

# Eleutheroside E

sc-285487

Material Safety Data Sheet



The Power to Question

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

Eleutheroside E

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### 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

C34-H46-O18, "phenol, 4, 4' -(tetrahydro-1H, 3H-furo[3, 4-c]furan-1, 4-diyl)bis(2, 6-", "dimethoxy-", " diglucoside, "syringaresinol di-O-glucoside", SDG, "lignan phytoestrogen/ phytoestrogen/ estrogen/ oestrogen"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	0	
Body Contact:	0	Min/Nil=0 Low=1
Reactivity:	1	Moderate=2
Chronic:	2	High=3 Extreme=4

### CANADIAN WHMIS SYMBOLS

None

### EMERGENCY OVERVIEW

### RISK

### 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

■ Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.

### SKIN

■ The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

■ Open cuts, abraded or irritated 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 is not thought to produce adverse health effects or irritation of the respiratory tract (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

## CHRONIC HEALTH EFFECTS

■ Exposure to the material may cause concerns for human fertility, on the basis that similar materials provide some evidence of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which are not a secondary non-specific consequence of other toxic effects.

Exposure to the material may cause concerns for humans owing to possible developmental toxic effects, on the basis that similar materials tested in appropriate animal studies provide some suspicion of developmental toxicity in the absence of signs of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not a secondary non-specific consequence of other toxic effects.

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.

Human and animal exposures to the phytoestrogens (for example the isoflavones, some flavonoids, saponin, coumestans and lignans) can be high because these compounds are found in many foods. Interest in the dietary phytoestrogens derives from their apparent protective effects against cancer, cardiovascular disease and osteoporosis. High levels, over extended periods, may produce toxic effects.

However, toxicological studies revealed that when administered in isolated or enriched form or at high doses isoflavones impair the function of the thyroid gland. It cannot be ruled out that this oestrogen-like effect also encourages the onset of breast cancer. Since women are more at risk of developing cancer in any case after menopause, the intake of food supplements with a high isoflavone content may present unexpected risks for this group of consumers.

Although phytoestrogens exist as the inactive glycoside in food products, bacterial beta-glycosidases, in the colon, hydrolyse the glycosides to the active aglycones.

A common feature of the phytoestrogens is their striking similarity to 17 $\beta$ -oestradiol and the synthetic oestrogen, diethylstilboestrol. There is evidence that phytoestrogens may mediate oestrogen-like effects by direct interaction with the oestrogen receptor of cells. Although the hormonal activity of phytoestrogens is two to five orders of magnitude below that of oestradiol, their high concentration in certain plants and their slower metabolic disposition, can lead to tissue levels exceeding those of endogenous oestrogens by a factor of a thousand or more.

There is also evidence that phytoestrogens may influence animal and human health by acting as antioxidants and hydrogen peroxide scavengers or by interfering with eicosanoid and cytokine production and cell signalling.

Anogenital distance, puberty onset, oestrus cycling, growth, sex-organ weight and hormonal profile are indicators of oestrogen- or anti-oestrogen like activity. Of interest is the finding that low doses of the dietary isoflavone, genistein, taken by pregnant rats produced shorter anogenital distances in the offspring; high doses did not produce this effect. Exposure to a 5% flaxseed diet (high in lignans) during pregnancy and lactation, resulted in the delayed puberty onset in rats (anti-oestrogenic effect). By contrast, a 10% flaxseed diet produced an earlier onset of puberty (an oestrogenic effect), but longer oestrus cycles due to prolonged dioestrus (an antioestrogenic effect).

There have been many reports of phytoestrogens disrupting reproductive activity in sheep. Infertility in sheep (so-called "clover disease") has been traced to isoflavone concentrations in clover (up to 5% dry weight). Temporary infertility is attributed to increased embryo mortality and a reduction or cessation in ovulation. Permanent infertility, in sheep, is purported to occur after 3 years of exposure to dietary oestrogenic compounds; this infertility is due to permanent changes in the architecture of the cervix and also changes in the viscoelasticity of the cervical mucous which prevents the transport of sperm through the cervix. In addition to these effects, phytoestrogens exert effects on oestrogen-sensitive tissues such as the mammary gland and female reproductive organs of the ewe. Cattle have also been shown to be sensitive to the oestrogen-like effects of dietary phytoestrogens. Specific observations include swelling of the vulva, discharge of cervical mucous, uterus enlargements and cystic ovaries. Irregular oestrus cycles, including periods of anoestrus, and decreased rates of conception have also been reported. The impact on reproductive activity, by phytoestrogens on humans, is unknown.

