SILVER FERN CHEMICAL, INC.

Safety Data Sheet

Dimethyl Adipate

Section 1. Identification

Chemical name : Dimethyl Adipate

Other means of identification : Hexanedioic acid, 1,6-dimethyl ester; Hexanedioic acid, dimethyl ester; Adipic acid, dimethyl ester

Product type : Liquid.

Intended use : Not available.

Supplier's details : Silver Fern Chemical, Inc.
121 W De La Guerra Street, Suite B
Santa Barbara, CA 93101, USA

Customer Service
Phone: 1-866-282-3384
Website - www.silverfernchemical.com; Email - info@silverfernchemical.com

24 Hour Emergency Telephone Number : **24 Hour Emergency Contact**
Infotrac 1-800-535-5053 (USA & Canada)
Outside USA & Canada 1-352-323-3500

Section 2. Hazards identification

OSHA/HCS status : This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : This product is not classified as hazardous by OSHA, WHMIS, or under the GHS or CLP systems.

Hazards not otherwise classified : None known.

GHS label elements

Signal word : No signal word.

Hazard statements : Harmful to aquatic life.

Precautionary statements

General : Do not handle until all safety precautions have been read and understood. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Wear protective gloves or clothing and eye or face protection. Wash hands thoroughly after handling. Avoid release to the environment.

Response : **IF SWALLOWED:** Rinse mouth.
IF ON SKIN (or hair): Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Storage : Store in accordance with all local, regional, national and international regulations.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : dimethyl adipate

CAS number : 627-93-0

Other means of identification : Hexanedioic acid, 1,6-dimethyl ester; Hexanedioic acid, dimethyl ester; Adipic acid, dimethyl ester

Ingredient name	%	CAS number
dimethyl adipate	99-100	627-93-0
dimethyl glutarate	0 - 2	1119-40-0
dimethyl succinate	0 - 1	106-65-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : May cause eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : redness

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : No additional remark.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Bulk : Not available.

Non-bulk : Not available.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
dimethyl adipate	None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Colorless.

Odor : Sweet.

Odor threshold : Not available.

pH : 6.9

Melting point : 9°C (48.2°F)

Boiling point : 225°C (437°F)

Flash point : Closed cup: 124°C (255.2°F) [Pensky-Martens.]

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : 0.0013 kPa (0.01 mm Hg) [room temperature]

Vapor density : Not available.

Density : 1.06 g/cm³ [20°C (68°F)]

Solubility in water : 25 to 30 g/l

Partition coefficient (LogKow) : 1.03

Auto-ignition temperature : 400°C (752°F)

Decomposition temperature : Not available.

Viscosity : Dynamic (room temperature): 3.03 mPa·s (3.03 cP)

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
dimethyl adipate	LD50 Dermal LD50 Oral NOEL Inhalation Dusts and mists	Rabbit Rat Rat - Male, Female	>5000 mg/kg 11300 mg/kg 11 mg/l	- - 4 hours

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
dimethyl adipate	Eyes - Moderate irritant Skin - Edema	Rabbit Rabbit	- 0	0.1 Mililiters 72 hours	- -

Conclusion/Summary

Skin : Non-irritant to skin.

Eyes : Moderate irritant

Sensitization

Product/ingredient name	Route of exposure	Species	Result
dimethyl adipate	skin	Mouse	Not sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
dimethyl adipate	- 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vitro Subject: Bacteria Experiment: In vivo Subject: Mammalian-Animal	Negative Negative

Carcinogenicity

Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
dimethyl adipate	Negative	Negative	Negative	Rat - Male, Female	Inhalation: 1000 mg/m³ Dusts and mists	-

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : May cause eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : redness

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : blurred or double vision

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : blurred or double vision
Repeated or prolonged inhalation of vapors may lead to temporary blurred or double vision.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
dimethyl adipate	Sub-chronic NOEL Oral	Rat - Male, Female	3958 mg/kg	14 days
	Sub-acute NOEL Dermal	Rat - Male, Female	1000 mg/kg systemic toxicity	14 days; 6 hours per day
	Sub-chronic NOEL Inhalation Dusts and mists	Rat - Male	10 mg/m³	90 days
	Sub-chronic LOEL Inhalation Dusts and mists	Rat - Male	400 mg/m³	90 days

Conclusion/Summary : No known significant effects or critical hazards.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	11300 mg/kg

Section 11. Toxicological information

Interactive effects : None known.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
dimethyl adipate	Acute EC50 >100 mg/l (growth rate)	Algae - Selenastrum capricornutum	72 hours
	Acute EC50 >100 mg/l (biomass)	Algae - Selenastrum capricornutum	72 hours
	Acute LC50 180 mg/l Fresh water	Daphnia	72 hours
	Acute LC50 18 to 24 ppm Fresh water	Fish - Pimephales promelas	72 hours
	Acute LOAEL 140 mg/l Fresh water	Daphnia	72 hours
	Acute NOEC 12.5 mg/l (biomass)	Algae - Selenastrum capricornutum	72 hours
	Acute NOEC 50 mg/l (growth rate)	Algae - Selenastrum capricornutum	72 hours
	Acute NOEC 120 mg/l Fresh water	Daphnia	72 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
dimethyl adipate	301A Ready Biodegradability - DOC Die-Away Test	70 % - Readily - 29 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
dimethyl adipate	-	-	Readily

Bioaccumulative potential

Product/ingredient name	Partition coefficient (LogKow)	BCF	Potential
dimethyl adipate	1.03	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. For more detailed information, please refer to the regulation. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Packaging materials : Not available.

Section 14. Transport information

	Transport information
UN number	Not regulated.
UN proper shipping name	-
Transport hazard class(es)	-
Packing group	-
Environmental hazards	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments

- **Proper shipping name** : Not available.
- **Ship type** : Not available.
- **Pollution category** : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b) This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Section 15. Regulatory information

Classification : Not applicable.

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : This material is not listed.

New York : This material is not listed.

New Jersey : This material is not listed.

Pennsylvania : This material is not listed.

California Prop. 65 : ⚠ **WARNING**: This product can expose you to Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
Methanol	-	Yes.

International regulations

Canadian lists

CEPA Toxic substances : This material is not listed.

Canada inventory : This material is listed or exempted.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia :

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : **Japan inventory (ENCS)**: This material is listed or exempted.
Japan inventory (ISHL): This material is listed or exempted.

Malaysia : Not applicable.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Section 15. Regulatory information

Thailand :

Turkey : This material is listed or exempted.

Viet Nam : This material is listed or exempted.

Section 16. Other information

National Fire Protection Association (U.S.A.)

	Product as-supplied
Health	1
Flammability	1
Instability/Reactivity	0
Special	

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History

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Prepared by : Silver Fern Chemical, Inc.

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : No additional information.

Indicates information that has changed from previously issued version.

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