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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

Section 1 - Chemical Product and Company Identification

MSDS Name: Adipic acid

Catalog Numbers: A 1485

Synonyms: Hexanedioic acid; Adipinic acid; 1,4-Butanedicarboxylic acid; 1,6-Hexanedioic acid.

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
124-04-9	Adipic acid	99	204-673-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white solid.

Warning! May cause autonomic nervous system and gastrointestinal disorders. Causes eye irritation.

May cause skin and respiratory tract irritation.

Target Organs: Respiratory system, gastrointestinal system, eyes, nervous system, skin.

Potential Health Effects

Eye: Causes eye irritation.

Skin: May cause skin irritation. Adipic acid exerts a drying action on the skin and may cause dermatitis in humans.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation.

Inhalation: May cause respiratory tract irritation. Clinical examination of workers engaged in adipic acid manufacture found that inhaling adipic acid dust produced functional disorders of the autonomic nervous system and gastrointestinal tract and in the mucosa of the upper respiratory tract.

Chronic: No information found.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Extinguishing Media: For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

Flash Point: 196 deg C (384.80 deg F)

Autoignition Temperature: 420 deg C (788.00 deg F)

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid breathing dust.

Storage: Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong bases.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name ACGIH NIOSH OSHA - Final PELs

Adipic acid 5 mg/m³ TWA none listed none listed

OSHA Vacated PELs: Adipic acid: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: white

Odor: odorless

pH: 3.2 (0.1% soln)

Vapor Pressure: 0.073 mm Hg @ 18.5 deg C

Vapor Density: 5.04 (air=1)

Evaporation Rate: Negligible.

Viscosity: Not available.

Boiling Point: 337.5 deg C @ 760 mmHg

Freezing/Melting Point: 152 deg C

Decomposition Temperature: 330 deg C

Solubility: 2.0 g/100g @ 25°C

Specific Gravity/Density: 1.360 g/cm @ 20/4°C

Molecular Formula: C₆H₁₀O₄

Molecular Weight: 146.14

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Dust generation, Aqueous solutions are very mildly corrosive to most metals.

Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, strong bases.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

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Section 11 - Toxicological Information

RTECS#:

CAS# 124-04-9: AU8400000

LD50/LC50:

CAS# 124-04-9:

Draize test, rabbit, eye: 20 mg/24H Moderate;

Oral, mouse: LD50 = 1900 mg/kg;

Oral, rabbit: LD50 = >11 gm/kg;

Oral, rat: LD50 = >11 gm/kg;

.Carcinogenicity:

CAS# 124-04-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: ACGIH says threshold limit value is based upon neurotoxicity.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Bluegill/Sunfish: LC50 = 97-330 mg/L; 24-96 Hr.; Static conditions, 18-22 degrees C
The Koc of adipic acid is estimated as approximately 26, using a measured log Kow of 0.08 and a regression-derived equation. According to a recommended classification scheme, this estimated Koc value suggests that adipic acid is expected to have very high mobility in soil.

Environmental: Adipic acid is not expected to volatilize from dry soil surfaces based on its extrapolated vapor pressure. Biodegradability screening tests indicate that adipic acid is readily biodegradable. An 84% conversion of adipic acid's carbon content to carbon dioxide was observed after 30 days aerobic incubation in soil biometer flasks at an initial adipic acid concn of 1 mg/g soil.

Physical: ATMOSPHERIC FATE: According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere, adipic acid, which has an extrapolated vapor pressure of 3.2×10^{-7} mm Hg at 25 deg C, will exist in both the vapor and particulate phases in the ambient atmosphere. Vapor-phase adipic acid is degraded in the atmosphere by reaction with hot chemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be about 2.9 days. Particulate-phase adipic acid may be physically removed from the air.

Other: According to a classification scheme, an estimated BCF value of 0.68, from a measured log Kow, suggests that bioconcentration in aquatic organisms is low. Biodegradability screening tests indicate that adipic acid is readily biodegradable. Adipic acid was rapidly degraded in a river die-away test using Main River (Germany) water; 50% and 90% degradation being achieved in 3.5 and 7 days, respectively, at concn levels of 700 mg/l.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

US DOT Canada	TDG
Shipping Name: Not regulated as a hazardous material	No information available.
Hazard Class:	
UN Number:	
Packing Group:	

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 124-04-9 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 124-04-9: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 124-04-9 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 124-04-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XI

Risk Phrases:

R 36 Irritating to eyes.

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 124-04-9: 0

Canada - DSL/NDSL

CAS# 124-04-9 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 124-04-9 is listed on the Canadian Ingredient Disclosure List.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

