



Material Safety Data Sheet

Diethyl Fumarate, Finished

MSDS No. 000271T

Date of Preparation: 03-04-10

Supersedes: 06-04-08

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Diethyl Fumarate, Finished

Chemical Formula: C₈ H₁₂ O₄

CAS Number: 623-91-6

Other Designations: Fumaric Acid, Diethyl Ester; 2-Butenedioic acid, diethyl ester.

General Use: N/a.

Manufacturer: Organic Technologies, 1245 South 6th Street, Coshocton, Ohio 43812 Telephone number (740)622-0755.

Fax number (740)622-3231. 24 Hour Emergency Telephone number (800)633-8253. International number (801)629-0667.

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt or % vol
Diethyl Fumarate	623-91-6	>99%

Trace Impurities:

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
Diethyl Fumarate	None establish	None established	None established	None established	None established	None established	None established

Section 3 - Hazards Identification

Emergency Overview

HMIS
H 2
F 2
R 0
PPE †
†Sec. 8

Potential Health Effects

Primary Entry Routes: Eyes, skin, lungs.

Target Organs: Eyes, skin, lungs.

Acute Effects

Inhalation: Can cause irritation.

Eye: Can cause severe irritation, redness, tearing, blurred vision.

Skin: Can cause severe irritation.

Ingestion: Can cause gastrointestinal irritation.

Carcinogenicity: IARC, NTP, and OSHA do not list components at concentrations above 0.1% which are considered as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: N/a.

Chronic Effects: To the best of our knowledge the toxicological properties of this material have not been fully investigated.

Section 4 - First Aid Measures

Inhalation: Remove to fresh air. If problems persist, seek appropriate medical attention.

Eye Contact: Flush with copious amounts of water for at least fifteen minutes. Seek appropriate medical attention.

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Skin Contact: Flush with copious amounts of water for at least fifteen minutes. If problems persist, seek appropriate medical attention.

Ingestion: Immediately drink two glasses of water and induce vomiting by either giving IPECAC syrup or by placing finger at back of throat. Never give anything by mouth to an unconscious person. Seek appropriate medical attention.

Note to Physicians: This material can cause skin irritation.

Special Precautions/Procedures: Sensitization has been found to occur.

Section 5 - Fire-Fighting Measures

Flash Point: 197 °F (92 °C)

Flash Point Method: Closed Cup.

Burning Rate: N/a.

Autoignition Temperature: N/a.

LEL: N/a.

UEL: N/a.

Flammability Classification: Combustible liquid.

Extinguishing Media: Dry chemical, carbon dioxide, appropriate foam, or water spray.

Unusual Fire or Explosion Hazards: N/a.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide.

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures:

Small Spills: Cover with absorbent, pick up, and place in a suitable container.

Large Spills

Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

Cleanup: Follow all applicable local, state, and federal regulations during decon.

Regulatory Requirements: Follow all applicable local, state, and federal regulations.

Section 7 - Handling and Storage

Handling Precautions: Wear all appropriate personal protective equipment.

Storage Requirements: Store material in D.O.T. approved containers. Light sensitive material.

Regulatory Requirements: Follow all applicable local, state, and federal regulations.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls:

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2).

Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls:

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen.

Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid.

Appearance and Odor: Clear to light yellow liquid with sweet, slightly irritating odor.

Odor Threshold: N/a.

Vapor Pressure: N/a.

Vapor Density (Air=1): N/a.

Formula Weight: N/a.

Density: 1.052

Specific Gravity (H₂O=1, at 4 °C): N/a.

pH: Neutral

Water Solubility: N/a.

Other Solubilities: N/a.

Boiling Point: 218-219 degrees C.

Freezing/Melting Point: 1-2 degree C.

Viscosity: N/a.

Refractive Index: 1.441

Surface Tension: N/a.

% Volatile: N/a.

Evaporation Rate: N/a.

Section 10 - Stability and Reactivity

Stability: This solution is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Strong acids, strong bases, strong oxidizers, or reducing agents.

Conditions to Avoid: Sources of ignition and open flame.

Hazardous Decomposition Products: Thermal oxidative decomposition of this solution may produce carbon monoxide, carbon dioxide, or toxic materials.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: None established.

Skin Effects: None established.

Acute Inhalation Effects:

None established.

Acute Oral Effects:

Oral, Rat, LD50: 1780 mg/kg.

Chronic Effects: None established.

Carcinogenicity: None established.

Mutagenicity: None established.

Teratogenicity: None established.

Section 12 - Ecological Information

Ecotoxicity: None established.

Environmental Fate: None established.

Environmental Degradation: None established.

Soil Absorption/Mobility: None established.

Section 13 - Disposal Considerations

Disposal: Follow all applicable all applicable local, state, and federal regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Combustible liquid, n.o.s.

Shipping Symbols: None.

Hazard Class: None.

ID No.: NA1993

Packing Group: III

Label: None

Section 15 - Regulatory Information**EPA Regulations:**

SARA 311/312 Codes:

Acute: Yes.

Chronic: No.

Fire: No.

Reactive: No.

Sudden Release: No.

SARA Toxic Chemical (40 CFR 372.65): Not listed.

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed.

SARA Section 313 Supplier Notification: This product contains the following EPCRA section 313 chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372):

<u>CAS Number</u>	<u>Chemical Name</u>	<u>De Minimis Limit</u>
None	None	None

This information must be included in all MSDS's that are copied and distributed for this material.

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): No components listed.

Section 16 - Other Information

Prepared By: The Safety Department.

Revision Notes: The information of this form is furnished solely for the purpose of compliance with OSHA's Hazard Communication Standard, 29 CFR 1910.1200 and shall not be used for any other purpose.

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