



## MATERIAL SAFETY DATA SHEET

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Protein  
#H0210

### SECTION 1 - CHEMICAL INFORMATION

Product Name: ET RecA

### SECTION 2 - CHEMICAL INFORMATION

1. Glycerol	50%	Cas.	#56-81-5
2. Potassium Chloride	<1%	Cas.	#7447-40-7
3. Tris-HCl	<1%	Cas.	#77-86-1
4. EDTA	<1%	Cas.	#60-00-4
5. Dithiothreitol	<1%	Cas.	#3483-12-3
6. Triton X-100	<1%	Cas.	#9002-93-1

### SECTION 3 - COMPOSITION/ INFORMATION ON INGREDIENT

**CHEMICAL NAME:** GLYCEROL

CAS No.: 56-81-5

MF: C3H8O3

EC No.: 200-289-5

**SYNONYMS:** CITIFLOUR AF 2\* GLYCERIN\* GLYCERIN, ANHYDROUS\* GLYCERINE\* GLYCERINE MIST (ACGIH, OSHA)\* GLYCERIN, SYNTHETIC\* GLYCERITOL GLYCYL ALCOHOL\* GLYZERIN, WASSERFREI (GERMAN)\* GROCOLENE\* OSMOGLYN\* 1,2,3-PROPANETRIOL\* STAR\* SYNTHETIC GLYCERIN\* TECHNICAL GLYCERINE\* TRIHYDROXYPROPANE\* 1,2,3-TRIHYDROXYPROPANE.

### SECTION 4 - HADARDOUS IDENTIFICATION

**LABEL PRECAUTIONARY STATEMENTS:**

**CAUTION**

Avoid contact by inhalation, skin and ingestion.

**Target Organ (s):**

Kidney, Hygroscopic.

### SECTION 5 - FIRST AID MEASURES:

**EMERGENCY OVERVIEW:** OCCUPATOINAL EXPOSURE PRESENTS LITTLE OR NO HEALTH HAZARD.

**POTENTIAL HEALTH EFFECTS:**

**EYE EXPOSURE:** In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**INHALATION EXPOSURE:** If inhaled, remove to fresh air. If breathing is difficult, call a physician.

**DERMAL EXPOSURE:** In case of contact, immediately wash skin with soap and copious amounts of water. Remove clothing and call a physician.

**ORAL EXPOSURE:** If swallowed, wash out mouth with water provided person is conscious. Call a physician.

### SECTION 6 - FIRE FIGHTING MEASURES

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**Extinguishing Media:**

- Water Spray
- Carbon Dioxide, Dry Chemical powder or appropriate foam

**Unusual Fire and Explosions Hazard (s):**

Emits toxic fumes under fire conditions.

**Special Firefighting Procedures:**

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

**Prevent contact with skin and eyes.**

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**SECTION 7 - ACCIDENTAL RELEASE MEASURES**

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**PROCEDURE(S) OF PERSONAL PRECAUTION(S):**

Wear self-contained breathing apparatus, chemical safety goggles, rubber boots, and chemically resistant gloves.

**METHODS FOR CLEANING UP:**

Absorb on sand or vermiculite and place in a closed container for disposal.

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**SECTION 8 - HANDLING AND STORAGE**

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**HANDLING:** User Exposure: Avoid contact with eyes, skin, and clothing. Avoid inhalation. Avoid prolonged or repeated exposure.

**STORAGE:** Suitable: Keep tightly closed. Store at -20°C

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**SECTION 9 - EXPOSURE CONTROLS/PPE**

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**Engineering Controls:** Safety shower and eye bath. Mechanical exhaust required.

**Personal Protective Equipment:****Respiratory:**

NIOSH/MSHA-approved respirator.

**Hand:**

Compatible chemical-resistant gloves.

**Eye:**

Compatible safety goggles.

**General Hygiene Measures:**

Wash thoroughly after handling.

Wash contaminated clothing before use.

**AVOID INHALATION**

KEEP TIGHTLY CLOSED.

STORE IN A COOL DRY PLACE.

FREEZE.

STORE AT -20 °C.

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**SECTION 10 - PHYSICAL AND CHEMICAL PROPERTIES**

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**Physical Properties:**

**Melting Point:** 20°C

**Boiling Point:** 182°C

**Flash Point:** >392°F, >200°C

**Explosion Limits in Air:**

**Lower:** 0.9%

**Vapor Density:** 3.1 G/L

**Specific Gravity:** 1.262

**pH:** 5.5-8.0

**Solubility:** Water -Z26130

**Vapor Pressure:** < 1 MMHG @ 20°C

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**SECTION 11 - STABILITY AND REACTIVITY**

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**Stability:**

Stable

**Hazardous Decomposition Products:**

Carbon Monoxide, Carbon Dioxide.

**Materials to Avoid:**

Strong oxidizing agents, strong bases.

**Hazardous Decomposition Products:**

Will not occur.

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**SECTION 12 - TOXICOLOGICAL INFORMATION**

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**Route of Exposure:****Skin contact:** May cause skin irritation.**Eye Contact:** May cause eye irritation.**Multiple Routes:** May be harmful by inhalation, ingestion, or skin absorption.

Materials may be irritating to mucous membranes and upper respiratory tract.

