

Diethyl D-(+)-Malate: sc-294321



MATERIAL SAFETY DATA SHEET

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Combustible material; avoid heat and sources of ignition.	   

Section I. Chemical Product and Company Identification

Chemical Name	Diethyl D-(+)-Malate	Emergency ChemWatch Within the US & Canada: 877-715-9305 Outside the US & Canada: +800 2436 2255 (1-800-CHEMCALL) or call +613 9573 3112
Catalog Number	sc-294321	
CAS Number	7554-28-1	
Chemical Formula	C8H14O5	
Synonym	D-(+)-Apple Acid Diethyl Ester; D-(+)-Malic Acid Diethyl Ester; Diethyl D-(+)-Malate; AC1LVZO1; MolPort-001-791-674; CID1715086; M1351;	

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Diethyl D-(+)-Malate	7554-28-1	Min. 98.0 (GC)	Not available.	Not available.

Section III. Hazards Identification

Acute Health Effects	No specific information is available in our data base regarding the toxic effects of this material for humans. However, exposure to any chemical should be kept to a minimum. Skin and eye contact may result in irritation. May be harmful if inhaled or ingested. Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	Combustible.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures			
Spill Cleanup Instructions	Combustible material. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with an inert material and put the spilled material in an appropriate waste disposal. Consult federal, state, and/or local authorities for assistance on disposal.		
Section VII. Handling and Storage			
Handling and Storage Information	COMBUSTIBLE. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents.		
Section VIII. Exposure Controls/Personal Protection			
Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.		
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.		
Exposure Limits			
Section IX. Physical and Chemical Properties			
Physical state @ 20°C	Liquid.	Solubility	Not available.
Specific Gravity	1.13 (water=1)		
Molecular Weight	190.19	Partition Coefficient	Not available.
Boiling Point	Not available.	Vapor Pressure	Not available.
Melting Point	Not available.	Vapor Density	Not available.
Refractive Index	1.43	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.
Section X. Stability and Reactivity Data			
Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)		
Conditions of Instability	Avoid excessive heat and light.		
Incompatibilities	Reactive with oxidizing agents.		
Section XI. Toxicological Information			
RTECS Number	Not available.		
Routes of Exposure	Eye Contact. Ingestion. Inhalation.		
Toxicity Data	Not available.		
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.		
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Section XII. Ecological Information			
Ecotoxicity	Not available.		
Environmental Fate	Not available.		
Section XIII. Disposal Considerations			
Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.		

Section XIV. Transport Information

DOT Classification	Not a DOT controlled material (United States).
PIN Number	Not applicable.
Proper Shipping Name	Not applicable.
Packing Group (PG)	Not applicable.
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	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) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et seq. (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet.
WHMIS Classification (Canada)	CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
EINECS Number (EEC)	Not available.
EEC Risk Statements	Not available.
Japanese Regulatory Data	Not available.

Section XVI. Other Information

Notice to Reader:

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

3/14/2011