

Material Safety Data Sheet


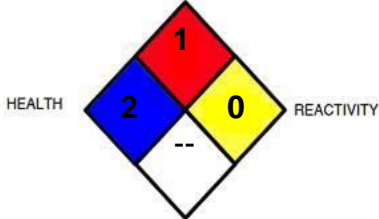
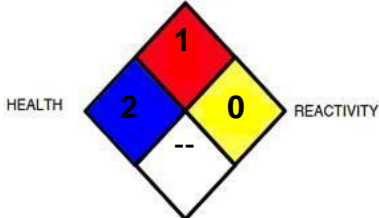
Section 1: Product & Company Identification

Product Name:	E-64D (Synthetic)
Product #:	E-2401
Synonyms:	[(2S,3S)-trans-Eepoxysuccinyl-L-Leucylamido-3-methylbutane ethyl ester
Supplier:	AG Scientific, Inc. 6450 Lusk Blvd E102 San Diego CA 92121 Tele# + 858-452-9925 Fax# + 858-452-9926
Emergency Tele#:	ChemTel, Tele# in USA 1-800-255-3924, International 1-813-248-0585

Section 2: Composition / Information on Ingredients

Component	CAS#	EC #	%	HCS Classification
Diaphorase (NADH) [DI]	88321-09-9	N/A		

Section 3: Hazards Identification

Symbols	 <p>GHS07 Harmful GHS08 Health Hazard GHS09 Environmental Hazard</p>
HMIS Classification	<p>FLAMMABILITY</p>  <p>HEALTH REACTIVITY</p> <p>OTHER</p>
NFPA Classification	<p>FLAMMABILITY</p>  <p>HEALTH REACTIVITY</p> <p>OTHER</p>

Section 4: First Aid Measures

General Overview:	Avoid contact, wear suitable protective clothing, gloves and eye/face protection.
Inhalation:	If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing give artificial respiration, seek medical attention.
Skin:	Wash immediately with water for 15 minutes. Remove contaminated clothing. Wash contaminated clothing before reuse. Seek medical attention if symptoms appear.
Eyes:	In case of contact, immediately flush eyes or skin with copious amounts of water for at least 15 minutes. Remove contacts. Assure adequate flushing of the eyes by separating the eyelids with fingers.
Ingestion:	If swallowed, DO NOT induce vomiting. Wash mouth with water, never give anything to unconscious person. Seek medical attention.
	See section 11 for more detailed information on health effects & symptoms

SECTION 5: Fire Fighting Measures

Flammability of the product:	May be combustible at high temperatures
Extinguishing Media:	Dry Chemical Powder for SMALL FIRES and carbon dioxide or water spray, fog or foam for LARGE FIRES. Do not use water jet.
Hazardous thermal (de)composition products:	Carbon oxides Nitrogen oxides
Special Fire Fighting Procedures:	Wear self-contained breathing apparatus (SCBA) and protective clothing to prevent contact with skin and eyes. Be sure to use an approved/certified respirator or equivalent.
Flash Point:	N/A


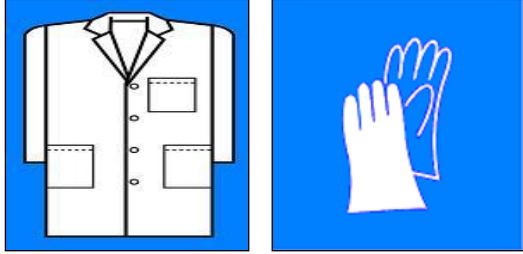

Section 6: Accidental Release Measures

Personal Precautions:	Use Personal Protection Equipment. Splash goggles. Gloves. Avoid dust formation.
Environmental Precautions:	Do not let product enter drains.
Methods for Clean-up:	Sweep up & shovel into suitable disposal container. Ventilate area and wash spill site after material pickup is complete.

SECTION 7: Handling & Storage

Storage:	Store at -20°C and protect from light. Keep container tightly closed and in cool, dry, well ventilated area.
Handling:	Use only in area provided with appropriate exhaust ventilation. Keep away from heat and source of ignition. Empty containers pose a fire risk, evaporate residue under fume hood. Ground all equipment containing material. Do not breathe dust.

