



ESTRADIOL (3,4-13C2, 99%)

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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Version: 3.0

CLM-803

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

1.1. Product identifier

| | |
|----------------|--|
| Product form | : Substance |
| Substance name | : ESTRADIOL (3,4-13C2, 99%) |
| EC no | : 200-023-8 (Unlabeled) |
| CAS No | : 50-28-2 (Unlabeled) |
| Product code | : CLM-803 |
| Formula | : C16*C2H24O2 |
| Synonyms | : Dihydrofolliculin / Beta-Estradiol / 3,17Beta-dihydroxy-1,3,5(10)-estratriene / 1,3,5-Estratriene-3,17Beta-diol / 17Beta-Estradiol |

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 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]

Carc. 2 H351
Lact. H362
Repr. 1A H360

Full text of H-statements: see section 16

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

Carc.Cat.3; R40
Repr.Cat.1; R60
Repr.Cat.1; R61

Full text of R-phrases: see section 16

GHS-US classification

Carc. 2 H351
Lact. H362
Repr. 1A H360

Adverse physicochemical, human health and environmental effects

Female reproductive system, Male reproductive system.

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2.2. Label elements

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

Hazard pictograms (CLP) :



GHS08

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H351 - Suspected of causing cancer (in contact with skin, if inhaled, if swallowed)
H360 - May damage fertility. May damage the unborn child (in contact with skin, if inhaled, if swallowed)
H362 - May cause harm to breast-fed children

Precautionary statements (CLP) :

P260 - Do not breathe dust, fume, gas, mist, spray, vapours
P263 - Avoid contact during pregnancy/while nursing
P264 - Wash Both hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective clothing, protective gloves
P308+P313 - IF exposed or concerned: Get medical advice/attention
P405 - Store locked up
P501 - Dispose of contents/container to Comply with applicable regulations

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS08

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H351 - Suspected of causing cancer (Dermal, Inhalation, oral)
H360 - (Dermal, Inhalation, oral)
H362 - May cause harm to breast-fed children

Precautionary statements (GHS-US) :

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust, fume, gas, mist, spray, vapours
P263 - Avoid contact during pregnancy/while nursing
P264 - Wash Both hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective clothing, protective gloves
P308+P313 - IF exposed or concerned: Get medical advice/attention
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. Substance

| Name | Product identifier | % | Classification according to Directive 67/548/EEC |
|---|---|-----|---|
| ESTRADIOL (3,4-13C2, 99%) (Main constituent) | (CAS No) 50-28-2 (Unlabeled) (EC no) 200-023-8 (Unlabeled) | 100 | Carc.Cat.3; R40 Repr.Cat.1; R60 Repr.Cat.1; R61 |

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---|---|-----|---|
| ESTRADIOL (3,4-13C2, 99%) (Main constituent) | (CAS No) 50-28-2 (Unlabeled) (EC no) 200-023-8 (Unlabeled) | 100 | Carc. 2, H351 Lact., H362 Repr. 1A, H360 |

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

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| Name | Product identifier | % | GHS-US classification |
|---|------------------------------|-----|--|
| ESTRADIOL (3,4-13C2, 99%) (Main constituent) | (CAS No) 50-28-2 (Unlabeled) | 100 | Carc. 2, H351 Lact., H362 Repr. 1A, H360 |

Full text of H-statements: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
- 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 : Wash off with soap and plenty of water. Consult a physician.
- First-aid measures after eye contact : Flush eye with water for 15 minutes. Get medical attention.
- First-aid measures after ingestion : 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/injuries after inhalation : May be harmful if inhaled. May cause respiratory tract irritation.
- Symptoms/injuries after skin contact : May be harmful if absorbed through skin. May cause skin irritation.
- Symptoms/injuries after eye contact : May cause eye irritation.
- Symptoms/injuries after ingestion : May be harmful if swallowed.

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

No additional information available

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 : Wear self contained breathing apparatus for fire fighting if necessary.
- 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

6.1.1. For non-emergency personnel

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

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

- For containment : Pick up and arrange disposal without creating dust. Sweep up and shovel. 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 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.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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7.2. Conditions for safe storage, including any incompatibilities