**RTECS #:** MA8050000

GYLCEROL

**Chronic Effects:** Target organs, Kidney

To the best of our knowledge, the properties have not yet been thoroughly investigated.

**IRRITATION DATA:****SKN-RBT** 500 MG/24H MLD

85JCAE -, 207, 1986

**EYE-RBT** 126 MG MLD

BIOFX\* 9-4/970

**EYE-RBT** 500 MG/24H MLD

85JCAE -, 207, 1986

**TOXICITY DATA:****ORL-RAT** **LD50:** 12600 MG/KG

FEPRA7 4, 142, 1945

**IHL-RAT** **LC50:** <570 MG/M3/1H

BIOFX\* 9-4/970

**IPR-RAT** **LD50:** 4420 MG/KG

RCOCB8 56, 125, 1987

**SCU-RAT** **LD50:** 100 MG/KG

NIIRDN 6, 215, 1982

**IVN-RAT** **LD50:** 5566 MG/KG

ARZNAD 26, 1581, 1976

**ORL-MUS** **LD50:** 4090 MG/KG

FRZKAP (6), 56, 1977

**IPR-MUS** **LD50:** 8700 MG/KG

ARZNAD 28, 1579, 1978

**SCU-MUS** **LD50:** 91 MG/KG

NIIRDN 6, 215, 1982

**IVN-MUS** **LD50:** 4250 MG/KG

JAPMA8 39, 583, 1950

**ORL-RBT** **LD50:** 27 MG/KG

DMDJAP 31, 276, 1959

**SKN-RBT** **LD50:** >10 MG/KG

BIOFX\* 9-4/970

**IVN-RBT** **LD50:** 53 MG/KG

NIIRDN 6, 215, 1982

**ORL-GPG** **LD50:** 7750 MG/KG

JIHTAB 23, 259, 1941

**TARGET ORGAN DATA:**

Behavioral (headache)

Paternal effects (testes, epididymis, sperm duct)

Gastrointestinal (nausea or vomiting)

Effects on fertility (male fertility index)

Kidney, ureter, bladder (changes in tubules)

Effects on fertility (post-implantation mortality)

Kidney, ureter, bladder (changes in urine composition)

Paternal effects (spermatogenesis)

Only selected registry of toxic effects of chemical substance (RTECS) data is presented here. See actual entry in RTECS.

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**SECTION 13 - ECOLOGICAL INFORMATION**

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Data not yet available.

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**SECTION 14 - DISPOSAL CONSIDERATIONS**

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Contact a licensed professional waste disposal service to dispose of this material.

Observe all federal, state and local environmental regulations.

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

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## SECTION 15 - TRANSPORT INFORMATION

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Contact BioHelix Corporation for transport information.

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## SECTION 16 - REGULATORY INFORMATION

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### Reviews, standards and regulations:

OEL=MAK

ACGIH TLV-TWA 10 MG/M3

DTLVS\* TLV/BEI, 1999

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTER FERAC 54, 7740, 1989.

MSHA STANDARD: NUISANCE PARTICULATES (MIST)

DTLWS\* 3,20, 1973

OSHA PEL (GEN INDU): 8H TWA 15 MG/M3, TOTAL DUST

CFRGBR 29, 1910.1000, 1994

OSHA PEL (GEN INDU): 8H TWA 5 MG/M3, RESPIRABLE FRACTION

CFRGBR 29, 1910.1000, 1994

OSHA PEL (CONSTRUC): 8H TWA 15 MG/M3, TOTAL DUST

CFRGBR 29, 1926.55, 1994

OSHA PEL (CONSTRUC): 8H TWA 5 MG/M3, RESPIRABLE FRACTION

CFRGBR 29, 1926.55, 1994

OSHA PEL (SHIPYARD): 8H TWA 15MG/M3, TOTAL DUST

CFRGBR 29, 1915.1000, 1993

OSHA PEL (SHIPYARD): 8H TWA 5 MG/M3, RESPIRABLE FRACTION

CFRGBR 29, 1915.1000, 1993

OEL -AUSTRALIA: TWA 10 MG/M3, JAN 1993

OEL -BELGIUM: TWA 10 MG/M3, JAN 1993

OEL -FINLAND: TWA 20 MG/M3, JAN 1999

OEL -FRANCE: VME 10 MG/M3, JAN 1999

OEL - THE NETHERLANDS: MAC-TGG 10 MG/M3, JAN 1999

OEL -UNITED KINGDOM: TWA 10 MG/M3, MIST SEPT 2000

OEL -ARGENTINA, BULGARIA, COLUMBIA, JAPAN, KOREA CHECK ACC

NOHS 1974: HZD 35085; NIS 358; TNF 86657; NOS 198; TNE 1085329

NOHS 1983: HZD 35085; NIS 310; TNF 67054; NOS 215; TNE 2135546; TFE 1346631

EPA TSCA SECTION 8 (B) CHEMICAL INVENTORY

EPA TSCA SECTION 8 (D) UNPUBLISHED HEALTH/SAFETY STUDIES

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JAN 2001

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## SECTION 17 - OTHER INFORMATION

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**The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide.**

**BioHelix Corporation shall not be held liable for any damage resulting from handling or from contact with the above product.**