

MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME TETRAHYDROFOLIC ACID
CAS NUMBER 135-16-0
ROI NUMBER 3011T
SYNONYMS 5,6,7,8-Tetrahydropteroyl-L-glutamic acid

**MANUFACTURER/
SUPPLIER** Research Organics
4353 E 49th Street
Cleveland, Ohio
44125 USA

TELEPHONE NUMBERS - 24 HOUR EMERGENCY ASSISTANCE:

INFOTRAC 800-535-5053

TELEPHONE NUMBERS - GENERAL ASSISTANCE:

Product Information 800-321-0570

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS Number	Percentage*	Exposure Limits/Health Hazards
Tetrahydrofolic Acid in 1M mercaptoethanol	135-16-0	90 - 100 %	No Exposure limits established by OSHA or ACGIH HARMFUL. % IRRITANT. COMBUSTIBLE.

*Values do not reflect absolute minimums and maximums; those values may vary from time to time.

3 HAZARDS IDENTIFICATION

Emergency Overview

WARNING!

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN

IRRITANT - IRRITATING TO THE SKIN, EYES, AND UPPER RESPIRATORY TRACT.

COMBUSTIBLE - AVOID CONTACT WITH SOURCES OF IGNITION.

Potential Health Effects Skin

IRRITANT. This material will cause skin irritation, resulting in reddening, itching, and inflammation.

HARMFUL. Absorption from prolonged or repeated skin contact may cause systemic toxicity.

Potential Health Effect Eyes

IRRITANT. This material can cause eye irritation. Redness, tearing, and blurred vision may result. May be harmful in contact with eyes.

Potential Health Effects Inhalation

HARMFUL by Inhalation. The degree of injury will depend on the airborne concentration and duration of

exposure.

IRRITANT. This material will cause irritation of the respiratory system. Symptoms can include: sneezing, coughing, burning, itching and/or trouble breathing.

Potential Health Effect Ingestion

HARMFUL if ingested. Exposure can cause nausea, headache and vomiting.

If ingested, this material may cause irritation to the mouth, throat and gastrointestinal tract.

Special Toxic Effects

The Health Hazards cited include those of Mercaptoethanol, which the Tetrahydrofolic Acid is packaged in/with. CAUTION! THE TOXICOLOGICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN FULLY INVESTIGATED.

Target Organs

Liver, Kidneys, Bladder

4 FIRST AID MEASURES

Skin

Immediately flush skin with plenty of water, for at least 15 minutes, while removing contaminated clothing and shoes. Contaminated clothing must be laundered before reuse.

Get medical attention.

Eyes

Flush immediately with large amounts of water for at least 20 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not allow victim to rub the affected eye(s).

Get medical attention if irritation persists.

Inhalation

Safely remove victim to fresh air. If not breathing, institute artificial respiration/rescue breathing. If breathing is difficult, ensure clear airway and give oxygen.

Get medical attention.

Ingestion

If swallowed, wash out mouth with water provided person is conscious.

Never give anything by mouth to an unconscious person.

Get medical attention.

5 FIRE FIGHTING MEASURES

Hazardous Combustion Products

MAY EMIT TOXIC AND/OR IRRITATING FUMES UNDER FIRE CONDITIONS.

Extinguishing Media

Use a water spray, dry chemical, alcohol foam, all purpose foam or carbon dioxide to extinguish fire.

Basic Fire Fighting Procedure

As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear. Evacuate the area and fight fire from a safe distance.

Unusual Fire and Explosion Hazards

Combustible liquid. Vapors can form explosive mixtures at temperatures at or above the flash point.

Flash Point Temperature	Mercaptoethanol:	163.4F	73C
Autoignition Temperature		ND	
Flammability Limits in Air Lower		ND	

6 ACCIDENTAL RELEASE MEASURES

Emergency Action

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. (See Personal Protection Information Section.)

Environmental Precautions

Isolate hazard area and deny entry. Keep unnecessary people away. Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material.

Spill or Leak Procedure

Absorb spill with inert material (e. g. dry sand or earth) then place in a chemical waste container. Clean up spills immediately under qualified supervision observing precautions in Protective Equipment section.

After removal, scrub the contaminated area with detergent and flush thoroughly with water. Absorb wash liquid and place in the disposable container. Do not flush to sewer. Avoid runoff into storm sewers and ditches which lead to waterways.

7 HANDLING AND STORAGE

Handling

DO NOT GET IN EYES, ON SKIN OR CLOTHING.

Note: When handling liquid products, secondary protective containers must be used for carrying.

Wash hands thoroughly before eating, drinking or smoking.

Storage

Store in freezer.

Store under Argon.

Keep containers tightly closed and upright when not in use.

Storage Hazards

Store away from oxidizers, ignition sources, heat.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Facilities using or storing this material must be equipped with an eyewash station and safety shower.

Local exhaust ventilation, process enclosures, and other forms of engineering controls are the preferred means for controlling exposures.

Eye Protection PPE

Do not wear contact lenses when working with this substance.

Avoid eye contact with this material. Wear chemical safety goggles.

Skin Protection PPE

Avoid skin contact with this material. Use appropriate chemical protective gloves when handling.

Additional protection may be necessary to prevent skin contact including use of apron, armcovers, face shield, or boots.

Showering and changing into street clothing after work is recommended.

Respiratory Protection PPE

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

A NIOSH approved air purifying respirator is recommended where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Air purifying respirators do not provide oxygen.

Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstance where air purifying respirators may not provide adequate protection.

