



SZABO SCANDIC

Part of Europa Biosite

Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

Weitere Information auf den folgenden Seiten!
See the following pages for more information!



Lieferung & Zahlungsart

siehe unsere [Liefer- und Versandbedingungen](#)

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

1-Stearoyl-rac-glycerol

sc-206210



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

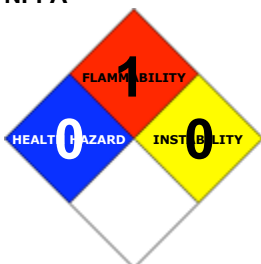
PRODUCT NAME

1-Stearoyl-rac-glycerol

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

C21-H42-O4, "glycerin monostearate", monostearin, "glycerol monoisostearate [CAS RN 66085-00-5]", "stearic acid, monoester with glycerol", "stearic monoglyceride", 1-monooctadecanoyl-rac-glycerol, "octadecanoic acid, monoester with 1, 2, 3-propanetriol", "octadecanoic acid, 2, 3-dihydroxypropyl ester [CAS RN 123-94-4]", "Abracol S.L.G.", "Atmos 150", "Cyclochem GMS", "Grocor 5500", "Ogeen M", Admul, "Atmul 67", Dermagine, "Grocor 6000", "Ogeen MAV", "Advawax 140", "Atmul 84", Distearin, "Hodag GMS", Orbon, "Aldo HMS", "Atmul 124", "Drewmulse TP", "Imwitor 191", "Aldo MS", Cefatin, "Drewmulse V", "Imwitor 900K", Sedetine, "Aldo MSA", "Celinhol -A", "Drumulse AA", "Kessco 40", "Starfol GMS", Aldo-28, "Cerasynt 1000-D", "Emerest 2400", "Lipo GMS 410", Tegin, Aldo-72, "Cerasynt S", "Emerest 2401", "Lipo GMS 450", "Tegin 503", "Food Additive 471", "Cerasynt SD", "Emcol CA", "Lipo GMS 600", "Tegin 515", "Arlacel 161", "Cerasynt SE", "Emcol MSK", Monelgin, "Unimate GMS", "Arlacel 169", "Cerasynt WM", "Emul P.7", "Ogeen 515", "USAF KE-7", "Armostat 801", "Citomulgan M", "Estol 603", "Ogeen GRB", "Witconol MS", "Cithrol GMS A/S", "Rikemal S-100"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

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

Reactivity: 1 
Chronic: 0 

CANADIAN WHMIS SYMBOLS

None

EMERGENCY OVERVIEW RISK

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Accidental ingestion of the material may be damaging to the health of the individual.
- Use in food, and as food additive indicates high degree of tolerance.
- Nonionic surfactants may produce localized irritation of the oral or gastrointestinal lining and induce vomiting and mild diarrhea.

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.
- Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.
- 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 either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models). Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
- Inhalation hazard is increased at higher temperatures.
- 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.
- 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

- Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified using animal models); nevertheless exposure by all routes should be minimized as a matter of course.
- 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.
- Glycerol esters occur throughout nature and make up part of the normal diet.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
glyceryl monostearate	31566-31-1	99

Section 4 - FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

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

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Other measures are usually unnecessary.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	0.1
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	0.98
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.

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 (CO₂), acrolein, 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:

Type A-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable, labelled container for waste disposal.

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

■ 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

- Store in original containers.
- Store at -20° C.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
US - California Permissible Exposure Limits for Chemical Contaminants	glyceryl monostearate (Glyceryl stearate)		10						
Canada - Nova Scotia Occupational Exposure Limits	glyceryl monostearate (Pentyl acetate - All isomers)	50		100					TLV Basis: upper respiratory tract irritation
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	glyceryl monostearate (Pentyl acetate, all isomers)	50		100					
US ACGIH Threshold Limit Values (TLV)	glyceryl monostearate (Pentyl acetate - All isomers)	50		100					TLV Basis: upper respiratory tract irritation
Canada - Prince Edward Island Occupational Exposure Limits	glyceryl monostearate (Pentyl acetate - All isomers)	50		100					TLV Basis: upper respiratory tract irritation
US - Oregon Permissible Exposure Limits (Z-3)	glyceryl monostearate (Inert or Nuisance Dust:(d) Respirable fraction)		5						Oregon Permissible Exposure Limits (PELs) are different than the federal limits.
US - Hawaii Air Contaminant Limits	glyceryl monostearate (Particulates not other wise regulated - Respirable fraction)		5						
US - Hawaii Air Contaminant Limits	glyceryl monostearate (Particulates not other wise regulated - Total dust)		10						

US OSHA Permissible Exposure Levels (PELs) - Table Z3	glyceryl monostearate (Inert or Nuisance Dust: (d) Respirable fraction)	5		
US OSHA Permissible Exposure Levels (PELs) - Table Z3	glyceryl monostearate (Inert or Nuisance Dust: (d) Total dust)	15		
US - Oregon Permissible Exposure Limits (Z-3)	glyceryl monostearate (Inert or Nuisance Dust: (d) Total dust)	10		Oregon Permissible Exposure Limits (PELs) are different than the federal limits.
Canada - British Columbia Occupational Exposure Limits	glyceryl monostearate (Pentyl acetate, all isomers)	50	100	
US - Hawaii Air Contaminant Limits	glyceryl monostearate (Mercury (vapor) (as Hg))	0.05		
US ACGIH Threshold Limit Values (TLV)	glyceryl monostearate (Stearates)	10		TLV Basis: eye, skin & upper respiratory tract irritation. Does not include stearates of toxic metals
Canada - British Columbia Occupational Exposure Limits	glyceryl monostearate (Stearates)	10 (J)		
Canada - Prince Edward Island Occupational Exposure Limits	glyceryl monostearate (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	glyceryl monostearate (Stearates)	10	20	
Canada - Nova Scotia Occupational Exposure Limits	glyceryl monostearate (Stearates)	10		TLV Basis: eye, skin & upper respiratory tract irritation. Does not include stearates of toxic metals

