

Section 1: Product and Company Identification

1.1 GHS Product Identifier

Product Name

Dibutyl Maleate (DBM)

1.2 Other Means of Identification

Synonyms

DBM / Maleic Acid, Dibutyl Ester

1.3 Recommended / Restricted Use

Identified Uses

Additive & Intermediate for Plastics, Pharmaceuticals & Agricultural Products / Intermediate for the Production of Paints, Adhesives & Copolymers / Organic Syntheses

Restrictions

Do not use for any purpose other than the one for which it is intended.

1.4 Supplier Detail

Silver Fern Chemical, Inc.

2226 Queen Anne Avenue North

Seattle, WA 98109 USA

Customer Service: 1-866-282-3384 /

info@silverfernchemical.com

Website - www.silverfernchemical.com

1.5 Emergency Phone Numbers

Emergency telephone number

Infotrac: 1-800-535-5053;

Outside USA & Canada +1-352-323-3500

Section 2: Hazard(s) Identification

2.1 Classification of the Substance or Mixture

GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS)

Sensitization, Skin (Category 1)

Specific Target Organ Toxicity, Repeated Exposure (Category 2)

2.2 GHS Label Elements, Including Precautionary Statements

Pictogram(s)





Silver Fern Chemical, Inc.
Safety Data Sheet
Dibutyl Maleate

Revision Date: July 26, 2024

Section 2: Hazard(s) Identification - continued

Signal Word

Warning

Hazard Statement(s)

H317 May cause an allergic skin reaction.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary Statement(s) – Prevention

P260 Do not breathe fumes / gas / mist / vapors / spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves / protective clothing / eye protection / face protection.

Precautionary Statement(s) – Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P319 Get medical help if you feel unwell.
P321 Specific treatment (see Section 4 of this Safety Data Sheet).
P333 + P317 If skin irritation or rash occurs: Get medical help.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Precautionary Statement(s) – Storage

No Precautionary Statement(s) – Storage

Precautionary Statement(s) – Disposal

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

2.3 Other Hazards which do not Result in Classification

None known.

Section 3: Composition / Information on Ingredients

3.1 Substances

Components	Identifiers	GHS Classification	Concentration (%)
2-Butanedioic Acid, Dibutyl Ester	Formula C ₁₂ H ₂₀ O ₄ CAS No. 105-76-0 EC No. 203-328-4 Index No.	H317: May cause an allergic skin reaction – Category 1 H373: May cause damage to organs through prolonged or repeated exposure – Category 3 H401: Toxic to aquatic life – Category 2 H411: Toxic to aquatic life with long lasting effects – Category 2	100.00

3.2 Mixtures

N/A – This product is not a mixture.

Section 4: First Aid Measures

4.1 Description of Necessary First Aid Measures

General Advice

First aid responders should pay attention to self-protection and use the recommended personal protective equipment when the potential for exposure exists.

Show this Safety Data Sheet to the physician in attendance.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

Seek medical attention if adverse health effects persist or are severe.

If unconscious, place in recovery position and seek medical attention immediately.

Maintain an open airway. Loosen tight clothing such as collar, tie, belt or waistband.

Skin Contact

Remove contaminated clothing and shoes.

Wash exposed area immediately with plenty of water for at least 15 minutes.

Seek medical attention if irritation develops or persists.

Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.

Eye Contact

Immediately flush eyes with water, while lifting the eyelids, for at least 15 minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

Seek prompt medical attention if irritation develops or persists.

Ingestion

Rinse mouth with water.

Do not induce vomiting. If vomiting occurs spontaneously, keep head low so that stomach content does not get into the lungs.

Seek medical attention.

Never give anything by mouth to a victim who is unconscious or is having convulsions.

If unconscious, place in recovery position and seek medical attention immediately.

4.2 Most Important Symptoms / Effects – Acute & Delayed

Inhalation

No data available.

Skin Contact

May cause allergic skin reaction. Symptoms may include rash, itching, swelling, trouble breathing, tingling of hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Eye Contact

No data available.

Ingestion

No data available.

4.3 Indication of Immediate Medical Attention / Special Treatment

Interaction with Other Chemicals Which Enhance Toxicity

None known.

Medical Conditions Aggravated by Exposure

None known.



Silver Fern Chemical, Inc.