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

No additional information available

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 : Safety glasses with side-shields conforming to EN166.
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.
Environmental exposure controls : Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Solid
Appearance : Powder.
Molecular mass : 274.37 g/mol (Labeled)
Colour : White.
Odour : No data available
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : 176 - 180 °C (349 - 356 °F) - lit.
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
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
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Two years after receipt of order if stored as above. Re-QC after two years.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Not available.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

carbon oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|---|--|
| Acute toxicity | : Not classified |
| Skin corrosion/irritation | : Not classified No data available |
| Serious eye damage/irritation | : Not classified No data available |
| Respiratory or skin sensitisation | : Not available No data available |
| Germ cell mutagenicity | : Rat - Other cell types DNA damage. . Rat - Morphological transformation. |
| Carcinogenicity | : The National Toxicological Program (Tenth Report on Carcinogens) has determined that steroidal estrogens are known to be human carcinogens based on sufficient evidence of carcinogenicity in humans, which indicates a causal relationship between exposure to steroidal estrogens and human cancer. This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. . Suspected human carcinogens |
| Reproductive toxicity | : Suspected human reproductive toxicant. Damage to fetus cannot be excluded. . Known human reproductive toxicant. Effects on or via lactation. May damage fertility. Suspected of damaging the unborn child. |
| Specific target organ toxicity (single exposure) | : Not classified No data available |
| Specific target organ toxicity (repeated exposure) | : Not classified No data available |
| Aspiration hazard | : Not classified |
| Potential adverse human health effects and symptoms | : To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Liver - Irregularities - Based on Human Evidence. |
| Symptoms/injuries after inhalation | : May be harmful if inhaled. May cause respiratory tract irritation. |
| Symptoms/injuries after skin contact | : May be harmful if absorbed through skin. May cause skin irritation. |
| Symptoms/injuries after eye contact | : May cause eye irritation. |
| Symptoms/injuries after ingestion | : May be harmful if swallowed. |

SECTION 12: Ecological information

12.1. Toxicity

ESTRADIOL (3,4-13C2, 99%) (50-28-2 (Unlabeled))

| | |
|-------------|---|
| LC50 fish 1 | > 0.5 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h |
|-------------|---|

12.2. Persistence and degradability

ESTRADIOL (3,4-13C2, 99%) (50-28-2 (Unlabeled))

| | |
|-------------------------------|----------------|
| Persistence and degradability | Not available. |
|-------------------------------|----------------|

12.3. Bioaccumulative potential

ESTRADIOL (3,4-13C2, 99%) (50-28-2 (Unlabeled))

| | |
|---------------------------|----------------|
| Bioaccumulative potential | Not available. |
|---------------------------|----------------|

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12.4. Mobility in soil

ESTRADIOL (3,4-13C2, 99%) (50-28-2 (Unlabeled))

| | |
|----------------|----------------|
| Ecology - soil | Not available. |
|----------------|----------------|

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : Not 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. |
| Waste 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. |

SECTION 14: Transport information

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

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Additional information

| | |
|-------------------------------|---|
| Other information | : No supplementary information available. |
| Special transport precautions | : Not dangerous goods. |

Overland transport

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

14.4. Environmental hazards

| | |
|-------------------|---|
| Other information | : No supplementary information available. |
|-------------------|---|

14.5. Special precautions for user

| | |
|-------------------------------|------------------------|
| Special transport precautions | : Not dangerous goods. |
|-------------------------------|------------------------|

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

ESTRADIOL (3,4-13C2, 99%) (50-28-2 (Unlabeled))

| | |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | Not subject to reporting requirements of the United States SARA Section 302. |
| SARA Section 311/312 Hazard Classes | Delayed (chronic) health hazard |
| SARA Section 313 - Emission Reporting | Not subject to reporting requirements of the United States SARA Section 313. |

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15.2. International regulations

CANADA

ESTRADIOL (3,4-13C2, 99%) (50-28-2 (Unlabeled))

Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

ESTRADIOL (3,4-13C2, 99%)(50-28-2 (Unlabeled))

| | |
|----------------------------|--|
| 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 WARNING! This product contains a chemical known by the state of California to cause cancer. |
|----------------------------|--|

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.

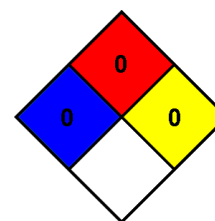
Full text of R-, H- and EUH-statements:

| | |
|----------|---|
| Carc. 2 | Carcinogenicity, Category 2 |
| Lact. | Reproductive toxicity, Additional category, Effects on or via lactation |
| Repr. 1A | Reproductive toxicity, Category 1A |
| H351 | Suspected of causing cancer |
| H360 | May damage fertility or the unborn child |
| H362 | May cause harm to breast-fed children |
| R40 | Limited evidence of a carcinogenic effect |
| R60 | May impair fertility |
| R61 | May cause harm to the unborn child |

NFPA health hazard : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



HMIS III Rating

Health : 0 Minimal Hazard - No significant risk to health

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

CIL Multi-Solvent Mixture 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