The recent practice of feeding infants soy-based formula raises issues related to the long-term health effects of exposure during development. It has been recognised, for example, that the practice may be associated with goiter (thyroid enlargement associated with thyroid hormone deficiency) in humans and animals. Soy phytoestrogens inhibit thyroid hormone synthesis at concentrations which occur in infant formula.

If sufficient inhibition of iodide uptake by the goiter occurs, formation of thyroid hormones is depressed. These hormones are essential to the regulation of oxygen consumption and metabolism throughout the body. Clinical manifestations of this so-called "hypothyroidism (or athyrea)" include low metabolic rate, a tendency to gain weight, somnolence, and myxoedema (a relatively hard oedema of the subcutaneous tissue), dryness and loss of hair, low body temperature, hoarseness, muscle weakness, a slow return of the muscle after tendon jerk, and slow mentation. When hypothyroidism occurs in women, early in pregnancy, the foetus is at risk of impaired physical and mental development, the severity of the impairment depending on the degree of hypothyroidism.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
syringaresinol diglucoside	96038-87-8	>98

## 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 eyes: · Wash out immediately with water. · If irritation continues, seek medical attention.

### SKIN

■ If skin or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

### INHALED

· If dust is inhaled, remove from contaminated area. · Encourage patient to blow nose to ensure clear passage of breathing. · If irritation or discomfort persists seek medical attention.

### NOTES TO PHYSICIAN

■ Treat symptomatically.

## Section 5 - FIRE FIGHTING MEASURES

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

### EXTINGUISHING MEDIA

· Water spray or fog.  
· Foam.

### FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.  
· Wear breathing apparatus plus protective gloves.

### GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Combustible solid which burns but propagates flame with difficulty.  
· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.  
Combustion products include: carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), other pyrolysis products typical of burning organic material.  
May emit poisonous fumes.

### FIRE INCOMPATIBILITY

■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

### PERSONAL PROTECTION

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

#### EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
US - California Permissible Exposure Limits for Chemical Contaminants	syringaresinol diglucoside (Particulates not otherwise regulated Respirable fraction)		5						(n)
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	syringaresinol diglucoside (Particulates not otherwise regulated Respirable fraction)		5						
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	syringaresinol diglucoside (Particulates not otherwise regulated (PNOR)(f)-Respirable fraction)		5						
US - Michigan Exposure Limits for Air Contaminants	syringaresinol diglucoside (Particulates not otherwise regulated, Respirable dust)		5						
Canada - Prince Edward Island Occupational Exposure Limits	syringaresinol diglucoside (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)		10						See Appendix B current TLV/BEI Book

ENDOELTABLE

#### PERSONAL PROTECTION



#### RESPIRATOR

Particulate

Consult your EHS staff for recommendations

#### 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
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- 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) 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) 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.

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
- fluorocautchouc
- 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.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	742.72
Melting Range (°F)	Not available	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

### APPEARANCE

■ Lignans are low molecular weight plant products resulting from the oxidative coupling of p-hydroxyphenylpropene units. The monomeric precursor units are cinnamic acid, cinnamyl alcohol, propenylbenzene and allylbenzene. Lignans (also known as Haworth lignans) are coupled acids and/or alcohols whilst neolignans are derived from coupled propenyl and/or allyl derivatives. The entire family is optically active and members exist as enantiomers or diastereomers. Lignans are obtained from the roots, heartwood, foliage, fruit and resinous exudates of plants and occur widely. Mammalian lignans are produced by bacterial conversion of the plant product in the gut. Lignans represent the dimer stage intermediate between monomeric propylphenols and lignin; no naturally occurring trimers or tetramers have been identified. Crystalline solid; mixes with water.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

### STORAGE INCOMPATIBILITY

- Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

SYRINGARESINOL DIGLUCOSIDE

### TOXICITY AND IRRITATION

#### SYRINGARESINOL DIGLUCOSIDE:

■ No significant acute toxicological data identified in literature search.

## Section 12 - ECOLOGICAL INFORMATION

No data

## 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.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

## Section 14 - TRANSPORTATION INFORMATION

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

## Section 15 - REGULATORY INFORMATION

**syringaresinol diglucoside (CAS: 96038-87-8,39432-56-9) is found on the following regulatory lists;**

"International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","US - Connecticut Hazardous Air Pollutants"

## Section 16 - OTHER INFORMATION

### Ingredients with multiple CAS Nos

Ingredient Name CAS syringaresinol diglucoside 96038-87-8, 39432-56-9

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■ 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](http://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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