



# BENZOYL CHLORIDE (D5, 99%)

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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DLM-595

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form	: Substance
Substance name	: BENZOYL CHLORIDE (D5, 99%)
EC Index-No.	: 607-012-00-0 (Unlabeled)
EC-No.	: 202-710-8 (Unlabeled)
CAS-No.	: 43019-90-5
Product code	: DLM-595
Formula	: C6D5COCl

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Main use category	: Professional use
Industrial/Professional use spec	: For professional use only

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.  
50 Frontage Road  
Andover, MA 01810  
USA

USA: 1-800-322-1174 Int: 1-978-749-8000

[cilsales@isotope.com](mailto:cilsales@isotope.com) [www.isotope.com](http://www.isotope.com)

### Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)

International: 1-703-741-5970 (24 hours)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral)	H302
Acute Tox. 3 (Dermal)	H311
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Corr. 1A	H314
Eye Dam. 1	H318
Skin Sens. 1	H317

Full text of hazard classes and H-statements : see section 16

#### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Xn; R20/21/22

R52

C; R35

R43

Xi; R41

Full text of R-phrases: see section 16

#### GHS-US classification

Flam. Liq. 4	H227
Acute Tox. 4 (Oral)	H302
Acute Tox. 3 (Dermal)	H311
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Corr. 1A	H314
Eye Dam. 1	H318
Skin Sens. 1	H317
Aquatic Acute 3	H402

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Full text of H statements : see section 16

### Adverse physicochemical, human health and environmental effects

No additional information available

## 2.2. Label elements

### Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

GHS06

GHS07

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H302+H332 - Harmful if swallowed or if inhaled  
H311 - Toxic in contact with skin  
H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H318 - Causes serious eye damage

Precautionary statements (CLP) :

P260 - Do not breathe dust, fume, gas, mist, spray, vapors.  
P264 - Wash Both hands thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P272 - Contaminated work clothing should not be allowed out of the workplace.  
P280 - Wear protective clothing, protective gloves.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.  
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS05

GHS06

GHS07

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H227 - Combustible liquid  
H302+H332 - Harmful if swallowed or if inhaled  
H311 - Toxic in contact with skin  
H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H318 - Causes serious eye damage  
H402 - Harmful to aquatic life

Precautionary statements (GHS-US) :

P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking.  
P260 - Do not breathe dust, fume, gas, mist, spray, vapors.  
P261 - Avoid breathing dust, fume, gas, mist, vapors, spray.  
P264 - Wash Both hands thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P272 - Contaminated work clothing must not be allowed out of the workplace  
P273 - Avoid release to the environment.  
P280 - Wear protective clothing, protective gloves.  
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting  
P302+P352 - If on skin: Wash with plenty of water  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a poison center or doctor  
P312 - Call a poison center or doctor if you feel unwell  
P321 - Specific treatment (see Hazard pictograms (CLP) on this label)  
P330 - Rinse mouth.  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
P361 - Take off immediately all contaminated clothing.  
P362+P364 - Take off contaminated clothing and wash it before reuse.

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P363 - Wash contaminated clothing before reuse.  
P370+P378 - In case of fire: Use Alcohol resistant foam, Carbon dioxide, Dry chemical, Water spray to extinguish.  
P403+P235 - Store in a well-ventilated place. Keep cool.  
P405 - Store locked up.  
P501 - Dispose of contents/container to Comply with applicable regulations

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
BENZOYL CHLORIDE (D5, 99%)	(CAS-No.) 43019-90-5 (EC-No.) 202-710-8 (Unlabeled) (EC Index-No.) 607-012-00-0 (Unlabeled)	100	Xn; R20/21/22 R52 C; R35 R43 Xi; R41

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
BENZOYL CHLORIDE (D5, 99%)	(CAS-No.) 43019-90-5 (EC-No.) 202-710-8 (Unlabeled) (EC Index-No.) 607-012-00-0 (Unlabeled)	100	Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 Skin Sens. 1, H317

