

SAFETY DATA SHEET

Version No. 012 Revision Date: 23.01.2017

SECTION 1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1. Product Identifier

| | | |
|------------------|---|--|
| Product name | : | Cyrene |
| EC No. | : | 807-130-4 |
| Synonyms | : | Dihydrolevoglucosenone (1 <i>S</i> ,5 <i>R</i>)-6,8-Dioxabicyclo[3.2.1]octan-4-one 1,6-Anhydro-3,4-dideoxy-β-D-glycero-hexanopyranos- 2-ulose DOBCO |
| Formula | : | C ₆ H ₈ O ₃ |
| Molecular Weight | : | 128.13 g/mol |
| CAS Registry No. | : | 53716-82-8 |
| IATA | : | Not dangerous goods – PERMITTED FOR TRANSPORT BY AIR |

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

| | |
|---------------------------|---|
| Relevant identified uses: | Manufacture of fine chemicals [SU9]; Formulation [mixing] of preparations and/or re-packaging (excluding alloys) [SU10]; Health services [SU20]; Scientific research and development [SU24]; Laboratory chemicals [PC21]; Pharmaceuticals [PC29]; |
|---------------------------|---|

1.3. Details of the supplier of the safety data sheet

| | | |
|---------------|---|--|
| Company | : | Circa Group Pty Ltd Building 404, Bio21 Institute University of Melbourne VIC 3010 AUSTRALIA |
| Telephone | : | +61 (0) 419 303 117 |
| Email address | : | service@circagroup.com.au |

1.4. Emergency Telephone Number

| | | |
|---------------------|---|---------------------|
| Emergency telephone | : | +61 (0) 448 020 179 |
|---------------------|---|---------------------|

Note: Data marked with an asterisk (*) has been provided by the F. Hoffmann-La Roche Ltd and remains the property of that company. It is included here in the interests of community safety.

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture according to EC Regulation No. 1272/2008

Eye Irrit. 2A, H319

2.2. Label elements

Labelling according to EC Regulation No. 1272/2008

Hazard Pictogram



Signal Word

WARNING

Hazard Statement

H319: Causes serious eye irritation.

Precautionary Statements

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313: Get medical advice/attention.

2.3. Other Hazards

No data available

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

| CAS Number | Weight % | Chemical name |
|------------|----------|--|
| 53716-82-8 | >=99.5% | (1S,5R)-6,8-dioxabicyclo[3.2.1]octan-4-one |

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

If inhaled:

If breathed in, move person into fresh air. If not breathing give artificial respiration. If symptoms are severe and/or persistent, **SEEK MEDICAL ATTENTION**

If in case of skin contact:

Remove all contaminated articles of clothing, shoes, gloves, safety glasses and immediately wash contaminated skin with soap and large amounts of water and continue flushing with water for at least 15 minutes - **SEEK MEDICAL ATTENTION**

In case of eye contact:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes.* **SEEK MEDICAL ATTENTION AS CYRENE IS KNOWN TO BE A SEVERE EYE IRRITANT ***

If swallowed:

Rinse mouth out thoroughly with large amounts of water and continue to do so for at least 15 minutes. Never give anything by mouth to an unconscious person. If symptoms are severe and/or persistent, **SEEK MEDICAL ATTENTION**

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

No data available

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

No data available

SECTION 5. FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

In the event of a fire involving this material, extinguish using water spray jet, dry powder, foam, carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

Formation of toxic combustion gases (carbon monoxide (CO)) possible

Vapours may be invisible and they are heavier than air. They spread on the soil and could penetrate into the sewerage system and into cellars.

Vapours can form an explosive mixture with air

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Protective clothing and breathing apparatus should be worn if the fire is large.

Precipitate gases/vapours/mists with water spray

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

If a large quantity has been spilt, evacuate all personnel and only allow intervention by trained operators equipped with safety apparatus.

For emergency responders

Emergency responders will be equipped with safety apparatus.

6.2. Environmental precautions

Do not allow material to enter drains, water courses or to contaminate soil. Dispose of in compliance with the environmental protection requirements.

6.3. Methods and materials for containment and cleaning up

Absorb on sand, vermiculite, diatomaceous earth or any inert absorbent material then place in a suitable closed container for disposal. Store container containing spillage outdoors in a secure, cool, ventilated area away from people. Contact a licensed hazardous waste disposal company for disposal.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Product should be worked up in closed equipment as far as possible.

Avoid contact with skin and eyes. Wear suitable gloves and eye/face protection.

Protection against fire and explosion:

The product is combustible.

This material should only be handled by persons suitably qualified and competent in the handling of

potentially hazardous chemicals. The full toxicological and physiological properties of this material are not known and so normal chemical hygiene precautions should be exercised by all personnel handling this material (see Section 8).

