



**SIGMA-ALDRICH**

**Material Safety Data Sheet**

Date Printed: 06/01/2005  
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Version 1.30

**Section 1 - Product and Company Information**

<b>Product Name</b>	Benzoyl chloride, ReagentPlus&#153;, ≥99%		
<b>Product Number</b>	240540		
<b>Brand</b>	Aldrich Chemical		
<b>Company</b>	Sigma-Aldrich		
<b>Street Address</b>	3050 Spruce Street		
<b>City, State, Zip, Country</b>	SAINT LOUIS, MO 63103 US		
<b>Technical Phone:</b>	314 771 5765	<b>Emergency Phone:</b>	414 273 3850 Ext. 5996
<b>Fax:</b>	800 325 5052		

**Section 2 - Composition/Information on Ingredient**

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
BENZOYL CHLORIDE	98-88-4	Yes	202-710-8	607-012-00-0

**Formula** C7H5ClO  
**Synonyms** Benzaldehyde, alpha-chloro-, Benzenecarbonyl chloride, Benzoic acid, chloride, Benzoyl chloride (ACGIH), alpha-Chlorobenzaldehyde

**Section 3 - Hazards Identification**

**Emergency Overview**  
 Toxic. Dangerous for the environment.  
 Harmful if swallowed. Causes burns. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
 Lachrymator. Combustible.

**HMIS Rating**  
 Health: 3\* Flammability: 2 Reactivity: 1

**NFPA Rating**  
 Health: 3 Flammability: 2 Reactivity: 1

\*additional chronic hazards present.  
 For additional information on toxicity, please refer to Section 11.

**Section 4 - First Aid Measures**

**Oral Exposure**  
 If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

**Inhalation Exposure**  
 If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

**Dermal Exposure**  
 In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

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**Eye Exposure**  
 In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**Section 5 - Fire Fighting Measures**

**Explosion Hazards**  
 Container explosion may occur under fire conditions.

**Conditions of Flammability**  
 Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.

**Flash Point:** 161.6 °F 72 °C

**Explosion Limits:** Lower: 1.2 % Upper: 4.9 %

**Autoignition Temp:** 569 °C

**Extinguishing Media**  
**Suitable**  
 Carbon dioxide, dry chemical powder, or appropriate foam.

**Firefighting**  
**Protective Equipment**  
 Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

**Specific Hazard(s)**  
 Combustible liquid. Emits toxic fumes under fire conditions.

**Specific Method(s) of Fire Fighting**  
 Use water spray to cool fire-exposed containers.

**Section 6 - Accidental Release Measures**

**Procedure to be Followed In Case of Leak or Spill**  
 Evacuate area.

**Procedure(s) of Personal Precaution(s)**  
 Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

**Methods for Cleaning Up**  
 Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

**Section 7 - Handling and Storage**

**Handling**  
**User Exposure**  
 Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

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**Storage****Suitable**

Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place. Store under nitrogen.

**Special Requirements**

Store under inert gas. Moisture sensitive.

**Section 8 - Exposure Controls / PPE****Engineering Controls**

Use only in a chemical fume hood. Safety shower and eye bath.

**Personal Protective Equipment****Respiratory**

Government approved respirator.

**Hand**

Compatible chemical-resistant gloves.

**Eye**

Chemical safety goggles.

**General Hygiene Measures**

Wash contaminated clothing before reuse. Wash thoroughly after handling.