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	GHS-US classification
BENZOYL CHLORIDE (D5, 99%) (Main constituent)	(CAS-No.) 43019-90-5	100	Flam. Liq. 4, H227 Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 3, H402

Full text of H-phrases: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : Move out of dangerous area. Consult a physician and show this safety data sheet.  
First-aid measures after inhalation : If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.  
First-aid measures after skin contact : Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.  
First-aid measures after eye contact : Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.  
First-aid measures after ingestion : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
Symptoms/effects after skin contact : Toxic if absorbed through the skin. Causes skin burns.  
Symptoms/effects after eye contact : Causes eye burns.  
Symptoms/effects after ingestion : May be harmful if swallowed. Causes burns.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

#### 5.2. Special hazards arising from the substance or mixture

No additional information available

#### 5.3. Advice for firefighters

Firefighting instructions : Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Container explosion may occur under fire conditions.

##### 6.1.1. For non-emergency personnel

Emergency procedures : Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe area.

##### 6.1.2. For emergency responders

No additional information available

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters.

#### 6.3. Methods and material for containment and cleaning up

For containment : Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

#### 6.4. Reference to other sections

No additional information available

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Additional hazards when processed : Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store at room temperature away from light and moisture.

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

BENZOYL CHLORIDE (D5, 99%) (43019-90-5)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	0.50000000 ppm Eye & Upper Respiratory Tract irritation. Not classifiable as a human carcinogen

#### 8.2. Exposure controls

Appropriate engineering controls : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Materials for protective clothing : Wear suitable protective clothing and gloves.

Hand protection : Wear suitable protective clothing and gloves.

Eye protection : Wear safety glasses with side shields (or goggles) and a face shield.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : When appropriate, use NIOSH/CEN approved respirator.

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### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid
Molecular mass	: 145.6 g/mol (Labeled)
Color	: Colorless
Odor	: Pungent
Odor threshold	: No data available
pH	: 2 at 1 g/l
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: -1 °C (30 °F)
Freezing point	: No data available
Boiling point	: 198 °C (388 °F)
Flash point	: 72 °C (162 °F) - closed cup
Auto-ignition temperature	: 600 °C (1,112 °F) at 1,013 hPa (760 mmHg)
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 1 hPa (1mmHg) at 32 °C (90 °F)
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Water: 2 g/l
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: 1.2 - 4.9 % (V)

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Stable if stored under recommended conditions.

#### 10.3. Possibility of hazardous reactions

No additional information available

#### 10.4. Conditions to avoid

Avoid moisture. Heat, flames and sparks.

#### 10.5. Incompatible materials

Strong oxidizing agents, Strong bases, Alcohols.

#### 10.6. Hazardous decomposition products

Formed under fire conditions: carbon oxides, Hydrogen chloride gas.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Dermal: Toxic in contact with skin. Inhalation:dust,mist: Harmful if inhaled.

BENZOYL CHLORIDE (D5, 99%) (43019-90-5)	
LD50 oral rat	1900 mg/kg female
LD50 oral	3.619 mg/kg rat - male
LD50 dermal rabbit	790 mg/kg
LC50 inhalation rat (mg/l)	1870 mg/m <sup>3</sup> 2 h
ATE CLP (oral)	1900.000 mg/kg body weight
ATE CLP (dermal)	790.000 mg/kg body weight

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BENZOYL CHLORIDE (D5, 99%) (43019-90-5)	
ATE CLP (vapors)	1.870 mg/l/4h
ATE CLP (dust, mist)	1.870 mg/l/4h