Safety Data Sheet

Dibutyl Maleate

Revision Date: July 26, 2024

Section 4: First Aid Measures - continued

Notes to Physician

Provide general supportive measures and treat symptomatically.

Section 5: Firefighting Measures

5.1 Extinguishing Media

Suitable Extinguishing Media

Water spray. Alcohol-resistant foam. Dry chemical. Carbon dioxide (CO₂).

Unsuitable Extinguishing Media

No data available.

5.2 Specific Hazards Arising from the Chemical

Fire Hazard

Combustible product. Risk of fire if exposed to flame or heat.

Explosion Hazard

Heating can cause expansion or decomposition, leading to violent burst of the containers. Mists with combustible products can be explosive.

Reactivity

No data available.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂).

5.3 Special Protective Actions for Firefighters

Precautionary Measures

Do not allow run-off from firefighting to enter drains or water courses.

Firefighting Instructions

Move undamaged containers from immediate hazard area if it can be done safely.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel.

Avoid spraying water onto liquid pools.

Cool containers / equipment exposed to fire with water spray, if it can be done safely.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Personal Protective Equipment

In the event of fire, wear self-contained breathing apparatus pressure-demand, MSHA / NIOSH (approved or equivalent) and full protective gear.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Non-Emergency Personnel

Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Evacuate non-essential personnel from the hazard area.

Do not touch or walk through spilled material.

Ensure adequate ventilation.

Section 6: Accidental Release Measures - continued

Emergency Responders

Wear appropriate personal protective equipment recommended in Section 8 of this Safety Data Sheet.
Uncontrolled releases should be responded to by trained personnel using pre-planned procedures.

6.2 Environmental Precautions

Take all necessary measures to avoid accidental discharge of product into drains and waterways due to the rupture of containers or failure of transfer systems.

Spills may be reportable to the National Response Center (800-424-8802) and to state and / or local agencies.

6.3 Methods and Materials for Containment and Cleaning Up

Containment

Stop spill at source.

Construct temporary dikes of dirt, sand or any appropriate readily available material to prevent spreading of the material.

Close or cap valves and / or block or plug holes in leaking containers and transfer to another container.

Methods for Cleaning Up – Small Spills

Collect with non-combustible absorbent material (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

Contaminated absorbent may pose the same hazards as the spilled product.

Never return spills to original containers for reuse.

Methods for Cleaning Up – Large Spills

Collect with non-combustible absorbent material (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

Contaminated absorbent may pose the same hazards as the spilled product.

Section 7: Handling and Storage

7.1 Precautions for Safe Handling

Protective Measures

Wear all appropriate personal protection as described in Section 8 of this Safety Data Sheet.

Do not breathe mist or vapor. Do not get in eyes, on skin or on clothing. Do not taste or swallow.

Use only with adequate ventilation.

Wash thoroughly after handling.

Smoking, eating and drinking should be prohibited in the application area.

Additional Hazards When Processed

“Empty” containers retain product residue and / or vapor and can be hazardous. Do not cut, weld, braze, solder, drill, grind or expose such containers to heat, flames, sparks or other ignition sources.

Do not reuse containers.

Advice on General Occupational Hygiene

Do not store, use and / or consume foods, beverages, tobacco products or cosmetics in areas where this material is stored.

Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Wash exposed skin promptly to remove accidental splashes or contact with the material.

7.2 Conditions for Safe Storage, Including any Incompatibilities

Technical Measures

Electrical installations / working materials must comply with the technological safety standards.



Silver Fern Chemical, Inc.

Safety Data Sheet

Dibutyl Maleate

Revision Date: July 26, 2024

Section 7: Handling and Storage - continued

Storage Conditions

Store this material in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials, 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.

Protect container(s) against physical damage.

Do not store in unlabeled containers.

Use appropriate containment to avoid environmental contamination.

Shelf Life

Provided proper storage and handling precautions are taken, product should be stable for 12 months from date of manufacture.

Product that is subsequently repackaged, handled and / or delivered by third parties may have a different shelf life and may require third party shelf life studies.

Product past the retest date should be evaluated to confirm that all specifications are within their limits before use.

Incompatibilities

Strong oxidizing agents. Strong bases.