Contact the manufacturer of your respiratory protection equipment for further information and/or recommendations.

A respiratory protection program that meets OSHA 1910.134 requirements must be followed whenever workplace conditions warrant a respirators use.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Clear, Amber Solution

Boiling Point	ND
Melting Point	ND
Freezing Point	ND
Vapor Density	ND
Vapor Pressure	ND
Specific Gravity	ND
Molecular Formula	C19H25N8O5
Molecular Weight	ND
pH	ND

10 STABILITY / REACTIVITY

Stability/Incompatibility

Stable under normal conditions of use.

Incompatible with strong oxidizing agents.

Combustible Liquid - store away from ignition sources, heat.

Decomposition Products

Combustion may produce CO, CO₂, and/or NO_x.

Hazardous Polymerization

None known.

11 TOXICOLOGICAL INFORMATION

CAUTION! THE TOXICOLOGICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN FULLY INVESTIGATED. FOLLOW GOOD LABORATORY PRACTICES WHEN HANDLING.

Routes of Exposure

Inhalation, ingestion, skin and eye contact.

LD50

Subcutaneous TDLo - rat = 6 g/kg/6D-I (Toxic Effects: Kidney/Ureter/Bladder - changes in tubules (including acute renal failure, acute tubular necrosis), changes in bladder weight; Related to Chronic Data: Death).

Information cited for: Mercaptoethanol, CAS# 60-24-2, RTECS# KL5600000

Oral LD50 - rat = 244 mg/kg.

Only selected data is presented here. See actual entry in RTECS for complete information.

Subcutaneous TDLo - rat = 18 g/kg/5W-I (Toxic Effects: Liver - changes in liver weight; Kidney/Ureter/Bladder - changes in bladder weight; Blood - normocytic anemia).

REGISTRY OF THE TOXIC EFFECTS OF CHEMICAL SUBSTANCES(RTECS)

RTECS # MA0600800 listed as: Glutamic acid, N-(p-(((2-amino-3,4,5,6,7,8-hexahydro-4-oxo-6-pteridiny)methyl)amino)benzoyl)-,)

NO ORAL LD50 IN RATS INFORMATION IS AVAILABLE.

Carcinogenicity

NOT LISTED BY IARC, NTP OR OSHA AS A CARCINOGEN

12 ECOLOGICAL INFORMATION

EcoToxicological Information

DATA NOT YET AVAILABLE.

Chemical Fate Information

DATA NOT YET AVAILABLE.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

If the material is determined to be a hazardous waste, the transportation, storage, treatment and disposal of this waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities.

Contact your local disposal service provider(s) for appropriate method(s) of disposal.

14 TRANSPORTATION INFORMATION

Department of Transportation (DOT) Requirements

Proper Shipping Name THIOGLYCOL SOLUTION

Hazard Class 6.1

UN/NA Code UN2966

Packaging Group II

Reportable Quantity None

Labels Required TOXIC

Marine Pollutant (49 CFR 172.101 Appendix B) No

15 REGULATORY INFORMATION

Federal Regulations

This product is NOT on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products NOT on the inventory list: (i) This product is supplied solely for use in Research and Development by

or under the supervision of a technically qualified individual as defined by 40 CFR 720.0 et.sec.

(ii) The health risks of this product have not fully been determined. Any information that is or becomes available will be supplied on a Material Safety

Data Sheet. Uses other than for Research and Development may constitute a violation of TSCA.

State Regulations

Based on available information this material does not contain any components or chemicals currently known to the State of California to cause cancer, birth defects or reproductive harm at levels which would be subject to Proposition 65.

Reformulation, use or processing of this product may affect its composition and would require re-evaluation

International Regulations

Mercaptoethanol: CANADA: Domestic Substances List / Non-Confidential.

International Phrases

R - 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
36/37/38 Irritating to eyes, respiratory system and skin.

S - 16 Keep away from sources of ignition -- No smoking.
24/25 Avoid contact with skin and eyes.
36/37/39 Wear suitable protective clothing, gloves & eye/face protection.
38 In case of insufficient ventilation, wear suitable respiratory equipment.

EINECS - 205-181-1

SARA TITLE III RATINGS

Immediate Hazard **Delayed Hazard** **Fire Hazard** **Pressure Hazard** **Reactivity Hazard**

Section 313 Supplier Notification:

If this box is checked, this product contains EPCRA 313 chemical(s) subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). If you are unsure whether you are subject to reporting requirements or need more information, call EPA's EPCRA Call Center at (800) 424-9346 or (703) 412-9810.

NFPA(R) Ratings

Health	Flammability	Reactivity	Special Hazards
-	-	-	-

HMIS(R) RATINGS

Health	Flammability	Physical Hazard	Personal Protection Equipment
2	1	0	H

NFPA is a registered trademark of National Fire Protection Association. HMIS is a registered trademark of National Paint and Coating Association.

16 OTHER INFORMATION

Disclaimer

The data contained in this Material Safety Data Sheet relates only to the specific material designated herein. It does not relate to use in combination with any other material or in any process. Research Organics, Inc. provides the information contained herein in good faith but make no representation as to its comprehensiveness or accuracy. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose. Research Organics, Inc. makes no representations, or warranties, either expressed or implied, of merchantability, fitness for a particular purpose with respect to the information refers. Accordingly, Research Organics, Inc. will not be responsible for damages resulting from the use of reliance upon this information. In no instance is any Research Organics, Inc. product offered for drug, food, food additive or clinical use in humans.

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Completed By: Environmental and Safety Department