1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product code: C1317
Product Name: CHLORAMPHENICOL, USP
Chemical Name: Acetamide, 2,2-dichloro-N-(beta-hydroxy-alpha-(hydroxymethyl)-p-nitrophenethyl)-D-(-)-threo-
<table>
<thead>
<tr>
<th>Synonyms:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetamide, 2,2-dichloro-N-(2-hydroxy-1-(hydroxymethyl)-2-(4-nitrophenyl)ethyl)-, (R-(R*,R*))-</td>
</tr>
<tr>
<td>Acetamide, 2,2-dichloro-N-(beta-hydroxy-alpha-(hydroxymethyl)-p-nitrophenethyl)-</td>
</tr>
<tr>
<td>Alficetyn</td>
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<tr>
<td>Amboten</td>
</tr>
<tr>
<td>Amphenicol</td>
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<tr>
<td>Amphicol</td>
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<tr>
<td>Amsclor</td>
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<tr>
<td>Anacetin</td>
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<tr>
<td>Aquamycetin</td>
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<tr>
<td>Austracol</td>
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<td>Biocetin</td>
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<td>Biophenicol</td>
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<tr>
<td>CAM</td>
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<tr>
<td>CAP</td>
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<tr>
<td>Catilan</td>
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<td>Chemicetin</td>
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<td>Chemicetina</td>
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<tr>
<td>Chlomin</td>
</tr>
<tr>
<td>Chlomycyl</td>
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<td>Chloramphenicol</td>
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<tr>
<td>Chlorasol</td>
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<td>Chloricol</td>
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<td>Chlorocidin C tetran</td>
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<td>Chloroptic</td>
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<td>Chlorovules</td>
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<tr>
<td>Cidocetine</td>
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<td>Ciplamycetin</td>
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<td>Cloramficin</td>
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<td>Cloramicol</td>
</tr>
<tr>
<td>Cloramicidina</td>
</tr>
<tr>
<td>Clorocyn</td>
</tr>
<tr>
<td>Cloromisan</td>
</tr>
<tr>
<td>Clorosintex</td>
</tr>
<tr>
<td>Comycetin</td>
</tr>
<tr>
<td>Cylphenicol</td>
</tr>
<tr>
<td>D(-)-2,2-Dichloro-N-(beta-hydroxy-alpha-(hydroxymethyl)-p-nitrophenylethyl)acetamide</td>
</tr>
<tr>
<td>D(-)-threo-1-p-Nitrophenyl-2-dichloracetamido-1,3-propanediol</td>
</tr>
<tr>
<td>D(-)-threo-2,2-Dichloro-N-(beta-hydroxy-alpha-(hydroxymethyl))-p-nitrophenethylacetamide</td>
</tr>
<tr>
<td>D(-)-threo-2-Dichloracetamido-1-p-nitrophenyl-1,3-propanediol</td>
</tr>
<tr>
<td>D(-)-threo-Chloramphenicol</td>
</tr>
</tbody>
</table>
Recommended use: Medication. Antibiotic.
CAS #: 56-75-7
Formula: C11-H12-Cl2-N2-O5
RTECS # A86825000
CI#: Not available
Supplier: Spectrum Chemicals and Laboratory Products, Inc. 14422 South San Pedro St. Gardena, CA 90248 (310) 516-8000
Emergency Telephone Number: CHEMTREC: 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Chris Terpak (East Coast)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
May cause skin and eye irritation. May cause irritation of respiratory tract. May be harmful if swallowed. May cause allergic skin reaction***

Odor: No information available
Physical state: Solid***
Appearance: Fine Crystals***

OSHA Regulatory Status
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)***

Product code: C1317
Product name: CHLORAMPHENICOL, USP
2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Principal Routes of Exposure:
Ingestion. Inhalation***

Acute Potential Health Effects:

Skin Contact:
May cause skin irritation***

Eye Contact:
May cause eye irritation***

Inhalation:
May cause irritation of respiratory tract***

Ingestion:
May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhoea. It may cause abdominal (stomach) distention. May affect the bone marrow. May affect the blood. May cause central nervous system effects. May affect the cardiovascular system. May cause metabolic acidosis. May affect respiration. May cause cyanosis. May cause vision disturbances. May affect the liver. It may affect the kidneys***

Chronic Potential Health Effects:

Component
Chloramphenicol
56-75-7 (100)

Carcinogen Status:
IARC Group 2A - Probably Carcinogenic to Humans
Reasonably Anticipated To Be a Human Carcinogen by NTP***

Target Organs:
Blood. Bone Marrow. Liver. Nervous system***

Teratogenic Effects:
May cause birth defects (teratogenic effects)
Showed teratogenic effects in animal experiments***

Mutagenic Effects:
May affect genetic material
Mutations in microorganisms
Experiments with bacteria and/or yeast have shown mutagenic effects
Animal experiments showed mutagenic effects
Experiments with human cells showed mutagenic effects***

Aggravated Medical Conditions:
Hypersensitivity to material. Impaired kidney function. Impaired liver function. Blood disorders. Bone marrow depression***

See Section 11 for additional Toxicological Information

POTENTIAL ENVIRONMENTAL EFFECTS

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloramphenicol</td>
<td>56-75-7</td>
<td>100</td>
</tr>
</tbody>
</table>

Product code: C1317   Product name: CHLORAMPHENICOL, USP
4. FIRST AID MEASURES

General Advice: Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops***

Eye Contact: Flush eye with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician***

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. In case of shortness of breath, give oxygen. Get medical attention***

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention***

Notes to Physician: Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Properties

Flashpoint (°C/°F): No information available.

