

Section 1. Product and Company Identification

Product Name Diocetyl Adipate
CAS Number 103-23-1

Parchem - fine & specialty chemicals
415 Huguenot Street
New Rochelle, NY 10801
☎ (914) 654-6800 ☎ (914) 654-6899
🌐 parchem.com ✉ info@parchem.com

EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture

Physical hazards: Not classified.

Health hazards: Skin corrosion/irritation Category 2; Serious eye damage/eye irritation Category 2A

Environmental hazards: Hazardous to the aquatic environment acute hazard, Category 1; Hazardous to the aquatic environment long term hazard, Category 1

GHS Label Elements

Pictograms:



Signal word: WARNING

Hazard and precautionary statements

Hazard statement

H315: Causes skin irritation.

H315 + H320: Causes skin and eye irritation.

H319: Causes serious eye irritation.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

P264: Wash thoroughly after handling.

P273: Avoid release to the environment.

P280: Wear eye protection/face protection.



P280: Wear protective gloves.

Response

P302 + P352 IF ON SKIN: Wash with plenty of water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332 + P313 If skin irritation occurs: Get medical advice/attention.

P337 + P313 If eye irritation persists: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

Storage: Store away from incompatible materials.

Disposal

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.

Section 3. Composition / Information on Ingredients

Common Name Diethyl Adipate
Synonym(s) Bis (2- ethylhexyl) hexanedioate, diethyl hexyl adipate
Formula $C_{22}H_{42}O_4$
CAS Number 103-23-1

COMPONENT	CAS NUMBER	CONCENTRATION
Diethyl Adipate	103-23-1	100%

Section 4. First Aid Measures

Inhalation: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

Skin contact: Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.

Eye contact: Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.

Ingestion: Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Most important symptoms/effects, acute and delayed: Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Indication of immediate medical attention and special treatment needed: Not available.



General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance

Section 5. Firefighting Measures

Suitable extinguishing media: Water spray, fog, CO₂, dry chemical or alcohol resistant foam.

Unsuitable extinguishing media: Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the chemical: Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode when fighting fires.

Firefighting equipment/instructions: In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Keep unnecessary personnel away. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

Methods and materials for containment and cleaning up: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps. The product is immiscible with water and will spread on the water surface.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Prevent product from entering drains. Do not allow material to contaminate ground water system. Absorb in vermiculite, dry sand or earth and place into containers.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste.

Environmental precaution: Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid release to the environment. Retain and dispose of contaminated wash water. Contact local authorities in case of spillage to drain/aquatic environment.

Section 7. Handling and Storage

Precautions for safe handling: Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling. **Conditions for safe storage, including any incompatibilities:** Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

Section 8. Exposure Controls / Personal Protection

Occupational exposure limits: No exposure limits noted for ingredient(s).

Biological limit values: No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls: Use explosion-proof ventilation equipment to stay below exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection: Wear safety glasses with side shields (or goggles). Face shield is recommended.

Hand protection: Chemical resistant gloves.

Other: Not available.

Respiratory protection: Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

Thermal hazards: Wear appropriate thermal protective clothing, when necessary. **General hygiene considerations:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Section 9. Physical and Chemical Properties

Physical state: Liquid.

Form: Liquid.

Odor: Characteristic.

Odor threshold: Not available.

pH: Not available.

Melting point/freezing point: -90.04 °F (-67.8 °C)

Initial boiling point and boiling range: 417.2 °F (214 °C) 0.666612 kPa

Flash point: > 200.0 °F (> 93.3 °C) Closed Cup

Evaporation rate: Not available.

Flammability (solid, gas): Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%): Not available.

Flammability limit - upper (%): Not available.

Explosive limit - lower (%): Not available.

Explosive limit - upper (%): Not available.

Vapor pressure: 0.01 mm Hg at 20 °C

Vapor density: 12.8

Relative density: Not available.

Solubility (water): Insoluble

Partition coefficient (n-octanol/water): Not available.

Auto-ignition temperature: 710 °F (376.67 °C)

Decomposition temperature: Not available.

Viscosity: Not available.

Density: 0.92 g/cm³ estimated at 25 °C

Dynamic viscosity: 13.7 mPa.s (68 °F (20 °C))

Explosive properties: Not explosive.

Flammability class: Combustible III B estimated

Kinematic viscosity: 14.86 mm²/s estimated

Molecular formula: C₂₂H₄₂O₄

Molecular weight: 370.57 g/mol

Oxidizing properties: Not oxidizing.

Specific gravity: 0.92 at 25 °C

Section 10. Stability and Reactivity

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Material is stable under normal conditions. Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: No hazardous decomposition products if stored and handled as indicated.

Section 11. Toxicological Information

Information on likely routes of exposure

Inhalation: No adverse effects due to inhalation are expected.

