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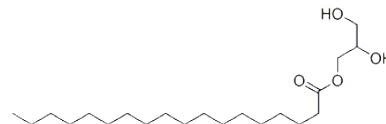
Product Name: Glyceryl Monostearate 1

Safety Data Sheet

Glyceryl Monostearate

I IDENTIFICATION

Synonyms glycerol-1-stearate; glycerol stearate, octadecanoic acid, 2,3-dihydroxypropyl ester
CAS# 123-94-4
Europe EC # 204-664-4
Material Use emulsifying agent in foods & cosmetics, thickener,



EMERGENCY INFORMATION

In the U.S.A. Call CHEMTREC (800) 424-9300
In Canada Call CANUTEC (collect) (613) 996-6666

II HAZARD IDENTIFICATION

GHS Class **NOT HAZARDOUS** See NOTE at the end of Part XII

(Category)

Signal Words **NONE**

Hazard Statements **NONE**

GHS Precautionary Statements for Labelling **NONE**

III COMPOSITION

	CAS NUMBER	%	TLV ppm / mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
Glycerol-1-Stearate	123-94-4	>42%*	not listed	>5000	>2000	not known

* Other components will be glycerol monoesters of other fatty acids of similar molecular weight such as lauric, oleic, and linoleic acids

IV FIRST AID

SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered. Seek medical help promptly if there is persistent itching or redness in the affected area.

EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.

INHALATION: Remove from contaminated area promptly. **CAUTION: Rescuer must not endanger himself!** If victim's breathing stops, administer artificial respiration and seek medical aid promptly.

INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

NOTE: Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity product. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.

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V FLAMMABILITY & FIRE-FIGHTING

Flash Point	not determined – >93°C / >200°F; for glycerol – 160°C ¹ , for stearic acid – 196°C ¹
Autoignition Temperature	not determined – for glycerol – above 290°C, for stearic acid – 395°C
Flammable Limits	not known – <i>not flammable, but will burn in fire</i>
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Firefighting Precautions	as for materials sustaining fire or as for an oil fire; firefighters must wear SCBA
Static Discharge	may accumulate a static charge

VI ACCIDENTAL RELEASE MEASURES

Leak Precaution	not applicable – <i>solid material</i> ; if molten, spill solidifies rapidly on contact with cool surfaces
Handling Spill	sweep, shovel & store in closed containers for disposal

VII HANDLING & STORAGE

Store below 58°C / 136°F, away from sources of ignition and oxidising agents. Product dust may accumulate a static charge. Ground containers and transfer equipment before handling to prevent static discharge, which may cause ignition.

Avoid creating or breathing product dust. If dust forms, install adequate ventilation to clear workplace air. Avoid prolonged contact with skin and wash work clothes frequently. An eye bath should be available near the workplace.

VIII EXPOSURE CONTROL & PERSONAL PROTECTION

ACGIH TLV	not listed	ACGIH STEL	not listed
OSHA PEL	not listed	OSHA STEL	not listed
Ventilation	mechanical ventilation is required to maintain airborne vapour or mist concentrations below TLV; a respirator with organic vapour cartridge should be available for escape purposes, in case of a spill or should ventilation fail (<i>always store respirator in an airtight container [eg: "Tupperware"] to maintain cartridge "freshness"</i>)		
Hands	gloves – <i>always confirm suitability with supplier</i>		
Eyes	safety glasses with side shields or chemical goggles – <i>always protect eyes!</i>		
Clothing	impermeable (hands, above) apron, boots, long sleeves, if splashing is anticipated		

IX PHYSICAL AND CHEMICAL PROPERTIES

NOTE: for Flash Point, Autoignition Temp, & Flammable Limits see Part 5.

Odour & Appearance	white to creamy coloured micro-beads
Odour Threshold	not known – <i>virtually odourless</i>
Vapour Pressure	not known – <i>little or no vapour is present</i>
Evaporation Rate (<i>Butyl Acetate = 1</i>)	not known – <i>not volatile</i>
Vapour Density (air = 1)	12 – <i>but little or no vapour is present</i>
Decomposition Temperature	not known – <i>no decomposition to boiling point</i>
Boiling Point	above 230°C / 446°F
Melting Point	58-62°C / 136-144°F
Specific Gravity	approx. 920 grams/litre (20°C) ³ – <i>for similar substance, glycerol monolaurate</i>
Water Solubility	0.0123mg/litre (25°C / 77°F) ¹ – <i>virtually insoluble; dispersible in hot (60°C) water</i>
- in other solvents	soluble in fats and hydrocarbons
Log P _{o/w} (<i>Octanol/H₂O Partition Coefficient</i>)	6.62 – <i>QSAR calculation</i> ¹
Viscosity	not applicable – <i>solid substance</i>
pH	not known – <i>does not yield hydrogen ions in water</i>
Molecular Weight	358grams/mole; may contain other, similar glycerol fatty monoesters

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X REACTIVITY

Dangerously Reactive With	no dangerous reactivity known
Also Reactive With	strong alkalis cause saponification; <i>may be vigorous if temperature is elevated & alcohol is present</i>
Chemical Stability	stable; will not polymerize
Decomposes in Presence of	no decomposition triggers known
Decomposition Products	none apart from Hazardous Combustion Products
Mechanical Impact	not sensitive

