

# Glyceryl tristearate

sc-215094



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

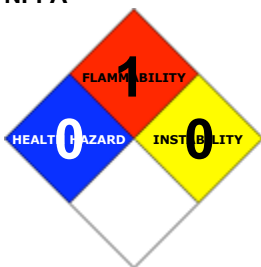
### PRODUCT NAME

Glyceryl tristearate

### 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

C57-H110-O6, stearin, "glyceryl tristearate", "stearic acid glyceryl ester"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

|               | Min | Max |
|---------------|-----|-----|
| Flammability: | 1   |     |
| Toxicity:     | 0   |     |
| Body Contact: | 0   |     |
| Reactivity:   | 1   |     |
| Chronic:      | 2   |     |

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 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.
- Use in food, and as food additive indicates high degree of tolerance.

##### 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.
- Irritation and skin reactions are possible with sensitive skin.
- 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.
- 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.
- Not normally a hazard due to non-volatile nature of product.
- Inhalation of oil droplets/ aerosols may cause discomfort and may produce chemical pneumonitis.
- Fine mists generated from plant/ vegetable (or more rarely from animal) oils may be hazardous. Extreme heating for prolonged periods, at high temperatures, may generate breakdown products which include acrolein and acrolein-like substances.

##### CHRONIC HEALTH EFFECTS

- 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.

Glyceryl triesters (triglycerides), following ingestion, are metabolised to monoglycerides, free fatty acids and glycerol, all of which are absorbed in the intestinal mucosa and undergo further metabolism. Little or no acute, subchronic or chronic oral toxicity was seen in animal studies unless levels approached a significant percentage of calorific intake. Subcutaneous injections of tricaprilyn in rats over a five-week period caused granulomatous reaction characterised by oil deposits surrounded by macrophages. Diets containing substantial levels of tributyrin produced gastric lesions in rats fed for 3-35 weeks; the irritative effect of the substance was thought to be the cause of tissue damage.

Dermal application was not associated with significant irritation in rabbit skin; ocular exposures were, at most, mildly irritating to rabbit eyes. No evidence of sensitisation or photosensitisation was seen in a guinea pig maximisation test. Most of the genotoxicity test systems were negative. Tricaprylin, trioctanoin and triolein have been used, historically, as vehicles in carcinogenicity testing of other chemicals. In one study, subcutaneous injection of tricaprilyn, in newborn mice, produced more tumours in lymphoid tissue than were seen in untreated animals whereas, in another study, subcutaneous or intraperitoneal injection in 4- to 6-week old female mice produced no tumours. Trioctanoin injected subcutaneously in hamster produced no tumours; when injected intraperitoneally in pregnant rats there was an increase in mammary tumours among the off-spring but similar studies in pregnant hamsters and rabbits showed no tumours in the off-spring.

The National Toxicological Program conducted a 2-year study in rats given tricaprilyn by gavage. The treatment was associated with a statistically significant dose-related increase in pancreatic acinar cell hyperplasia and adenoma but there were no acinar carcinomas.

Tricaprylin is not teratogenic to mice or rats but some reproductive effects were seen in rabbits. A low level of foetal eye abnormalities and a small percentage of abnormal sperm were reported in mice injected with trioctanoin.

| NAME       | CAS RN   | %   |
|------------|----------|-----|
| tristearin | 555-43-1 | >95 |

## 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): | 0.862 (80 deg C) |
| Lower Explosive Limit (%):  | Not available.   |

### EXTINGUISHING MEDIA

· Foam.  
· Dry chemical powder.

### FIRE FIGHTING

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

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 100 metres in all directions.

### GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Combustible.  
· Slight fire hazard when exposed to heat or flame.

Combustion products include: carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), acrolein, other pyrolysis products typical of burning organic material.

CARE: Water in contact with hot liquid may cause foaming and a steam explosion with wide scattering of hot oil and possible severe burns. Foaming may cause overflow of containers and may result in possible fire.

### 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

■ Environmental hazard - contain spillage.  
· Clean up all spills immediately.  
· Avoid contact with skin and eyes.

### MAJOR SPILLS

■ Environmental hazard - contain spillage.  
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

■ Rags wet / soaked with unsaturated hydrocarbons / drying oils may auto-oxidise; generate heat and, in-time, smoulder and ignite. This is especially the case where oil-soaked materials are folded, bunched, compressed, or piled together - this allows the heat to accumulate or even accelerate the reaction

Oily cleaning rags should be collected regularly and immersed in water, or spread to dry in safe-place away from direct sunlight or stored, immersed, in solvents in suitably closed containers.

