

3-D Microemulsion (3DMe)TM
MATERIALS SAFETY DATA SHEET

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Section 1 – Material Identification

Supplier:



REGENESIS

1011 Calle Sombra
San Clemente, CA 92673

Phone: 949.366.8000

Fax: 949.366.8090

E-mail: info@regenesis.com

Chemical Name(s):

- Glycerides, di-, mono [2-[2-[2-(2-hydroxy-1-oxopropoxy)-1-oxopropoxyl]-1-oxopropoxy]propanoates]
- Propanoic acid, 2-[2-[2-(2-hydroxy-1-oxopropoxy)-1-oxopropoxy]-1-oxopropoxy]-1,2,3-propanetriyl ester
- Glycerol

Chemical Family: Organic Chemical

Trade Name: 3-D Microemulsion (3DMe)TM

Synonyms: HRC AdvancedTM HRC-PED (Hydrogen Release Compound – Partitioning Electron Donor)

Product Use: Used to remediate contaminated groundwater (environmental applications)

Section 2 – Chemical Identification

<u>CAS#</u>	<u>Chemical</u>
823190-10-9	HRC-PED
61790-12-3 or 112-80-1	Fatty Acids (neutralized)
201167-72-8	Glycerol Tripoly lactate
56-81-5	Glycerol

Section 3 – Physical Data

Melting Point:	Not Available (NA)
Boiling Point:	Not determined (ND)
Flash Point:	> 200 °F using the Closed Cup method
Density:	0.9 -1.1 g/cc
Solubility:	Slightly soluble in acetone. Insoluble in water.
Appearance:	Amber semi-solid.
Odor:	Not detectable
Vapor Pressure:	None

Section 4 – Fire and Explosion Hazard Data

Extinguishing Media: Use water spray, carbon dioxide, dry chemical powder or appropriate foam to extinguish fires.

Water May be used to keep exposed containers cool.

For large quantities involved in a fire, one should wear full protective clothing and a NIOSH approved self contained breathing apparatus with full face piece operated in the pressure demand or positive pressure mode as for a situation where lack of oxygen and excess heat are present.

Section 5 – Toxicological Information

Acute Effects: May be harmful by inhalation, ingestion, or skin absorption. May cause irritation. To the best of our knowledge, the chemical, physical, and toxicological properties of the 3-D Microemulsion have not been investigated. Listed below are the toxicological information for glycerol, lactic acid and fatty acid.

RTECS# MA8050000
Glycerol

Irritation Data:	SKN-RBT 500 MG/24H MLD	85JCAE-,207,1986
	EYE-RBT 126 MG MLD	BIOFX* 9-4/1970
	EYE-RBT 500 MG/24H MLD	85JCAE-,207,1986

Section 5 – Toxicological Information (cont)

Toxicity Data:	ORL-MUS LD50:4090 MG/KG	FRZKAP (6),56,1977
	SCU-RBT LD50:100 MG/KG	NIIRDN 6,215,1982
	ORL-RAT LD50:12,600 MG/KG	FEPRA7 4,142,1945
	IHL-RAT LC50: >570 MG/M3/1H	BIOFX* 9-4/1970
	IPR-RAT LD50: 4,420 MG/KG	RCOCB8 56,125,1987
	IVN-RAT LD50:5,566 MG/KG	ARZNAD 26,1581,1976
	IPR-MUS LD50: 8,700 MG/KG	ARZNAD 26,1579,1978
	SCU-MUS LD50:91 MG/KG	NIIRDN 6,215,1982
	IVN-MUS LD50:4,250 MG/KG	JAPMA8 39,583,1950
	ORL-RBT LD50: 27 MG/KG	DMDJAP 31,276,1959
	SKN-RBT LD50: >10 MG/KG	BIOFX* 9-4/1970
	IVN-RBT LD50: 53 MG/KG	NIIRDN 6,215,1982
ORL-GPG LD50: 7,750 MG/KG	JIHTAB 23,259,1941	

Target Organ Data: Behavioral (headache), gastrointestinal (nausea or vomiting), Paternal effects (spermatogenesis, testes, epididymis, sperm duct), effects of fertility (male fertility index, post-implantation mortality).

Only selected registry of toxic effects of chemical substances (RTECS) data is presented here. See actual entry in RTECS for complete information on lactic acid and glycerol.

Fatty Acids

Acute oral (rat) LD50 value for fatty acids is 10000 mg/kg. Aspiration of liquid may cause pneumonitis. Repeated dermal contact may cause skin sensitization.

Section 6 – Health Hazard Data

One should anticipate the potential for eye irritation and skin irritation with large scale exposure or in sensitive individuals. Product is not considered to be combustible. However, after prolonged contact with highly porous materials in the presence of excess heat, this product may spontaneously combust.

Handling: Avoid continued contact with skin. Avoid contact with eyes.

In any case of any exposure which elicits a response, a physician should be consulted immediately.

First Aid Procedures

Inhalation: Remove to fresh air. If not breathing give artificial respiration. In case of labored breathing give oxygen. Call a physician.

Ingestion: No effects expected. Do not give anything to an unconscious person. Call a

physician immediately. DO NOT induce vomiting.

Section 6 – Health Hazard Data (cont)

Skin Contact: Flush with plenty of water. Contaminated clothing may be washed or dry cleaned normally.

Eye Contact: Wash eyes with plenty of water for at least 15 minutes lifting both upper and lower lids. Call a physician.

Section 7 – Reactivity Data

Conditions to Avoid: Strong oxidizing agents, bases and acids

Hazardous Polymerization: Will not occur.

Further Information: Hydrolyses in water to form lactic acid, glycerol and fatty acids.

Hazardous Decomposition Products: Thermal decomposition or combustion may produce carbon monoxide and/or carbon dioxide.

Section 8 – Spill, Leak or Accident Procedures

After Spillage or Leakage: Neutralization is not required. The material is very slippery. Spills should be covered with an inert absorbent and then be placed in a container. Wash area thoroughly with water. Repeat these steps if slipperiness remains.

Disposal: Laws and regulations for disposal vary widely by locality. Observe all applicable regulations and laws. This material may be disposed of in solid waste. Material is readily degradable and hydrolyses in several hours.

No requirement for a reportable quantity (CERCLA) of a spill is known.

Section 9 – Special Protection or Handling

Should be stored in plastic lined steel, plastic, glass, aluminum, stainless steel, or reinforced fiberglass containers.

Protective Gloves: Vinyl or Rubber

Eyes: Splash Goggles or Full Face Shield. Area should have approved means of washing eyes.

Ventilation: General exhaust.

Storage: Store in cool, dry, ventilated area. Protect from incompatible materials.

Section 10 – Other Information

This material will degrade in the environment by hydrolysis to lactic acid, glycerol and fatty acids. Materials containing reactive chemicals should be used only by personnel with appropriate chemical training.

The information contained in this document is the best available to the supplier as of the time of writing. Some possible hazards have been determined by analogy to similar classes of material. No separate tests have been performed on the toxicity of this material. The items in this document are subject to change and clarification as more information becomes available.