SECTION 8: Exposure controls / Personal Protection

Respiratory Protection:		<p>If exposure limit reached use ventilation system when handling or wear appropriate government (NIOSH/MSHA) approved respirator.</p>
Skin and Body:		<p>Chemical-resistant gloves and lab coat/other protective clothing. Avoid prolonged or repeated exposure. Wash thoroughly after handling.</p>
Eyes:		<p>Safety goggles.</p>
Ventilation/Engineering Measures:	<p>Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.</p>	
Hygiene:	<p>Wash hands after handling compound and before eating, smoking, using lavatory and at the end of the day.</p>	
Other:	<p>Contains no substances with occupational exposure limit values.</p>	

SECTION 9: Physical and Chemical Properties

Appearance & Odor:	White crystalline powder
Formula	$C_{17}H_{30}N_2O_5$
Molecular Wt.	342.43
Melting Pt.	217.57°C
Boiling Pt.	470.5°C
Density:	1.2 g/cm ³
Vapor Pressure:	N/A
Evaporation Rate:	N/A
Vapor Density:	N/A

Solubility:	N/A
Flash Point:	N/A
Autoignition Temp:	N/A

SECTION 10: Stability and Reactivity

Stability:	Stable under proper storage conditions.
Hazardous decomposition products:	Carbon oxides Nitrogen oxides.
Materials to Avoid:	Strong oxidizing agents, strong acids and bases.
Conditions to avoid:	Fire, extremes of temperature and direct sunlight.

SECTION 11: Toxicological Information

RTECS#:	N/A
ACUTE Toxicity:	N/A
CHRONIC Toxicity:	N/A
Chronic Exposure: Carcinogen: Mutagen: Teratogen: Reproductive:	<p>IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.</p> <p>ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as probable, potential human carcinogen by ACGIH.</p> <p>NTP: No component of this product present at levels greater than or equal to 0.1% is identified as known or, anticipated human carcinogen by NTP.</p> <p>OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as known or, potential human carcinogen by OSHA.</p> <p>EPA: No classification on carcinogenic data is available from EPA</p>

SECTION 12: Ecological Information

Ecotoxicity:	May cause long lasting harmful effects to aquatic life. 100% of the mixture consists of components of unknown hazards to aquatic environment.
Mobility:	N/A
Persistence and degradability:	N/A
Bioaccumulative potential:	N/A
Other adverse effects:	N/A
Corrosivity Characteristic:	N/A
General Notes:	Do not allow undiluted product or large quantities of it to reach groundwater, water course or sewer system. Do not allow materials to be released into the environment without proper government permits.

SECTION 13: Disposal Considerations

Residue Waste or Unused product:	Only professional staff trained in such techniques must undertake waste disposal. Observe all appropriate federal, provincial or state and local regulations.
Contaminated Packaging:	Do not re-use empty containers. Dispose of as unused product.

SECTION 14: Transportation Information

UN ID#:	N/A
ADR / RID (LAND):	Not shipping hazard
DOT regulations:	Not shipping hazard
IMDG/IMO (SEA):	Not shipping hazard
IATA/DGR (AIR):	Not shipping hazard
Special Provisions:	N/A

SECTION 15: Regulatory Information

Health Phrases:	N/A
Risk Phrases:	N/A
Safety Phrases:	N/A
EU Regulations:	N/A
US Regulations:	TSCA. No products were found. California Proposition 65: No products were found.
U.S. Federal Regulations:	SARA 302/304/311/312 extremely hazardous substances: No products were found SARA 302/304 emergency planning and notification: No products were found. SARA 302/304/311/312 hazardous chemicals: No products were found. SARA 311/312 MSDS distribution-chemical inventory-hazard identification: Acute health hazard - Yes. SARA 313 toxic chemicals notification and release reporting: No products were found. Clean Water Act (CWA) 307: No products were found. Clean Water Act (CWA) 311: No products were found. Clean Air Act (CAA) 112 accidental release prevention: No products were found. Clean Air Act (CAA) 112 regulated flammable substances: No products were found. Clean Air Act (CAA) 112 regulated toxic substances: No products were found. OSHA: No products were found.
WHMIS (Canada):	N/A

SECTION 16: Other Information

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