XI TOXICITY INFORMATION**i. ACUTE EXPOSURE**

Skin Contact	slightly irritating ¹ , or not irritating ³
Skin Absorption	yes, slowly; toxic effects unlikely by this route
Eye Contact	slightly irritating ¹ , or not irritating ³
Inhalation	not known; dust expected to be slightly irritating
Ingestion	not known – ingestion causes no symptoms ^{1,3}
LD ₅₀ (oral)	>5000mg/kg (rat) ¹ , <i>for similar substance glycerol monolaurate: >20,000 & >53,000mg/kg (rat)³</i>
LD ₅₀ (skin)	>2000mg/kg (rabbit) ³ – <i>for similar substance glycerol monolaurate</i>
LC ₅₀ (inhalation)	no data – <i>prolonged inhalation at 280mg/m³ has no effect³</i>

ii. CHRONIC EXPOSURE

General	repeated oral administration had no effect on rats NOTE: glyceryl monostearate is used as food additive & in “leave-on” cosmetics
Sensitising	not a sensitiser ^{1,3}
Carcinogen/Tumorigen	not known to be a tumorigen or a carcinogen in humans or animals ^{1,3}
Reproductive Effect	no known effect on humans or animals ^{1,3}
Mutagen	not known to be a mutagen or teratogen in humans or animals ^{1,3}
Synergistic With	not known

Not considered toxic on ingestion or skin application.²

XII ECOLOGICAL INFORMATION

Bioaccumulation	readily metabolised; cannot bioaccumulate ^{1,2}
Biodegradation	biodegrades readily in the presence of oxygen <i>if appropriately emulsified into water – by mechanical means or with a surfactant</i>
Abiotic Degradation	not known – <i>should hydrolyse into glycerol and stearic acid, both readily biodegradable</i>
Mobility in soil, water	water soluble; moves readily through soil & the water column
Aquatic Toxicity	
LC ₅₀ (Fish 96 hr)	>100mg/litre (Stepan data for “Drewmulse 200” – no species given)

Calculated Aquatic Toxicity

No other experimental aquatic toxicity data (acute) exists. QSAR calculated data (in mg/litre) is:

LC₅₀ (fish) = 0.046, LC₅₀ (crustacea) = 0.018, EC₅₀ (algae) = 0.017 – from Reference #1.

ECOSAR model calculated aquatic toxicity (chronic, in mg/litre) is:

LC₅₀ (fish) = 0.008, LC₅₀ (crustacea) = 0.013, EC₅₀ (algae) = 0.133 – from Reference #3.

NOTE: The above calculated data suggest that glyceryl monostearate is highly toxic to aquatic life. However, it is hard to imagine how a very low solubility substance which is simply a partially hydrolysed fat, readily digestible by all animals (terrestrial or aquatic) and rapidly biodegradable could be so toxic. Plus the Stepan data for fish (above) indicates toxicity at all. So, a “suggested” (Reference #2) GHS classification Chronic Aquatic Toxic, Category 3, seems both illogical and indefensible.

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XIII DISPOSAL CONSIDERATIONS

- Waste Disposal** **do not flush to sewer**; may be incinerated in approved facility with flue gas monitoring & scrubbing, mix with a suitable flammable waste before incineration; local regulations may permit disposal of this harmless material in sanitary landfill
- Containers** **Drums** should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.
Pails must be vented and thoroughly dried prior to crushing and recycling.
IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5 years). Steel containers must be inspected, pressure tested & recertified every 5 years.
Warning: never cut, drill, weld or grind on or near this container, even if empty.

XIV TRANSPORT INFORMATION**USA 49 CFR & Canada TDG**

Product Identification Number	UN – not regulated for transport
Shipping Name	not regulated for transport
Classification	not regulated for transport
Marine Pollution	<i>not a marine pollutant</i>
ERAP Required	<i>No</i>
Reportable Quantity (RQ)	<i>none</i>

XV REGULATIONS

Canada DSL	on inventory
U.S.A. TSCA	ACTIVE
Europe EINECS	on inventory

SARA 311/312

Acute: No
 Chronic: No
 Fire: No
 Sudden Release of Pressure: No
 Reactivity: No

XVI OTHER INFORMATION

Date of Preparation **July 2016**
Date of Revision **February 2019 (D. Moreno)**
 Prepared for Rierden Chemical & Trading Company, by **Peter Bursztyn**

With data from Registry of Toxic Effects of Chemical Substances (RTECS - USA), Hazardous Substance Data Base (HSDB - USA), Cheminfo (CCOHS - Canada), OSHA website, European Chemicals Agency (EChA) dossiers & other sources (below if used), as required/available.

(1) REACH Appendix 2; Review of Annex IV of Regulation No. 1907/2006; evaluation of existing entries, p119-121:

http://ec.europa.eu/environment/chemicals/reach/pdf/6b_appendix_2.pdf

(2) OECD; Categorisation Results from the Canadian Domestic Substances List, octadecanoic acid, 2,3-dihydroxypropyl ester:

<http://webnet.oecd.org/CCRWEB/ChemicalDetails.aspx?ChemicalID=6124c6b7-9da4-4a48-bda3-83dd472d2387>

(3) NICNAS (Australia) Full Public Report, octadecadienoic acid, 2,3-dihydroxypropyl ester (CAS# 2277-28-3 – a similar substance):

https://www.nicnas.gov.au/_data/assets/word_doc/0004/6727/LTD1487FR.docx

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