7.3 Packaging Materials

Suitable Packaging Materials

Stainless steel, carbon steel, aluminum and high density polypropylene (HDPE).

Unsuitable Packaging Materials

No data available.

Section 8: Exposure Controls / Personal Protection

8.1 Control Parameters

Components with Workplace Control Parameters

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

8.2 Appropriate Engineering Controls

Provide sufficient mechanical (general and / or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Ensure that eyewash stations and safety showers are close to the workstation location.

8.3 Individual Protection Measures, Such as Personal Protective Equipment (PPE)

Respiratory Protection

Use a NIOSH / MSHA approved air-purifying respirator with an appropriate cartridge and / or filter where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined.

When an air-purifying respirator is not adequate, for exposures above the IDLH or spills and / or emergencies of unknown concentrations, a NIOSH / MSHA approved self-contained breathing apparatus or airline respirator with a full face piece and with an auxiliary self-contained escape pack is required.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

Section 8: Exposure Controls / Personal Protection - continued

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.

The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals which may be handled, physical requirements (cut / puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions / specifications provided by the glove supplier.

It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.

In the case of mixtures, consisting of multiple substances, the protection time of the gloves cannot be accurately estimated.

Body Protection

Wear impervious body-covering clothing (coveralls, chemical apron or chemical protective clothing are generally acceptable).

Wear footwear protecting against chemicals (rubber).

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled.

Eye / Face Protection

Safety glasses with side shields. Tightly fitting safety goggles. Face shield (for abnormal processing issues).

Eye and face protection requirements will vary dependent upon the work environment conditions and material handling practices.

Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.

Section 9: Physical and Chemical Properties

9.1 Physical and Chemical Data

Physical Data

Physical State	Clear Liquid
Color	Colorless
Odor	Ester-Like

Chemical Data

Melting Point / Range	Not applicable to liquids.
Freezing Point / Range	-85° C (-121° F)
Initial Boiling Point / Range	271° C - 281° C (525° F - 538° F)
Flammability (solid, gas)	No data available.
Lower Explosion Limit	0.5%
Upper Explosion Limit	3.4%
Flash Point	138° C (280.4° F)
Auto-Ignition Temperature	280° C (536° F) (DIN 51794)
Decomposition Temperature	No data available.
pH	No data available.
Viscosity (Dynamic)	3.7 cSt @ 38° C (100.4° F)
Viscosity (Kinematic)	No data available.
Solubilities	
Water	0.17 g/L @ 20° C (68° F)
Other Solvents	No data available.
Partition Coefficient n-octanol / water (log value)	Log P _{OW} 3.38

Section 9: Physical and Chemical Properties - continued

Vapor Pressure	< 1.0 hPa @ 20° C (68° F)
Density / Relative Density (SG)	0.9930
Relative Vapor Density (Air = 1)	7.9
Particle Characteristics	Not applicable.

Further Safety Characteristics

Mechanical / Static Sensitivity	No data available.
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Section 10: Stability and Reactivity

10.1 Reactivity

Not reactive under normal conditions.

10.2 Chemical Stability

Stable under normal temperatures and pressures.

10.3 Possibility of Hazardous Reactions

None under normal processing.

10.4 Conditions to Avoid

Incompatible materials.

10.5 Incompatible Materials

Strong oxidizing agents. Strong bases.

10.6 Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO₂).

Section 11: Toxicological Information

11.1 Information on Toxicological Effects

Acute Toxicity

No data available.

Skin Corrosion / Irritation

Species: Rabbit

Result: Mild skin irritation.

Method: OECD Test Guideline 404

Serious Eye Damage / Eye Irritation

Species: Rabbit

Result: Mild eye irritation.

Method: OECD Guideline 405

Respiratory / Skin Sensitization

May cause an allergic skin reaction.

Germ Cell Mutagenicity

Not expected to be mutagenic in humans.

Section 11: Toxicological Information - continued

Carcinogenicity

Not expected to be carcinogenic in humans.

Reproductive Toxicity

Not classified.

Specific Target Organ Toxicity – Single Exposure

Not classified.

Specific Target Organ Toxicity – Repeated Exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Not classified.

11.2 Information on the Likely Routes of Exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

11.3 Symptoms Related to the Physical, Chemical and Toxicological Characteristics

Inhalation

No data available.

