Azelaic acid

sc-257106

Material Safety Data Sheet

Hazard Alert Code Key: EXTREME HIGH MODERATE LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Azelaic acid

STATEMENT OF HAZARDOUS NATURE

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY:
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C9-H16-O4, HO2C(CH2)7CO2H, "anchoic acid", "heptanedicarboxylic acid", "1, 7-heptanedicarboxylic acid", "lepargylic acid", "nonanedioic acid", "Emerox 1110", "Emerox 1144"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th>Category</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Toxicity</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Body Contact</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Chronicity</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

CANADIAN WHMIS SYMBOLS

1 of 8
EMERGENCY OVERVIEW
RISK
Irritating to eyes, respiratory system and skin.
POTENTIAL HEALTH EFFECTS
ACUTE HEALTH EFFECTS

SWALLOWED
■ The material has NOT been classified as "harmful by ingestion".
This is because of the lack of corroborating animal or human evidence.

EYE
■ Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals.
Prolonged eye contact may cause inflammation characterized by a temporary redness of the conjunctiva (similar to windburn).

SKIN
■ The material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time.
Repeated exposure can cause contact dermatitis which is characterized by redness, swelling and blistering.
■ Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.
■ Open cuts, abraded or irradiated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED
■ The material can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS
■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>azelaic acid</td>
<td>123-99-9</td>
<td>&gt;98</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

SWALLOWED
■ Immediately give a glass of water. ■ First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE
■ If this product comes in contact with the eyes: ■ Wash out immediately with fresh running water. ■ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN
■ If skin contact occurs: ■ Immediately remove all contaminated clothing, including footwear ■ Flush skin and hair with running water (and soap if available).

INHALED
■ If fumes or combustion products are inhaled remove from contaminated area. ■ Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN
■ Treat symptomatically.
Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG): Negligible
Upper Explosive Limit (%): Not available
Specific Gravity (water=1): 1.029 (100 C)
Lower Explosive Limit (%): Not available

EXTINGUISHING MEDIA
· There is no restriction on the type of extinguisher which may be used. Use extinguishing media suitable for surrounding area.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves for fire only.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
· Non combustible.
· Not considered to be a significant fire risk, however containers may burn. May emit poisonous fumes. May emit corrosive fumes.

FIRE INCOMPATIBILITY
■ None known.

PERSONAL PROTECTION
Glasses:
Safety Glasses.
Chemical goggles.
Gloves:
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Clean up all spills immediately.
· Avoid breathing dust and contact with skin and eyes.

MAJOR SPILLS
■ Moderate hazard.
· CAUTION: Advise personnel in area.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS
· Polyethylene or polypropylene container.
· Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS
· Store in original containers.
· Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Source</th>
<th>Material</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>STEL ppm</th>
<th>STEL mg/m³</th>
<th>Peak ppm</th>
<th>Peak mg/m³</th>
<th>TWA F/CC</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada - Ontario Occupational</td>
<td>azelaic acid (Particles Insoluble or Poorly Soluble)</td>
<td>10 (I)</td>
<td>10 (I)</td>
<td>10 (I)</td>
<td>10 (I)</td>
<td>10 (I)</td>
<td>10 (I)</td>
<td>10 (I)</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Substance Description</td>
<td>Limit</td>
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<tr>
<td><strong>Canada - British Columbia</strong></td>
<td>azelaic acid (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))</td>
<td>10 (N)</td>
<td></td>
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<tr>
<td><strong>Canada - Ontario</strong></td>
<td>azelaic acid (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)</td>
<td>3 (R)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>US - Tennessee</strong></td>
<td>azelaic acid (Particulates not otherwise regulated Respirable fraction)</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>US - California</strong></td>
<td>azelaic acid (Particulates not otherwise regulated Respirable fraction)</td>
<td>5 (n)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>US - Oregon (Z-1)</strong></td>
<td>azelaic acid (Particulates not otherwise regulated (PNOR) (f) Total Dust)</td>
<td>10</td>
<td></td>
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</tr>
<tr>
<td><strong>US - Michigan</strong></td>
<td>azelaic acid (Particulates not otherwise regulated, Respirable dust)</td>
<td>5</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>US - Oregon (Z-1)</strong></td>
<td>azelaic acid (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)</td>
<td>5</td>
<td></td>
<td></td>
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</tbody>
</table>

Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
**PERSONAL PROTECTION**

**RESPIRATOR**

**EYE**
- Safety glasses with side shields.
- Chemical goggles.

**HANDS/FEET**
- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
  - frequency and duration of contact,
  - chemical resistance of glove material,
  - glove thickness and
datax
- Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Contaminated gloves should be replaced.
- Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
  - Neoprene gloves.
- Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
  - polychloroprene
  - nitrile rubber
  - butyl rubber
  - fluorocaoutchouc
  - polyvinyl chloride
- Gloves should be examined for wear and/ or degradation constantly.

