

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Irritating to skin, eyes, and the respiratory system.	

Section I. Chemical Product and Company Identification

Chemical Name	Adipic Acid		
Catalog Number	A0161	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	1,4-Butanedicarboxylic Acid		
Chemical Formula	HOOC(CH ₂) ₄ COOH		
CAS Number	124-04-9	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Adipic Acid	124-04-9	Min. 99.0%(Tit)	Not available.	Rat LD ₅₀ (oral) 11 g/kg Rat LD ₅₀ (intraperitoneal) 275 mg/kg Rabbit LD ₅₀ (dermal) 7940 mg/kg

Section III. Hazards Identification

Acute Health Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always 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	May be combustible at high temperature.	Auto-Ignition	420°C (788°F)
Flash Points	210°C (410°F).	Flammable Limits	LOWER: 1.6%
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 MeasuresSpill Cleanup
Instructions

Irritating Material.

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and StorageHandling and Storage
Information

IRRITANT. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe dust. Always store away from incompatible compounds such as oxidizing agents, reducing agents, alkalis (bases).

Section VIII. Exposure Controls/Personal Protection

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection

Splash goggles. Lab coat. Dust 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

Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (White Crystalline Powder.)	Solubility	Easily soluble in alcohol. Soluble in acetone. Very slightly soluble in water. Almost insoluble in benzene.
Specific Gravity	1.36 (water=1)	Partition Coefficient	Log P _{ow} 0.08
Molecular Weight	146.14	Vapor Pressure	0.0728 Pa @ 18°C
Boiling Point	337.5°C (639.5°F)	Vapor Density	5.04 (Air = 1)
Melting Point	153°C (307.4°F)	Volatility	Not available.
Refractive Index	Not available.	Odor	Odorless.
Critical Temperature	Not available.	Taste	Not available.
Viscosity	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 strong oxidizing agents, reducing agents, alkalis (bases).

Section XI. Toxicological Information

RTECS Number

AU8400000

Routes of Exposure

Eye Contact. Ingestion. Inhalation.

Toxicity Data

Rat LD₅₀ (oral) 11 g/kg
Rat LD₅₀ (intraperitoneal) 275 mg/kg
Rabbit LD₅₀ (dermal) 7940 mg/kg

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.

Acute Toxic Effects

Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity Not available.

Environmental Fate Adipic acid may be released into the environment in various waste streams from its production and use in the manufacture of synthetic fibers, plasticizers, resins plastics, and as a food acidulant. If released to the atmosphere, adipic acid is expected to exist in both the particulate and vapor phases in the ambient atmosphere based on an extrapolated vapor pressure of 7.4×10^{-7} mm Hg at 30 deg C. Vapor-phase adipic acid will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with an estimated half-life of 2.9 days. Particulate-phase adipic acid may be physically removed from the atmosphere by wet and dry deposition. If released to soil, adipic acid is expected to have very high mobility based on an estimated Koc of 26. Volatilization of adipic acid from wet and dry soil surfaces is not expected to occur based on an estimated Henry's Law constant of 4.7×10^{-12} atm-cu m/mole and this compound's extrapolated vapor pressure. Biodegradation of adipic acid in both soil and water is expected to be an important fate process; 90% degradation occurred after 7 days in a river die-away test; 84% of adipic acid's carbon content was converted to carbon dioxide in soil biometer flasks after 30 days. If released into water, adipic acid is not expected to adsorb to suspended solids and sediments in the water column based on its estimated Koc. The potential for bioconcentration of adipic acid in aquatic organisms is low based on an estimated BCF of 0.68. Volatilization of adipic acid from water surfaces is not expected to be an important fate process based on a pKa of 4.4 and the estimated Henry's Law constant for this compound. Hydrolysis is not expected to be an important process due to the lack of hydrolyzable functional groups. Occupational exposure to adipic acid may occur through inhalation of dust particles and dermal contact with this compound at workplaces where adipic acid is produced or used. The general population may be exposed to adipic acid via inhalation of ambient air and ingestion of foods containing adipic acid.

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).
Adipic acid RQ 5000(2270)

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 compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

WHMIS Classification (Canada) On DSL.

EINECS Number (EEC) 204-673-3

EEC Risk Statements R36/37/38- Irritating to eyes, respiratory system and skin.

Japanese Regulatory Data ENCS No. (2)-858

Section XVI. Other Information

Version 1.0
Validated on 10/12/2006.
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Notice to Reader

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.