Skin Contact

May cause allergic skin reaction. Symptoms may include rash, itching, swelling, trouble breathing, tingling of hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Eye Contact

No data available.

Ingestion

No data available.

11.4 Delayed and Immediate Effects / Chronic Effects from Short Term and Long Term Exposure

Inhalation

No data available.

Skin Contact

May cause allergic skin reaction.

Eye Contact

No data available.

Ingestion

No data available.

11.5 Numerical Measures of Toxicity

Acute Oral Toxicity (LD₅₀)

Method: Acute Oral Toxicity Study

Species: Rat (male)

Dose: ≥ 3730mg/kg

Remarks: (ECHA)

Section 11: Toxicological Information - continued

Acute Dermal Toxicity (LD₅₀)

Method: Acute Dermal Toxicity Study – OECD Test Guideline 402

Species: Rat (male & female)

Dose: > 2000 mg/kg

Acute Inhalation Toxicity (LC₅₀)

Method: Acute Inhalation Toxicity Study – OECD Test Guideline 403

Species: Rat (male & female)

Dose: > 5 mg/L

Exposure Time: 4 Hrs.

11.6 Interactive Effects

No data available.

11.7 Other Information

No data available.

Section 12: Ecological Information

12.1 Toxicity

Acute Toxicity to Fish (LC₅₀)

Species: Oncorhynchus mykiss (rainbow trout)

Dose: 1.2 mg/L

Exposure Time: 96 Hrs.

Test Type: Static Test

Method: OECD Test Guideline 203

Acute Toxicity to Daphnia & Other Aquatic Invertebrates (EC₅₀)

Species: Daphnia magna (water flea)

Dose: 21 mg/L

Exposure Time: 48 Hrs.

Test Type: Semi-static Test

Method: OECD Test Guideline 202

Acute Toxicity to Algae & Other Aquatic Plants (EC₅₀)

Species: Desmodesmus subspicatus (green algae)

Dose: 6.2 mg/L

Exposure Time: 72 Hrs.

Test Type: Static Test

Method: OECD Test Guideline 201

Acute Toxicity to Bacteria (EC₅₀)

Species: (activated sludge)

Dose: 488.6 mg/L

Exposure Time: 3 Hrs.

Test Type: Static Test

Method: OECD Test Guideline 209

Section 12: Ecological Information - continued

12.2 Persistence and Degradability

Biodegradability

Result: Readily Biodegradable

Biodegradation: 95%

Method: OECD Test Guideline 301E

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

Partition Coefficient: 3.38

12.5 Other Adverse Effects

Environmental Fate and Pathways

No data available.

Results of PBT and vPvB Assessment

No data available.

Endocrine Disrupting Potential

No data available.

Adsorbed Organic Bound Halogens (AOX)

No data available.

Ozone-Depletion Potential

No data available.

Additional Ecological Information – Product as Supplied

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13: Disposal Considerations

13.1 Disposal Methods

Waste from Residues / Unused Product

The generation of waste should be avoided or minimized wherever possible.

Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Contaminated Packaging

Waste packaging should be recycled.

Incineration or landfill should only be considered when recycling is not feasible.

This container must be disposed of in a safe way.

Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues.

Recycling

Store containers and offer for recycling of material when in accordance with the local regulations.



Silver Fern Chemical, Inc.
Safety Data Sheet
Dibutyl Maleate

Revision Date: July 26, 2024

Section 13: Disposal Considerations - continued

13.2 RCRA Waste Codes

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product, should be classified as a hazardous waste.

Section 14: Transport Information

14.1 DOT (U.S.)

Identification Number: NA
Proper Shipping Name: Not Regulated
Transport Hazard Class: Not Applicable
Transport Subsidiary Hazard Class: Not Applicable
Packing Group: Not Applicable
Reportable Quantity (RQ): Not Applicable
Marine Pollutant: No
ERG Number:

14.2 TDG (Canada)

Identification Number: NA
Proper Shipping Name: Not Regulated
Transport Hazard Class: Not Applicable
Transport Subsidiary Hazard Class: Not Applicable
Packing Group: Not Applicable
Reportable Quantity (RQ): Not Applicable
Marine Pollutant: No
ERG Number:
ERAP Index:

14.3 IMDG

Identification Number: NA
Proper Shipping Name: Not Regulated
Transport Hazard Class: Not Applicable
Transport Subsidiary Hazard Class: Not Applicable
Packing Group: Not Applicable
Reportable Quantity (RQ): Not Applicable
Marine Pollutant: No
ERG Number:



Silver Fern Chemical, Inc.