Canada - Alberta Occupational Exposure Limits	glyceryl monostearate (Stearates, excludes stearates of toxic metals)		10			
Canada - Northwest Territories Occupational Exposure Limits (English)	glyceryl monostearate (Dioxane - Tech. grade - Skin)	25	90	100	360	
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	glyceryl monostearate (Dioxane)	20	72			
US - Alaska Limits for Air Contaminants	glyceryl monostearate (Dioxane (Diethylene dioxide))	25	90			
US - Oregon Permissible Exposure Limits (Z-1)	glyceryl monostearate (Dioxane (Diethylene dioxide))	100	360			
Canada - Ontario Occupational Exposure Limits	glyceryl monostearate (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)			
Canada - British Columbia Occupational Exposure Limits	glyceryl monostearate (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	glyceryl monostearate (Particulates not otherwise regulated Respirable fraction)		5			
Canada - Ontario Occupational Exposure Limits	glyceryl monostearate (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)		3 (R)			
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	glyceryl monostearate (Particulates not otherwise regulated (PNOR)(f)-Respirable)		5			

fraction)

US - Oregon Permissible Exposure Limits (Z-1)	glyceryl monostearate (Particulates not otherwise regulated (PNOR) (f) Total Dust)	-	10	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Michigan Exposure Limits for Air Contaminants	glyceryl monostearate (Particulates not otherwise regulated, Respirable dust)		5	
Canada - Prince Edward Island Occupational Exposure Limits	glyceryl monostearate (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)		10	See Appendix B current TLV/BEI Book
US - Oregon Permissible Exposure Limits (Z-1)	glyceryl monostearate (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	-	5	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

•Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

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, 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.

- Protective gloves eg. Leather gloves or gloves with Leather facing.

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
- fluoroelastomer
- 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

- Care: Atmospheres in bulk storages and even apparently empty tanks may be hazardous by oxygen depletion. Atmosphere must be checked before entry.

Requirements of State Authorities concerning conditions for tank entry must be met. Particularly with regard to training of crews for tank entry; work permits; sampling of atmosphere; provision of rescue harness and protective gear as needed.

- 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	358.56
Melting Range (°F)	133- 136	Viscosity	Not available
Boiling Range (°F)	>572	Solubility in water (g/L)	Immiscible
Flash Point (°F)	399	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	0.1
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	0.98
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	> 2
Volatile Component (%vol)	Nil @ 38 C	Evaporation Rate	Non Volatile
Gas group	IIA		

APPEARANCE

White, cream coloured, waxy solid beads or flakes; insoluble in water. Faint fatty odor and oily taste. Soluble in hot alcohol, benzene, ether, acetone, mineral or fixed oils. May be readily emulsified in water. Available as Technical and Cosmetic, also Food grades. Occurs as isomers CAS RN: 123-94-4 glyceryl alpha monostearate; most common and as CAS RN: 621-61-4 glyceryl beta monostearate.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

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

STORAGE INCOMPATIBILITY

- 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

glyceryl monostearate

TOXICITY AND IRRITATION

GLYCERYL MONOSTEARATE:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.
- No data of toxicological significance identified in literature search.

CARCINOGEN

MERCURY COMPOUNDS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC
Polychlorinated biphenyls (PCBs) (high risk)(P)	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	2A
Polychlorinated biphenyls (PCBs) (low risk)(P)	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	
PBIT_(PERS~	US - Maine Chemicals of High Concern List	Carcinogen	

Section 12 - ECOLOGICAL INFORMATION

No data

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
glyceryl monostearate	HIGH	No Data Available	LOW	MED

GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS TRN A1a A1b A1 A2 B1 B2 C1 C2 C3 D1 D2 D3 E1 E2 E3 Cas No / RTECS No _____
Butyl 387 147 1 1 R 2 NI 0 0 2 0 1 FED 2 acetate / CAS:31566 - 31- 1 /

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships)
NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation, B1=Acuteaquatic toxicity LC/ECIC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg), C2=Acute mammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation & corrosion, D2=Eye irritation & corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats, E3=Interference with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3: C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lung injury, N=Neurotoxic, I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater, F=Floater, S=Sinking substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard. (GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships)

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

glyceryl monostearate (CAS: 31566-31-1,123-94-4,66085-00-5) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US EPA High Production Volume Program Chemical List", "US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use as Components of Coatings - Acrylate ester copolymer coating", "US Food Additive Database", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Ingestion may produce health damage*.
- Repeated exposure potentially causes skin dryness and cracking*.

* (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances

Substance CAS Suggested codes glyceryl monostearate 31566- 31- 1 Xn; R22 N; R50/53 glyceryl monostearate 123- 94- 4 N; R50/53 glyceryl monostearate 66085- 00- 5 N; R50/53

Ingredients with multiple CAS Nos

Ingredient Name CAS glyceryl monostearate 31566-31-1, 123-94-4, 66085-00-5

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from 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.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.

Issue Date: May-24-2008

Print Date: Aug-13-2011