Skin contact: Causes skin irritation.

Eye contact: Causes serious eye irritation. Causes mild eye irritation.

Ingestion: Expected to be a low ingestion hazard

Symptoms related to the physical, chemical and toxicological characteristics: Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.



Information on toxicological effects

Acute toxicity

Dermal: LD50, rabbit; 14,800 mg/kg

Oral: LD50, rat; 42,600 mg/kg

Skin corrosion/irritation: Causes skin irritation.

Serious eye damage/eye irritation: Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization: Not a respiratory sensitizer

Skin sensitization: This product is not expected to cause skin sensitization.

Germ cell mutagenicity

Ames test

S. typhimurium: Negative

Mouse - male: Negative

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity: DIOCTYL ADIPATE (CAS 103-23-1); 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens: Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not available.

Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure: Not classified

Specific target organ toxicity - repeated exposure: Not classified

Aspiration hazard: Not an aspiration hazard.

Further information: Repeated dose toxicity - rat - male and female - Oral - No observed adverse effect level - 200 mg/kg

Section 12. Ecological Information

Ecotoxicity: Very toxic to aquatic life with long lasting effects.

DIOCTYL ADIPATE (CAS 103-23-1)

Product		Species	Test results
Aquatic	Algae EC50	Green algae (Desmodesmus subspicatus)	> 500 mg/L, 72 hours
	Crustacea LC50	Water flea (Daphnia magna)	0.48 - 0.85 mg/L, 48 hours
	Fish LC50	Bluegill (Lepomis macrochirus); Rainbow trout, Donaldson trout (Oncorhynchus mykiss)	0.48 - 0.85 mg/L, 96 hours; 0.48 - 0.85 mg/L, 96 hours

Persistence and degradability: No data is available on the degradability of this product.

Bioaccumulative potential

Bioconcentration factor (BCF): 27

Mobility in soil: No data available.

Other adverse effects: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

ADN

UN number: 3082

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIOCTYL ADIPATE)

Transport hazard class(es): 9

Subsidiary class(es): -

Packing group: III

Environmental hazards: Yes

Labels required: 9

ADR

UN number: 3082

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIOCTYL ADIPATE)

Transport hazard class(es): 9

Subsidiary class(es): -

Packing group: III

Environmental hazards: Yes

Labels required: 9

RID

UN number: 3082

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIOCTYL ADIPATE)

Transport hazard class(es): 9

Subsidiary class(es): -

Packing Group: III

Environmental Hazards: Yes

Labels required: 9

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.



DOT

BULK

UN number: 3082

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(DIOCTYL ADIPATE)

Hazard class: 9

Packing group: III

Marine pollutant: Yes

Packaging exceptions: 155

Packaging bulk: 241

Labels required: 9

NON-BULK: Not regulated as dangerous goods.

IATA: Not regulated as dangerous goods

IMDG

UN number: 3082

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(DIOCTYL ADIPATE)

Transport hazard class(es): 9

Subsidiary class(es): -

Packing group: III **Marine pollutant:** Yes

Labels required: 9

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable.

Section 15. Regulatory Information

US federal regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance List (40 CFR 302.4): Not listed.

SARA 304 Emergency release notification: Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories/Immediate Hazard: Yes

Delayed Hazard: No

Fire Hazard: No

Pressure Hazard: No

Reactivity Hazard: No



SARA 302 Extremely hazardous substance: Not listed.

SARA 311/312 Hazardous chemical: Yes

SARA 313 (TRI reporting): Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
Not regulated.

Safe Drinking Water Act (SDWA): 0.4 mg/L; 0.4 mg/L

US state regulations

US. Massachusetts RTK - Substance List: DIOCTYL ADIPATE (CAS 103-23-1)

US. New Jersey Worker and Community Right-to-Know Act: DIOCTYL ADIPATE (CAS 103-23-1)

US. Pennsylvania Worker and Community Right-to-Know Law: DIOCTYL ADIPATE (CAS 103-23-1)

US. Rhode Island RTK: Not regulated.

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance: Not listed

International Inventories Australia Australian Inventory of Chemical Substances

(AICS): Yes

Canada Domestic Substances List (DSL): Yes

Canada Non-Domestic Substances List (NDSL): No

China Inventory of Existing Chemical Substances in China (IECSC): Yes

Europe European Inventory of Existing Commercial Chemical Substances (EINECS):
Yes

Europe European List of Notified Chemical Substances (ELINCS): No

Japan Inventory of Existing and New Chemical Substances (ENCS): Yes

Korea Existing Chemicals List (ECL): Yes

New Zealand New Zealand Inventory: Yes

Philippines Philippine Inventory of Chemicals and Chemical Substances (PICCS): Yes

United States & Puerto Rico Toxic Substances Control Act (TSCA) Inventory: Yes

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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