

## \*\*\*\* MATERIAL SAFETY DATA SHEET \*\*\*\*

Benzyl chloroformate, stabilized, 97wt%

## \*\*\*\* SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION \*\*\*\*

MSDS Name: Benzyl chloroformate, stabilized, 97wt%

Catalog Numbers:

15294-0000, 15294-0050, 15294-1000

Synonyms:

Carbobenzoxy chloride, Carbonochloride acid benzylester

Company Identification (Europe): Acros Organics BVBA  
 Janssen Pharmaceuticalaan 3a  
 2440 Geel, Belgium

Company Identification (USA): Acros Organics  
 One Reagent Lane  
 Fairlawn, NJ 07410

For information in North America, call: 800-ACROS-01

For information in Europe, call: 0032(0) 14575211

For emergencies in the US, call CHEMTREC: 800-424-9300

For emergencies in Europe, call: 0032(0) 14575299

## \*\*\*\* SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS \*\*\*\*

| CAS#     | Chemical Name        | %      | EINECS#   | Haz Symbols | Risk Phrases |
|----------|----------------------|--------|-----------|-------------|--------------|
| 100-44-7 | Benzylchloride       | >0.1%  | 202-853-6 |             |              |
| 501-53-1 | Benzyl chloroformate | 97 wt% | 207-925-0 |             |              |

Text for R-phrases: see Section 16

Hazard Symbols: T N

Risk Phrases: 34 45 20

## \*\*\*\* SECTION 3 - HAZARDS IDENTIFICATION \*\*\*\*

## EMERGENCY OVERVIEW

Causes burns. May cause cancer. Harmful by inhalation. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Moisture sensitive.

## Potential Health Effects

## Eye:

Causes eye burns. Lachrymator (substance which increases the flow of tears).

## Skin:

Causes skin burns.

## Ingestion:

Causes gastrointestinal tract burns.

## Inhalation:

Causes respiratory tract irritation. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. May cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

## Chronic:

May cause cancer in humans. May alter genetic material.

## \*\*\*\* SECTION 4 - FIRST AID MEASURES \*\*\*\*

## Eyes:

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

immediately.

Skin:

Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion:

Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

Inhalation:

Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician:

Treat symptomatically and supportively.

\*\*\*\* SECTION 5 - FIRE FIGHTING MEASURES \*\*\*\*

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Will burn if involved in a fire. Containers may explode in the heat of a fire.

Extinguishing Media:

Use water spray to cool fire-exposed containers. Use foam, dry chemical, or carbon dioxide. DO NOT USE WATER!

\*\*\*\* SECTION 6 - ACCIDENTAL RELEASE MEASURES \*\*\*\*

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Neutralize spill with sodium bicarbonate. Isolate area and deny entry.

\*\*\*\* SECTION 7 - HANDLING and STORAGE \*\*\*\*

Handling:

Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Use only in a chemical fume hood.

Storage:

Keep away from sources of ignition. Store in a tightly closed container. Store in a dry area. Keep refrigerated. (Store below 4°C/39°F.) Bottles should be vented periodically in order to overcome pressure buildup.

\*\*\*\* SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION \*\*\*\*

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Personal Protective Equipment

Eyes:

Wear chemical goggles.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use

a NIOSH or European Standard EN 149 approved respirator when necessary.

\*\*\*\* SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES \*\*\*\*

Physical State: Clear liquid  
Color: almost colorless  
Odor: acrid odor  
pH: Not available.  
Vapor Pressure: Not available.  
Viscosity: Not available.  
Boiling Point: 103 deg C @ 20 mmHg  
Freezing/Melting Point: -20 deg C  
Autoignition Temperature: Not available.  
Flash Point: 91 deg C ( 195.80 deg F)  
Explosion Limits, lower: Not available.  
Explosion Limits, upper: Not available.  
Decomposition Temperature: > 50 deg C  
Solubility in water: Reacts.  
Specific Gravity/Density: 1.2 g/cm3  
Molecular Formula: C8H7ClO2  
Molecular Weight: 170.60

\*\*\*\* SECTION 10 - STABILITY AND REACTIVITY \*\*\*\*

Chemical Stability:  
Unstable.  
Conditions to Avoid:  
Incompatible materials, exposure to moist air or water, heat.  
Incompatibilities with Other Materials:  
Water, acids, bases, alcohols, amines.  
Hazardous Decomposition Products:  
Hydrogen chloride, phosgene, carbon monoxide, carbon dioxide.  
Hazardous Polymerization: Has not been reported.

\*\*\*\* SECTION 11 - TOXICOLOGICAL INFORMATION \*\*\*\*

RTECS#:  
CAS# 100-44-7: XS8925000  
CAS# 501-53-1: LQ5860000  
LD50/LC50:  
CAS# 100-44-7: Inhalation, mouse: LC50 = 80 ppm/2H; Inhalation, mouse: LC50 = 390 mg/m3/2H; Inhalation, rat: LC50 = 150 ppm/2H; Inhalation, rat: LC50 = 740 mg/m3/2H; Oral, mouse: LD50 = 1500 mg/kg; Oral, rat: LD50 = 1231 mg/kg.  
CAS# 501-53-1: Inhalation, rat: LC50 = 590 mg/m3/4H; Oral, rat: LD50 = 3 gm/kg.  
Not available.  
Carcinogenicity:  
Benzylchloride -  
ACGIH: A3 - Animal Carcinogen  
California: carcinogen; initial date 1/1/90  
OSHA: Possible Select carcinogen  
IARC: Group 2A carcinogen  
Benzyl chloroformate -  
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.  
See actual entry in RTECS for complete information.