**Exposure Limits, RTECS**

Country	Source	Type	Value
USA	ACGIH	Ceiling concentration	0.5 PPM

**Section 9 - Physical/Chemical Properties****Appearance****Physical State**

Liquid

Molecular Weight: 140.57 AMU

Property	Value	At Temperature or Pressure	Other
pH	2.0		Concentration: 1 g/l
BP/BP Range	73 - 74 °C	11 mmHg	
MP/MP Range	-1 °C		
Freezing Point	N/A		
Vapor Pressure	1 mmHg	32 °C	
Vapor Density	4.88 g/l		
Saturated Vapor Conc.	N/A		
SG/Density	1.212 g/cm <sup>3</sup>		
Bulk Density	N/A		
Odor Threshold	N/A		
Volatile%	N/A		
VOC Content	N/A		
Water Content	N/A		
Solvent Content	N/A		
Evaporation Rate	N/A		
Viscosity	N/A		
Partition Coefficient	N/A		
Decomposition Temp.	N/A		
Flash Point °F	161.6 °F		Method: closed cup
Flash Point °C	72 °C		Method: closed cup
Explosion Limits	Lower: 1.2 % Upper: 4.9 %		
Flammability	N/A		
Autoignition Temp	569 °C		
Refractive Index	1.553		

**Solubility**

Solubility In Water: 2 mg/ml H<sub>2</sub>O

N/A = not available

**Section 10 - Stability and Reactivity****Stability****Stable**

Stable.

**Conditions to Avoid**

Protect from moisture.

**Materials to Avoid**

Strong oxidizing agents, Strong bases, Alcohols.

**Hazardous Decomposition Products****Hazardous Decomposition Products**

Carbon monoxide, Carbon dioxide.

**Hazardous Polymerization****Hazardous Polymerization**

Will not occur.

**Section 11 - Toxicological Information****Route of Exposure****Skin Contact**

Causes burns.

**Skin Absorption**

May be harmful if absorbed through the skin.

**Eye Contact**

Lachrymator, Causes burns.

**Inhalation**

May be harmful if inhaled.

**Ingestion**

Harmful if swallowed.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

RTECS Number: DM6600000

**Toxicity Data**

Skin - Rabbit: 790 mg/kg(LD50)

Oral - Rat: 1900 mg/kg (LD50)

Inhalation - Rat: 1,870 mg/m<sup>3</sup> (LC50)

**Irritation Data**

Skin - Rabbit: 24 H

Remarks: Severe irritation effect

Eyes - Rabbit:

Remarks: Severe irritation effect

**Chronic Exposure - Carcinogen**

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Mouse - Skin: 9200 MG/KG 50W I

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration: Tumors. Skin and Appendages: Other: Tumors.

Mouse - Skin: 17600 MG/KG 42W I

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

Mouse - Skin: 35200 MG/KG 42W I

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration: Tumors.

#### IARC Carcinogen List

Rating  
Group 3

#### ACGIH Carcinogen List

Rating  
A4

### Section 12 - Ecological Information

#### Acute Ecotoxicity Tests

##### Test Type

LC50 Fish

##### Species

Pimephales promelas (Fathead minnow)

Time: Value:

96.0 h 34.1 mg/l

##### Test Type

LC0 Fish

##### Species

Leuciscus idus

Time: Value:

72.0 h 200 mg/l

##### Test Type

LC0 Fish

##### Species

Brachydanio rerio

Time: Value:

96.0 h 7.5 mg/l

#### Elimination

### Section 13 - Disposal Considerations

#### Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Observe all federal, state, and local environmental regulations.

### Section 14 - Transport Information

#### DOT

Proper Shipping Name: Benzoyl chloride

UN#: 1736

Class: 8

Packing Group: Packing Group II

Hazard Label: Corrosive

PIH: Not PIH

#### IATA

Proper Shipping Name: Benzoyl chloride

Aldrich Chemical - 240540

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IATA UN Number: 1736

Hazard Class: 8

Packing Group: II

### Section 15 - Regulatory Information

#### EU Directives Classification

Symbol of Danger: C

Indication of Danger

Corrosive.

Risk Statements R: 34

Causes burns.

Safety Statements S: 26 45

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

#### US Classification and Label Text

Indication of Danger

Toxic. Dangerous for the environment.

Risk Statements

Harmful if swallowed. Causes burns. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

US Statements

Lachrymator. Combustible.

#### United States Regulatory Information

SARA Listed: Yes

Deminiims: 1 %

Notes: This product is subject to SARA section 313 reporting requirements.

TSCA Inventory Item: Yes

#### Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

### Section 16 - Other Information

#### Disclaimer

For R&D use only. Not for drug, household or other uses.

#### Warranty

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. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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