

ADIPIC ACID

ADA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Adipinic acid 1,4-Butanedicarboxylic acid Hexanedioic acid		Solid crystals	White	Odorless
		Sinks and mixes slowly with water.		
<p>Stop discharge if possible. Keep people away. Shut off ignition sources. Call fire department. Avoid contact with solid and dust; avoid inhalation. Isolate and remove discharged material. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	Combustible. Dust cloud may explode if ignited in an enclosed area. Extinguish with water, dry chemicals, foam, or carbon dioxide.			
Exposure	CALL FOR MEDICAL AID. DUST Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. SOLID Irritating to skin and eyes. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.			
Water Pollution	Dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.			

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Collection Systems: Pump; Dredge

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed
- 2.2 Formula: HOOC(CH₂)₄COOH
- 2.3 IMO/UN Designation: Currently not available
- 2.4 DOT ID No.: Not listed
- 2.5 CAS Registry No.: 124-04-9
- 2.6 NAERG Guide No.: 153
- 2.7 Standard Industrial Trade Classification: 51385

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Normal protection against exposure to finely divided organic solids (rubber gloves, plastic goggles)
- 3.2 **Symptoms Following Exposure:** Inhalation of vapor irritates mucous membranes of the nose and lungs, causing coughing and sneezing. Contact with liquid irritates eyes and has a pronounced drying effect on the skin; may produce dermatitis.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim to fresh air; get medical attention if irritation persists. EYES: flush with water for at least 15 min. SKIN: flush with water.
- 3.4 TLV-TWA: 5 mg/m³
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 2; oral mouse LD₅₀ = 1,900 mg/kg; oral rat LD₅₀ = 5,050 mg/kg
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 3.10 **Vapor (Gas) Irritant Characteristics:** Currently not available
- 3.11 **Liquid or Solid Characteristics:** Currently not available
- 3.12 **Odor Threshold:** Currently not available
- 3.13 **IDLH Value:** Not listed.
- 3.14 **OSHA PEL-TWA:** Not listed.
- 3.15 **OSHA PEL-STEL:** Not listed.
- 3.16 **OSHA PEL-Ceiling:** Not listed.
- 3.17 **EPA AEGL:** Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:** Combustible solid, 385°F O.C.; 376°F C.C.
- 4.2 **Flammable Limits in Air:** (dust) 10-15 mg/l
- 4.3 **Fire Extinguishing Agents:** Foam, water fog, carbon dioxide, or dry chemical.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Currently not available
- 4.5 **Special Hazards of Combustion Products:** Currently not available
- 4.6 **Behavior in Fire:** Melts and may decompose to give volatile acidic vapors of valeric acid and other substances. Dust may form explosive mixture with air.
- 4.7 **Auto Ignition Temperature:** 788°F; 450°F
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** Not pertinent
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** Currently not available
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** Currently not available
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
- 5.2 **Reactivity with Common Materials:** Currently not available
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Rinse with dilute sodium bicarbonate or soda ash solution.
- 5.5 **Polymerization:** Not pertinent
- 5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** <330 ppm/24 hr/blugill/TL_m/fresh water
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** (theoretical) 1.3%, 0.5 days
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Commercial, 99.8%
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Open
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** Currently not available
- 7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Not listed
- 8.2 **49 CFR Class:** Not pertinent
- 8.3 **49 CFR Package Group:** Not listed.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	-
Flammability (Red)	1
Instability (Yellow)	0
- 8.6 **EPA Reportable Quantity:** 5000
- 8.7 **EPA Pollution Category:** D
- 8.8 **RCRA Waste Number:** Not listed
- 8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Solid
- 9.2 **Molecular Weight:** 146.1
- 9.3 **Boiling Point at 1 atm:** Not pertinent 337.5°C
- 9.4 **Freezing Point:** 304°F = 151°C = 424°K
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 1.36 at 20°C (solid)
- 9.8 **Liquid Surface Tension:** Not pertinent
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
- 9.12 **Latent Heat of Vaporization:** Not pertinent
- 9.13 **Heat of Combustion:** -8,242 Btu/lb = -4,579 cal/g = 191.6 X 10³ J/kg
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** Not pertinent
- 9.16 **Heat of Polymerization:** Not pertinent
- 9.17 **Heat of Fusion:** Currently not available
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
34	0.111	395	0.160	395	0.00254		N O T P E R T I N E N T
36	0.222	400	0.180	400	0.00286		
38	0.333	405	0.204	405	0.00321		
40	0.444	410	0.230	410	0.00360		
42	0.555	415	0.259	415	0.00403		
44	0.666	420	0.291	420	0.00451		
46	0.777	425	0.327	425	0.00504		
48	0.889	430	0.367	430	0.00562		
50	1.000	435	0.412	435	0.00626		
52	1.111	440	0.461	440	0.00697		
54	1.222	445	0.515	445	0.00775		
56	1.333	450	0.575	450	0.00860		
58	1.444	455	0.641	455	0.00954		
60	1.555	460	0.714	460	0.01056		
62	1.666	465	0.794	465	0.01169		
64	1.778	470	0.882	470	0.01292		
66	1.889	475	0.979	475	0.01426		
68	2.000	480	1.086	480	0.01572		
70	2.111	485	1.202	485	0.01732		
72	2.222	490	1.330	490	0.01906		
74	2.333	495	1.470	495	0.02095		
76	2.444	500	1.622	500	0.02301		
78	2.555	505	1.789	505	0.02524		
80	2.666	510	1.971	510	0.02766		
82	2.778	515	2.169	515	0.03029		
84	2.889						