Skin corrosion/irritation	: Causes severe skin burns and eye damage. Skin - Rabbit - Severe skin irritation - 24 h - pH: 2 at 1 g/l
Serious eye damage/irritation	: Causes serious eye damage. Eyes - Rabbit - Severe eye irritation - pH: 2 at 1 g/l
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: This product is or contains a component that is not classifiable as to its carcinogenicity on its IARC, ACGIH, NTP, or EPA classification.
Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: Not classified
Specific target organ toxicity – repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Inflammation and edema of the bronchi. Pneumonitis. Pulmonary edema. Wheezing. Burning sensation. Cough. Laryngitis. Shortness of breath. Headache. Nausea. Vomiting. Lachrymation. Destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. The chemical, physical, and toxicological properties have not been thoroughly investigated.
Symptoms/effects after inhalation	: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Symptoms/effects after skin contact	: Toxic if absorbed through the skin. Causes skin burns.
Symptoms/effects after eye contact	: Causes eye burns.
Symptoms/effects after ingestion	: May be harmful if swallowed. Causes burns.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
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BENZOYL CHLORIDE (D5, 99%) (43019-90-5)	
LC50 fish 1	34.1 mg/l Pimephales promelas (fathead minnow) - 96 h
LC50 fish 2	7.5 mg/l Danio rerio (zebra fish) - 96 h

### 12.2. Persistence and degradability

BENZOYL CHLORIDE (D5, 99%) (43019-90-5)	
Persistence and degradability	Readily biodegradable.
Biodegradation	95 % aerobic - Exposure time 20d

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
Product/Packaging disposal recommendations	: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Ecology - waste materials	: Dispose of as unused product.

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### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

UN-No.(DOT) : UN1736

#### 14.2. UN proper shipping name

Proper Shipping Name (DOT) : Benzoyl chloride  
Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136  
Hazard labels (DOT) : 8 - Corrosive



Packing group (DOT) : II - Medium Danger  
DOT Special Provisions (49 CFR 172.102) : B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.  
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.  
T8 - 4 178.274(d)(2) Normal..... Prohibited  
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.  
TP12 - This material is considered highly corrosive to steel.  
TP13 - Self-contained breathing apparatus must be provided when this hazardous material is transported by sea.  
DOT Packaging Exceptions (49 CFR 173.xxx) : 154  
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202  
DOT Packaging Bulk (49 CFR 173.xxx) : 242  
DOT RQ : 1000 lbs  
Marine pollutant : No

#### 14.3. Additional information

Other information : No supplementary information available.

#### Overland transport

Packing group (ADR) : II  
Class (ADR) : 8 - Corrosive substances  
Hazard identification number (Kemler No.) : 80  
Classification code (ADR) : C3  
Hazard labels (ADR) : 8 - Corrosive substances



Orange plates :

Tunnel restriction code (ADR) : E  
Limited quantities (ADR) : 1l  
EAC : 4W  
Excepted quantities (ADR) : E2

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### Transport by sea

DOT Vessel Stowage Location : C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.  
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"  
MFAG-No : 137

### Air transport

DOT Quantity Limitations Passenger aircraft/rail : 1 L  
(49 CFR 173.27)  
DOT Quantity Limitations Cargo aircraft only (49 : 30 L  
CFR 175.75)  
Civil Aeronautics Law : Corrosive substances

### 14.4. Environmental hazards

Other information : No supplementary information available.

### 14.5. Special precautions for user

### 14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### BENZOYL CHLORIDE (D5, 99%) (43019-90-5)

SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
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### 15.2. International regulations

#### CANADA

#### BENZOYL CHLORIDE (D5, 99%) (43019-90-5)

Listed on the Canadian DSL (Domestic Substances List)

#### 15.2.1. National regulations

No additional information available

### 15.3. US State regulations

#### BENZOYL CHLORIDE (D5, 99%)(43019-90-5)

U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

## SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Eye Dam. 1	Serious eye damage/eye irritation Category 1



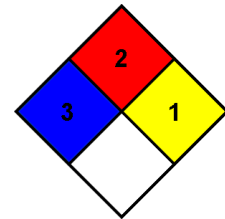
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Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Sens. 1	Skin sensitization, Category 1
H302	Harmful if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H332	Harmful if inhaled
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed
R35	Causes severe burns
R41	Risk of serious damage to eyes
R43	May cause sensitization by skin contact
R52	Harmful to aquatic organisms
C	Corrosive
Xi	Irritant
Xn	Harmful

- NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.
- NFPA fire hazard : 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.
- NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



### Hazard Rating

- Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
- Flammability : 2 Moderate Hazard
- Physical : 1 Slight Hazard

CIL Substance SDS

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*