7.2. Conditions for safe storage, including any incompatibilities.

Store in a tightly closed container in a cool, dry and well ventilated area

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control Parameters

No occupational exposure limits known

8.2. Exposure Controls

Appropriate engineering controls

No information available

Personal protective equipment

Respiratory protection

This material has a low vapour pressure and respiratory protection is not required when handling small quantities under ambient conditions. Manipulation of small samples of the material should be performed in approved fume cupboards whenever possible. For large quantities, or handling at elevated temperatures, use multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards.

Hand protection

Protective gloves (eg made of neoprene, nitrile or butyl rubber)

Eye protection

Wear approved safety spectacles when handling small quantities and a full face shield for larger quantities.

Body Protection

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|------------------------------|---|--|
| Appearance | : | Clear, colourless to pale yellow liquid |
| Odour | : | Slight ketonic odour, can be lachrymatory at high concentrations |
| pH | : | no data available – not strongly acidic or basic. |
| Boiling point | : | 62 - 64°C / 267 Pa (literature); 116 -116.5 °C/ 10 mbar |
| Melting point | : | <-18°C |
| Purity | : | >99.0% (gas chromatography) |
| Flash point | : | 108°C (A.9. EG method)* |
| Ignition temperature | : | 296 °C (A.15. EG method)* |
| Lower explosion limit | : | no data available |

| | | |
|------------------------------------|---|--|
| Upper explosion limit | : | no data available |
| Molecular formula | : | C ₆ H ₈ O ₃ |
| Molecular weight | : | 128.13 g/mol |
| Density | : | 1.25 g/cm ³ |
| Solubility in water | : | completely miscible – hydrates to form gem diol. |
| Solubility in ethyl acetate | : | completely miscible |

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated

10.2. Chemical Stability

The product is stable if stored and handled as prescribed/indicated

10.3. Possibility of hazardous reactions

Reacts with strong acids, strong alkalis, strong oxidizing and reducing agents. Very strong exothermic decomposition with high decomposition power at temperatures above 200°C *

10.4. Conditions to avoid

Do not store under conditions of high (or variable) temperature. Keep away from sources of ignition. Exposure to moisture, direct sunlight and/or air should be kept to a minimum.

10.5. Incompatible materials

Strong acids and alkalis, strong oxidizing agents and strong reducing agents

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide

SECTION 11. TOXICOLOGICAL INFORMATION

| | | |
|----------------------------------|---|---|
| Acute toxicity | : | LD50 > 2,000 mg/kg (oral, rat) (OECD No. 423 (Acute Toxic Class Method))* |
| Irritation and corrosion | : | eye: irritant (In Vitro; OECD No. 437: BCOP Test)* skin: non-irritant (rabbit; OECD No. 404)* |
| Sensitisation | : | not skin sensitizing (mouse - OECD No. 429, LLNA (Local Lymph Node Assay))* |
| Chronic exposure | : | no data available |
| Carcinogenicity | : | no data available |
| Mutagenicity | : | negative, both with and without metabolic activation (OECD No.471 (Salmonella typhimurium))* not mutagenic (OECD No. 487 (In vitro Mammalian Cell Micronucleus Test))* |
| Chromasomatic aberrations | : | no data available |

Potential Health Effects

| | | |
|-------------------|---|--|
| Inhalation | : | may be harmful if inhaled. May cause respiratory tract irritation |
| Skin | : | may be harmful if absorbed through skin. May cause skin irritation |
| Eyes | : | causes severe eye irritation* , vapour is mildly lachrymatory in some individuals |
| Ingestion | : | may be harmful if swallowed |

SECTION 12. ECOLOGICAL INFORMATION**Elimination information (persistence and degradability)**

- readily biodegradable 99 %, 14 d (DOC Die-Away Test, OECD No. 301A)*

Ecotoxicity effects

- Barely toxic for algae (Pseudokirchneriella subcapitata - OECD No. 201)*

- Barely toxic for planktonic crustaceans (Daphnia magna - OECD No. 202)*

- Barely inhibitory on aerobic bacterial reproduction (Activated Sludge Respir. Inhib. Test, OECD No. 209)*

Further information on ecology

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Product**

Waste material should be collected and disposed of by a licensed disposal contractor. All waste disposal must be carried out in accord with all national, state, and local environmental regulations.

Contaminated packaging

Dispose of as for Product

SECTION 14. TRANSPORT INFORMATION

| | | |
|------------------|---|---------------------|
| ARD/RID | : | Not dangerous goods |
| IMDG | : | Not dangerous goods |
| IATA | : | Not dangerous goods |
| UN Number | : | N/A |

SECTION 15. REGULATORY INFORMATION

Classified according to REGULATION (EC) No 1272/2008

Candidate List: Not Listed

Chemical Weapons: Not Listed (Schedule 1, 2 & 3)

EINECS Number: Not Listed

DIRECTIVE 2012/18/EU: Not a Named Substance. Not in scope based on Circa Group's classification.

SECTION 16. OTHER INFORMATION

Circa Group believes the above information to be correct but does not claim that it is comprehensive. The information provided is intended to be used as a guide only. The information is based on the present state of Circa's 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. Circa Group Pty. Ltd., shall not be held liable for any damage resulting from handling or from contact with the above product.