Tested according to: Not available

Lower Explosion Limit (%): No information available

Upper Explosion Limit (%): No information available

Autoignition Temperature (°C/°F): No information available

Suitable Extinguishing Media: Carbon dioxide (CO2). Dry chemical. Water spray mist or foam***

Unsuitable Extinguishing Media: No information available.

Hazardous Combustion Products: Carbon monoxide; Carbon dioxide; Nitrogen oxides, Hydrogen chloride***

Specific hazards: May be combustible at high temperatures***

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

Specific Methods: No information available.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Remove all sources of ignition***
Environmental Precautions:
No information available.***

Methods for Cleaning Up:
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Clean contaminated surface thoroughly***

7. HANDLING AND STORAGE

Handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials***

Safe Handling Advice:
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not ingest. Do not breathe vapours/dust. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice***

Storage

Technical Measures/Storage Conditions:
Keep container tightly closed in a dry and well-ventilated place. Freeze. Store at 0 °C. Store away from incompatible materials***

Incompatible Products:
Oxidizing agents. Acids. Acid anhydrides. Acid chlorides***

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:
Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. ***

Personal Protective Equipment

Eye protection: Safety glasses. Safety glasses with side-shields***

Skin and body protection: Long sleeved clothing. Chemical resistant apron. Gloves***

Respiratory protection: Wear respirator with dust filter.***

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.***

National occupational exposure limits

United States

U.S Occupational Exposure Limits: Not determined***

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloramphenicol - 56-75-7</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>&lt; 0.5 mg/m³ TWA</td>
</tr>
</tbody>
</table>

Canada
9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state:** Solid***

**Odor:** No information available

**Flash point (°C):** Not applicable

**Autoignition Temperature (°C/°F):** No information available

**Melting point/range(°C/°F):** 149-153 °C/300.2-307.4 °F***

**Density (g/cm3):** No information available

**Vapor density:** No information available

**Odor threshold (ppm):** No information available

**Solubility:** Practically insoluble in Benzene
Soluble in Water
Very soluble in Ethanol
Very soluble in Acetone
Very soluble in chloroform
Very soluble in Butanol
Very soluble in Ethyl acetate
Very soluble in Methanol***

**Appearance:** Fine Crystals***

**Taste** Bitter***

**Lower Explosion Limit (%):** Not applicable

**Decomposition temperature(°C/°F):** No information available

**Bulk density:** No information available

**Evaporation rate:** No information available

**Partition coefficient (n-octanol/water):** 1.14***

**Color:** White. Grayish White. Yellowish White***

**Molecular/Formula weight:** 323.13***

**pH:** No information available

**Boiling point/range(°C/°F):** No information available

**Specific gravity:** No information available

**Vapor pressure @ 20°C (kPa):** No information available

**Miscibility:** No information available

10. STABILITY AND REACTIVITY

**Stability:** Stable at normal conditions

**Conditions to avoid:** Heat. Avoid dust formation. Incompatible materials***

**Materials to avoid:** Oxidising agents. Acids. Acid chlorides. Acid anhydrides***

**Hazardous decomposition products:** Carbon monoxide. Carbon dioxide. Nitrogen oxides (NOx). Hydrogen chloride gas***
Possibility of Hazardous Reactions: No information available

Polymerization: Hazardous polymerisation does not occur

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Chloramphenicol - 56-75-7

- LD50/oral/rat = 2500 mg/kg Oral LD50 Rat***
- LD50/oral/mouse = 1500 mg/kg***
- LD50/dermal/rabbit = No information available
- LD50/dermal/rat = No information available
- LC50/inhalation/rat = No information available
- LC50/inhalation/mouse = No information available
- Other LD50 information = 550 mg/kg Oral LD50 Guinea Pig***

Product Information

- LC50/inhalation/rat = No information available
- LC50/inhalation/mouse = No information available
- LD50/dermal/rabbit = No information available
- LD50/dermal/rat = No information available
- LD50/oral/rat = 2500 mg/kg***
- LD50/oral/mouse = 1500 mg/kg***

Local Effects

- Skin irritation: May cause skin irritation***
- Eye irritation: Contact with eyes may cause irritation***
- Inhalation: May cause irritation of respiratory tract***
- Ingestion: May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause abdominal distension. May cause metabolic acidosis. May cause cyanosis. May affect respiration (tachypnea (rapid breathing)). May affect the cardiovascular system (hypotension). May affect behavior/central nervous system (ataxia). May affect behavior/central nervous system (somnolence, convulsions)***
- Sensitization: May cause sensitization by skin contact***

