 days.

Environmental Toxicity:

This material may be toxic to aquatic life. The LC50/96-hour values for fish are between 10 and 100 mg/l.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: BENZOYL CHLORIDE
Hazard Class: 8
UN/NA: UN1736
Packing Group: II
Information reported for product/size: 4L

International (Water, I.M.O.)

Proper Shipping Name: BENZOYL CHLORIDE
Hazard Class: 8
UN/NA: UN1736
Packing Group: II
Information reported for product/size: 4L

International (Air, I.C.A.O.)

Proper Shipping Name: BENZOYL CHLORIDE
Hazard Class: 8
UN/NA: UN1736
Packing Group: II
Information reported for product/size: 4L

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient TSCA EC Japan
Australia

Benzoyl Chloride (98-88-4) Yes Yes Yes
Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient Korea --Canada--
Phil. DSL NDSL

Benzoyl Chloride (98-88-4) Yes Yes No
Yes

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-----\Federal, State & International Regulations - Part 1\-----
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313-----
Ingredient                               -SARA 302-   -----SARA
Chemical Catg.                          RQ          TPQ          List
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Benzoyl Chloride (98-88-4)               No          No           Yes
No

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-----\Federal, State & International Regulations - Part 2\-----
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TSCA-----
Ingredient                               -RCRA-      -
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Benzoyl Chloride (98-88-4)               1000       No           No

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Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
 Reactivity: Yes (Pure / Liquid)

Australian Hazchem Code: 2X
Poison Schedule: None allocated.
WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **2** Reactivity: **2** Other: **Water reactive**

Label Hazard Warning:

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. MAY BE FATAL IF INHALED. HARMFUL IF SWALLOWED. VAPORS CAUSE SEVERE IRRITATION TO EYES AND RESPIRATORY TRACT. COMBUSTIBLE LIQUID AND VAPOR. WATER REACTIVE.

Label Precautions:

- Do not breathe vapor or mist.
- Keep container closed.
- Do not get in eyes, on skin, or on clothing.
- Use only with adequate ventilation.
- Wash thoroughly after handling.
- Keep away from heat and flame.
- Do not contact with water.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases get medical attention immediately.

Product Use:

Laboratory Reagent.

Revision Information:

No Changes.

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