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

### RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

### STORAGE REQUIREMENTS

- Observe manufacturer's storing and handling recommendations.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

| Source  | Material               | TWA ppm | TWA mg/m <sup>3</sup> | STEL ppm | STEL mg/m <sup>3</sup> | Peak ppm | Peak mg/m <sup>3</sup> | TWA F/CC | Notes   |
|---|------------------------|---------|-----------------------|----------|------------------------|----------|------------------------|----------|---|
| US ACGIH Threshold Limit Values (TLV)   | tristearin (Stearates) |         | 10                    |          |                        |          |                        |          | TLV Basis: eye, skin & upper respiratory tract irritation. Does not include stearates of toxic metals |
| Canada - British Columbia Occupational Exposure Limits                                  | tristearin (Stearates) |         | 10 (J)                |          |                        |          |                        |          |   |
| Canada - Prince Edward Island Occupational Exposure Limits                              | tristearin (Stearates) |         | 10                    |          |                        |          |                        |          | TLV Basis: eye, skin & upper respiratory tract irritation. Does not include stearates of toxic metals |
| Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits | tristearin (Stearates) |         | 10                    |          | 20                     |          |                        |          |   |

|   |                        |    |   |
|---|------------------------|----|---|
| Canada - Nova Scotia Occupational Exposure Limits | tristearin (Stearates) | 10 | TLV Basis: eye, skin & upper respiratory tract irritation. Does not include stearates of toxic metals |
|---|------------------------|----|---|

|   |  |    |
|---|--|----|
| Canada - Alberta Occupational Exposure Limits | tristearin (Stearates, excludes stearates of toxic metals) | 10 |
|---|--|----|

ENDOELTABLE

**PERSONAL PROTECTION**



**RESPIRATOR**

- particulate.

**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.  
Does not mix with water.  
Floats on water.

|                           |                |                                |                  |
|---------------------------|----------------|--------------------------------|------------------|
| State                     | Divided solid  | Molecular Weight               | 891.51           |
| Melting Range (°F)        | 136- 145       | Viscosity                      | Not Applicable   |
| Boiling Range (°F)        | Not available  | Solubility in water (g/L)      | Immiscible       |
| Flash Point (°F)          | Not available  | pH (1% solution)               | Not applicable   |
| 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)     | 0.862 (80 deg C) |
| Lower Explosive Limit (%) | Not available. | Relative Vapor Density (air=1) | Not Applicable   |
| Volatile Component (%vol) | Negligible     | Evaporation Rate               | Not Applicable   |

## APPEARANCE

White powder; floats on water. Fatty odour

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

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

### STORAGE INCOMPATIBILITY

- Materials soaked with plant/ vegetable derived (and rarely, animal) oils may undergo spontaneous combustion.

Avoid strong acids.

Food grade materials must be protected from all possible contaminants.

Avoid reaction with oxidizing agents.

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

## Section 11 - TOXICOLOGICAL INFORMATION

tristearin

### TOXICITY AND IRRITATION

#### TRISTEARIN:

- No significant acute toxicological data identified in literature search.

## Section 12 - ECOLOGICAL INFORMATION

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

### Ecotoxicity

| Ingredient | Persistence:<br>Water/Soil | Persistence: Air  | Bioaccumulation | Mobility |
|------------|----------------------------|-------------------|-----------------|----------|
| tristearin | HIGH                       | No Data Available | LOW             | LOW      |

## 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



DOT:

Symbols: G Hazard class or Division: 9

Identification Numbers: UN3077 PG: III

Label Codes: 9 Special provisions: 8, 146,

335, B54,

IB8, IP3,

N20, T1,

TP33

Packaging: Exceptions: 155 Packaging: Non- bulk: 213

Packaging: Exceptions: 155 Quantity limitations: No limit

Passenger aircraft/rail:

Quantity Limitations: Cargo No limit Vessel stowage: Location: A

aircraft only:

Vessel stowage: Other: None

Hazardous materials descriptions and proper shipping names:

Environmentally hazardous substance, solid, n.o.s

### Air Transport IATA:

ICAO/IATA Class: 9 ICAO/IATA Subrisk: None

UN/ID Number: 3077 Packing Group: III

Special provisions: A97

Cargo Only

Packing Instructions: 400 kg Maximum Qty/Pack: 956

Passenger and Cargo Passenger and Cargo

Packing Instructions: 400 kg Maximum Qty/Pack: 956

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: 30 kg G Maximum Qty/Pack: Y956

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,

N.O.S. \*(CONTAINS TRISTEARIN)

### Maritime Transport IMDG:

IMDG Class: 9 IMDG Subrisk: None

UN Number: 3077 Packing Group: III

EMS Number: F-A , S-F Special provisions: 179 274 335 909

Limited Quantities: 5 kg Marine Pollutant: Yes

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(contains tristearin)

## Section 15 - REGULATORY INFORMATION

**tristearin (CAS: 555-43-1,11099-07-3,22610-63-5,14811-92-8) is found on the following regulatory lists;**

"Canada Domestic Substances List (DSL)", "US Cosmetic Ingredient Review (CIR) Cosmetic ingredients found safe as used", "US Food Additive Database", "US Toxic Substances Control Act (TSCA) - Inventory"

## Section 16 - OTHER INFORMATION

ND

Substance CAS Suggested codes tristearin 555- 43- 1 N; R50/53 tristearin 11099- 07- 3 N; R50/53 tristearin 22610- 63- 5 N; R50/53

tristearin 14811- 92- 8 N; R50/53

### **Ingredients with multiple CAS Nos**

Ingredient Name CAS tristearin 555-43-1, 11099-07-3, 22610-63-5, 14811-92-8

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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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