Product code: C1317

Product name: CHLORAMPHENICOL, USP
Chronic Toxicity

Prolonged or repeated ingestion may affect the liver, and kidneys. Prolonged or repeated ingestion may affect metabolism. Prolonged or repeated ingestion may affect the bone marrow. Prolonged or repeated ingestion may affect the blood (leukemia, aplastic anemia, lymphomas, eosinophilia, agranulocytosis). Prolonged or repeated inhalation may cause central nervous system effects. Prolonged or repeated ingestion may affect peripheral neuritis/neuropathy. Prolonged or repeated inhalation or ingestion may affect the peripheral nervous system (weakness, paresthesia - a tingling, pricking, or numbness of the skin (known as the feeling of "pins and needles) generally of the hands and feet (extremities)). Prolonged or repeated ingestion may cause blurred vision, optic neuritis. Prolonged or repeated skin contact may cause allergic contact dermatitis. Prolonged or repeated ingestion may cause allergic reaction (rash, hives, difficulty breathing, shortness of breath, tightness in chest, swelling of mouth, face, lips, tongue), red, swollen, blistered, or peeling skin***

Carcinogenic effects:

Probably carcinogenic to humans***

<table>
<thead>
<tr>
<th>Components</th>
<th>NTP</th>
<th>IARC</th>
<th>OSHA HCS - Carcinogens</th>
<th>ACGIH - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloramphenicol</td>
<td>Reasonably Anticipated To Be A Human Carcinogen</td>
<td>Group 2A - Monograph 50 (1990) overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data Supplement 7 (1987)***</td>
<td>Present</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects: May affect genetic material

Mutations in microorganisms

Experiments with bacteria and/or yeast have shown mutagenic effects

Animal experiments showed mutagenic effects

Experiments with human cells showed mutagenic effects***

Reproductive Effects: May cause adverse reproductive effects. Experiments have shown reproductive toxicity effects on laboratory animals***

Teratogenic Effects: May cause birth defects (teratogenic effects). Showed teratogenic effects in animal experiments***

Target Organs: Blood. Bone Marrow. Liver. Nervous system***

12. ECOLOGICAL INFORMATION

ECOTOXICITY

Toxicity to terrestrial and aquatic plants and animals: No information available

Ecotoxicity effects: No data available***

Aquatic toxicity: No information available***

Mobility: No information available

Product code: C1317

Product name: CHLORAMPHENICOL, USP
13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Chloramphenicol</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
- UN-No: Not regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Packing Group: None
- Subsidiary Risk: Not applicable
- Marine Pollutant: No data available
- ERG No: No information available
- DOT RQ (lbs): No information available

TDG (Canada)
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Packing Group: No information available
- Subsidiary Risk: No information available
- Description: No information available

ADR
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Packing Group: No information available
- Subsidiary Risk: No information available
- Classification Code: No information available
- Description: No information available
- CEFIC Tremcard No: No information available

IMO / IMDG
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Description: No information available
- IMDG Page: No information available
- Marine Pollutant: No information available
- MFAG: No information available
- Maximum Quantity: No information available
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>Philippines (PICCS)</th>
<th>KOREA KECL</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
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</thead>
<tbody>
<tr>
<td>Chloramphenicol</td>
<td>Present</td>
<td>Not present</td>
<td>KE-10140</td>
<td>Not present</td>
<td>Present</td>
<td>Present</td>
<td>200-287-4</td>
</tr>
</tbody>
</table>

U.S. Regulations

Chloramphenicol

- Massachusetts RTK: Present
- Pennsylvania RTK: Special hazardous substance
- Pennsylvania RTK - Special Hazardous Substances: Present
- RI RTK - Hazardous Substances List: Present
- Minnesota - Hazardous Substance List: Present
- = 1 lb RQ
- California Directors List of Hazardous Substances: Present


Chemicals Known to the State of California to Cause Cancer:
WARNING: This product contains a chemical known to the State of California to cause cancer. (See table below)**

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloramphenicol</td>
<td>carcinogen</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

CERCLA/SARA

Product code: C1317  Product name: CHLORAMPHENICOL, USP
Components | CERCLA - Hazardous Substances and their Reportable Quantities | Section 302 Extremely Hazardous Substances and TPQs | Section 302 Extremely Hazardous Substances and RQs | Section 313 - Chemical Category | Section 313 - Reporting de minimis
---|---|---|---|---|---
Chloramphenicol | None | None | None | None | None

**U.S. TSCA**

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloramphenicol</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**Canada**

**WHMIS hazard class:**
D2A Very toxic materials ***

Chloramphenicol

D2A

**Canada Controlled Products Regulation:**
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

**Inventory**

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloramphenicol</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloramphenicol</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**EU Classification**

**R -phrase(s)**
R38 - Irritating to skin.
R40 - Limited evidence of a carcinogenic effect
R43 - May cause sensitization by skin contact.
R68 - Possible risk of irreversible effects.***

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**
Xi - Irritant.
Xn - Harmful.***
The MSDS format complies with ANSI Z400.1-2004 standards.

Preparation Date: 29-Jun-2011

Reason for revision: Not applicable

Prepared by: Sonia Owen

Literature reference: No information available

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. The physical properties reported in this MSDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.