\*\*\*\* SECTION 12 - ECOLOGICAL INFORMATION \*\*\*\*

Other  
Avoid entering into waters or underground water.

\*\*\*\* SECTION 13 - DISPOSAL CONSIDERATIONS \*\*\*\*

Dispose of in a manner consistent with federal, state, and local regulations.

## \*\*\*\* SECTION 14 - TRANSPORT INFORMATION \*\*\*\*

## IATA

Shipping Name: BENZYL CHLOROFORMATE (forbidden to ship via passenger aircraft). (forbidden to ship via passenger aircraft). (forbidden to ship via passenger aircraft).  
Hazard Class: 8  
UN Number: 1739  
Packing Group: I

## IMO

Shipping Name: BENZYL CHLOROFORMATE  
Hazard Class: 8  
UN Number: 1739  
Packing Group: I

## RID/ADR

Shipping Name: BENZYL CHLOROFORMATE  
Hazard Class: 8  
UN Number: 1739  
Packing group: I

USA RQ:CAS# 100-44-7: 100 lb final RQ; 45.4 kg final RQ

## \*\*\*\* SECTION 15 - REGULATORY INFORMATION \*\*\*\*

## European/International Regulations

## European Labeling in Accordance with EC Directives

Hazard Symbols: T N

Risk Phrases:

R 45 May cause cancer.  
R 20 Harmful by inhalation.  
R 34 Causes burns.  
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 53 Avoid exposure - obtain special instructions before use.  
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
S 60 This material and its container must be disposed of as hazardous waste.  
S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

## WGK (Water Danger/Protection)

CAS# 100-44-7: 3

CAS# 501-53-1: No information available.

## United Kingdom Occupational Exposure Limits

## United Kingdom Maximum Exposure Limits

CAS# 100-44-7: MEL-United Kingdom, TWA 0.5 ppm TWA; 2.6 mg/m3 TWA

CAS# 100-44-7: MEL-United Kingdom, STEL 1.5 ppm STEL; 7.9 mg/m3 STEL

CAS# 100-44-7: MEL-United Kingdom, STEL 1.5 ppm STEL; 7.9 mg/m3 STEL

## Canada

CAS# 100-44-7 is listed on Canada's DSL List.

CAS# 501-53-1 is listed on Canada's DSL List.

CAS# 100-44-7 is listed on Canada's Ingredient Disclosure List.

CAS# 501-53-1 is listed on Canada's Ingredient Disclosure List.

## Exposure Limits

CAS# 100-44-7: OEL-AUSTRALIA:TWA 1 ppm (5 mg/m3)

OEL-AUSTRIA:TWA 1 ppm (5 mg/m3)

OEL-BELGIUM:TWA 1 ppm (5.2 mg/m3)

OEL-DENMARK:STEL 1 ppm (5 mg/m3)

OEL-DENMARK:TWA 1 ppm (5 mg/m3)

OEL-FINLAND:TWA 1 ppm (5 mg/m3);STEL 3 ppm (15 mg/m3)

OEL-FRANCE:TWA 1 ppm (5 mg/m3);STEL 2 ppm (11 mg/m3);Skin  
OEL-FRANCE:TWA 1 ppm (5 mg/m3);STEL 3 ppm (15 mg/m3);CAR  
OEL-GERMANY:TWA 1 ppm (5 mg/m3);Carcinogen  
OEL-HUNGARY:STEL 0.5 mg/m3;Skin  
OEL-THE NETHERLANDS:TWA 1 ppm (5 mg/m3)  
OEL-THE PHILIPPINES:TWA 1 ppm (5 mg/m3)  
OEL-RUSSIA:STEL 0.5 mg/m3  
OEL-SWEDEN:TWA 1 ppm (5 mg/m3);STEL 2 ppm (11 mg/m3)  
OEL-SWEDEN:TWA 1 ppm (5 mg/m3);STEL 2 ppm (11 mg/m3);CAR  
OEL-SWITZERLAND:TWA 1 ppm (5 mg/m3);STEL 2 ppm (1 mg/m3)  
OEL-TURKEY:TWA 1 ppm (5 mg/m3)  
OEL-UNITED KINGDOM:TWA 1 ppm (3 mg/m3);STEL 2 ppm (6 mg/m3)  
OEL-UNITED KINGDOM:TWA 1 ppm (5 mg/m3)  
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV  
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

## US FEDERAL

## TSCA

CAS# 100-44-7 is listed on the TSCA inventory.  
CAS# 501-53-1 is listed on the TSCA inventory.

\*\*\*\* SECTION 16 - ADDITIONAL INFORMATION \*\*\*\*

MSDS Creation Date: 7/16/1996 Revision #3 Date: 3/05/2002

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

---