**OTHER**
- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

**ENGINEERING CONTROLS**
- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.
PHYSICAL PROPERTIES

Solid.
Does not mix with water.
Sinks in water.

<table>
<thead>
<tr>
<th>State</th>
<th>Divided solid</th>
<th>Molecular Weight</th>
<th>188.22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Range (°F)</td>
<td>223</td>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Range (°F)</td>
<td>680</td>
<td>Solubility in water (g/L)</td>
<td>Partly miscible</td>
</tr>
<tr>
<td>Flash Point (°F)</td>
<td>Not available</td>
<td>pH (1% solution)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition Temp (°F)</td>
<td>Not available</td>
<td>pH (as supplied)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition Temp (°F)</td>
<td>Not available</td>
<td>Vapour Pressure (mmHG)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not available</td>
<td>Specific Gravity (water=1)</td>
<td>1.029 (100°C)</td>
</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not available</td>
<td>Relative Vapor Density (air=1)</td>
<td>6.5</td>
</tr>
<tr>
<td>Volatile Component (%vol)</td>
<td>Negligible</td>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
</tbody>
</table>

APPEARANCE
White crystalline powder; does not mix well with water (0.24:100 @ 20°C).

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY
· Avoid strong bases.
For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

azelaic acid

TOXICITY AND IRRITATION

AZELAIC ACID:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

<table>
<thead>
<tr>
<th>TOXICITY</th>
<th>IRRITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral (rat) LD50: &gt;5000 mg/kg</td>
<td>Skin (rabbit): 500 mg/24h-Mild</td>
</tr>
<tr>
<td>Eye (rabbit): 3 mg - Mild</td>
<td></td>
</tr>
</tbody>
</table>

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

For dibasic acids (C7-14) (as represented by Corfree M1* (a mixture of dibasic acids, CAS 72162-23-3 ), sebacic acid (CAS 111-20-6), dodecanedioic acid (DDDA, CAS 693-23-2), undecanedioic acid (CAS 1852-04-6).

Acute toxicity: Acute toxicity data indicate that the chemicals exhibit similar acute toxicity. Acute oral toxicity LD50s of > 5000 mg/kg and > 3000 mg/kg have been measured for Corfree M1 and DDDA, respectively. These values represent the highest levels tested in their respective acute oral studies. Dermal LD50s for both chemicals were above the highest levels tested, 2000 mg/kg and 6000 mg/kg respectively for Corfree M1 and DDDA. Corfree M1 appears to be more irritating to the skin and eye than DDDA. In addition, DDDA is not a dermal sensitiser.

Repeat dose, reproductive and developmental toxicity: DDDA was tested in a combined repeat dose/reproductive developmental screening test in rats. Dose levels of 100, 500, and 1000 mg/kg were tested. No mortality was observed at any dose level. DDDA did not
significantly affect overall body weight, body weight gains, food consumption, or food efficiency in male or female rats which received DDDA via gavage for approximately 50 days. Male rats in the 500 and 1000 mg/kg groups had decreased lymphocyte counts. These were not considered adverse effects of the test substance since no morphological alterations were observed in the spleen, there were no decreases in thymus weights, and normal serum globulin concentrations were present. There were no gross or microscopic changes noted that were attributable to the test substance. Some transient cases of hypoactivity were observed shortly after dosing in the 500 and 1000 mg/kg males and the 1000 mg/kg females. There were no significant differences with respect to reproductive performance in male or female rats. The no-observed-adverse effect level (NOAEL) for the repeat dose, developmental, and reproductive toxicity sections of the study was 1000 mg/kg.

Genotoxicity: Genetic toxicity data are similar between the chemicals. Neither Corfree M1 nor DDDA were mutagenic in the bacterial reverse mutation assay using Salmonella typhimurium. No data were available on the clastogenicity of Corfree M1; however, DDDA did not induce micronuclei in an in vivo mouse micronucleus test.

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### Section 12 - ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
<th>Bioaccumulation</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>azelaic acid</td>
<td>LOW</td>
<td>No Data Available</td>
<td>LOW</td>
<td>MED</td>
</tr>
</tbody>
</table>

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### Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.

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### Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

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### Section 15 - REGULATORY INFORMATION

azelaic acid (CAS: 123-99-9) is found on the following regulatory lists:

- Canada Domestic Substances List (DSL)
- International Council of Chemical Associations (ICCA) - High Production Volume List
- US EPA High Production Volume Program Chemical List
- US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

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### Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Cumulative effects may result following exposure*.
* (limited evidence).

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its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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