

1. PRODUCT AND COMPANY IDENTIFICATION

| | | |
|--|---|---|
| Product name | : Chlorambucil | |
| Product Number | : C0253 | |
| Brand | : Sigma | |
| Product Use | : For laboratory research purposes. | |
| Supplier | : Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA | Manufacturer : Sigma-Aldrich Corporation 3050 Spruce St. St. Louis, Missouri 63103 USA |
| Telephone | : +18003255832 | |
| Fax | : +18003255052 | |
| Emergency Phone # (For both supplier and manufacturer) | : (314) 776-6555 | |
| Preparation Information | : Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956 | |

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Carcinogen, Target Organ Effect, Toxic by ingestion, Irritant

Target Organs

Bone marrow

GHS Classification

Acute toxicity, Oral (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Carcinogenicity (Category 1B)
Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

| | |
|------|-----------------------------------|
| H301 | Toxic if swallowed. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H335 | May cause respiratory irritation. |
| H350 | May cause cancer. |

Precautionary statement(s)

| | |
|--------------------|--|
| P201 | Obtain special instructions before use. |
| P261 | Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. |
| P301 + P310 | IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if |

P308 + P313 present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.

HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 4-(4-[Bis(2-chloroethyl)amino]phenyl)butyric acid
4-[Bis(2-chloroethyl)amino]benzenebutyric acid

Formula : C₁₄H₁₉Cl₂NO₂ C₁₄H₁₉Cl₂NO₂

Molecular Weight : 304.21 g/mol

| CAS-No. | EC-No. | Index-No. | Concentration |
|---------------------|-----------|-----------|---------------|
| Chlorambucil | | | |
| 305-03-3 | 206-162-0 | - | - |

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO_x), Hydrogen chloride gas

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: 2 - 8 °C

Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

| | |
|--------|--------|
| Form | powder |
| Colour | beige |

Safety data

| | |
|------------------------|-------------------------------------|
| pH | no data available |
| Melting/freezing point | Melting point/range: 64 °C (147 °F) |
| Boiling point | no data available |
| Flash point | no data available |

| | |
|--|-------------------|
| Ignition temperature | no data available |
| Autoignition temperature | no data available |
| Lower explosion limit | no data available |
| Upper explosion limit | no data available |
| Vapour pressure | no data available |
| Density | no data available |
| Water solubility | no data available |
| Partition coefficient: n-octanol/water | log Pow: 1.47 |
| Relative vapour density | no data available |
| Odour | no data available |
| Odour Threshold | no data available |
| Evaporation rate | no data available |

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas

Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - rat - 76 mg/kg

Inhalation LC50

Dermal LD50

no data available

Other information on acute toxicity

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC: 1 - Group 1: Carcinogenic to humans (Chlorambucil)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: Known to be human carcinogen (Chlorambucil)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

| | |
|-------------------|--|
| Inhalation | May be harmful if inhaled. Causes respiratory tract irritation. |
| Ingestion | Toxic if swallowed. |
| Skin | May be harmful if absorbed through skin. Causes skin irritation. |
| Eyes | Causes eye irritation. |

Synergistic effects

no data available

Additional Information

RTECS: ES7525000

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 2811 Class: 6.1 Packing group: III
 Proper shipping name: Toxic solids, organic, n.o.s. (Chlorambucil)
 Reportable Quantity (RQ): 10 lbs
 Marine pollutant: No
 Poison Inhalation Hazard: No

IMDG

UN-Number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
 Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Chlorambucil)
 Marine pollutant: No

IATA

UN-Number: 2811 Class: 6.1 Packing group: III
 Proper shipping name: Toxic solid, organic, n.o.s. (Chlorambucil)

15. REGULATORY INFORMATION**OSHA Hazards**

Carcinogen, Target Organ Effect, Toxic by ingestion, Irritant

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

| | CAS-No. | Revision Date |
|--------------|----------|---------------|
| Chlorambucil | 305-03-3 | 1993-04-24 |

Pennsylvania Right To Know Components

| | CAS-No. | Revision Date |
|--------------|----------|---------------|
| Chlorambucil | 305-03-3 | 1993-04-24 |

New Jersey Right To Know Components

Chlorambucil

CAS-No.
305-03-3Revision Date
1993-04-24**California Prop. 65 Components**

WARNING! This product contains a chemical known to the State of California to cause cancer.

Chlorambucil

CAS-No.
305-03-3Revision Date
1992-11-09**California Prop. 65 Components**

WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Chlorambucil

CAS-No.
305-03-3Revision Date
1992-11-09

16. OTHER INFORMATION**Further information**

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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 Co., 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.