Safety Data Sheet

Dibutyl Maleate

Revision Date: July 26, 2024

Section 14: Transport Information - continued

14.4 IATA

Identification Number: NA
Proper Shipping Name: Not Regulated
Transport Hazard Class: Not Applicable
Transport Subsidiary Hazard Class: Not Applicable
Packing Group: Not Applicable
Reportable Quantity (RQ): Not Applicable
Marine Pollutant: No
ERG Number:ERG

14.5 Special Precautions for User

Transportation information provided is for reference only. The shipper / transporter / consignor should consult DOT, TDG, IMDG and IATA regulations for detailed requirements and exceptions covering specific container sizes, packaging materials and methods of shipping.

Section 15: Regulatory Information

15.1 Safety, Health and Environmental Regulations Specific for the Product

OSHA Hazard Communication Standard (29 CFR 1910.1200)

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard.

Toxic Substances Control Act (TSCA)

All chemicals substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

SARA – Section 311 / 312 Hazard Categories (40 CFR 370)

Acute Health Hazard

SARA – Section 313 Components (40 CFR 372.65)

This product does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA – Section 302 Emergency Planning Extremely Hazardous Substances Threshold Planning Quantity (40 CFR 355)

This product does not contain any chemical components subject to the reporting requirements of SARA Title III, Section 302.

SARA – Section 302 Emergency Planning Extremely Hazardous Substances Reportable Quantity (40 CFR 355)

This product does not contain any chemical components with a SARA Title III, Section 302 RQ.

SARA – Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)

This product does not contain any chemical components with a SARA Title III, Section 304 RQ.

U.S. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

This product, as supplied, does not contain any chemical components regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act.

Clean Water Act (CWA)

This product does not contain any chemical components regulated as a Hazardous Substance, Priority Pollutant or Toxic Pollutant pursuant to the Clean Water Act.

Clean Air Act (CAA)

This product does not contain any chemical components regulated as a Hazardous Air Pollutant (HAP), Class 1 Ozone Depletor or Class 2 Ozone Depletor pursuant to the Clean Air Act.

Section 15: Regulatory Information - continued

U.S. Department of Homeland Security

This product does not contain any chemical components subject to the reporting requirements of the Chemical Facility Anti-Terrorism Standard (CFATS).

California Proposition 65, Safe Drinking Water and Toxic Enforcement Act of 1986

This product does not contain any chemical components known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65. For more information, go to www.P65Warnings.ca.gov.

Other U.S. State Inventories

This product contains one or more chemical components listed on State Hazardous Substance Inventories or Right-to-Know Lists.

15.2 International Regulations

Australia Inventory of Chemical Substances (AICS)

All components are on the inventory or in compliance with the inventory.

Canada Domestic Substance List (DSL)

All components of this product are on the Canadian DSL.

China Existing Chemical Inventory (IECSC)

All components are on the inventory or in compliance with the inventory.

European Inventory of Existing Commercial Chemical Substances (EINECS)

All components are on the inventory or in compliance with the inventory.

Japanese Existing and New Chemical Substances Inventory (ENCS)

All components are on the inventory or in compliance with the inventory.

Korea Toxic Chemical Control Law (KECL) or Existing Chemicals List (ECL)

All components are on the inventory or in compliance with the inventory.

Philippine Inventory of Chemicals and Chemical Substances (PICCS)

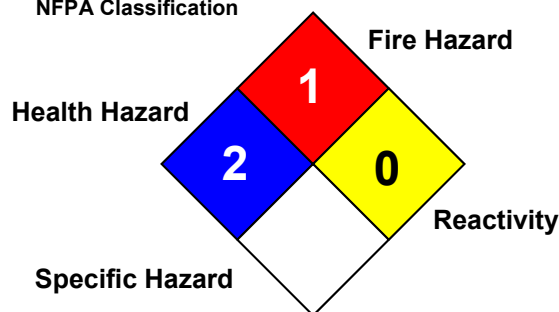
All components are on the inventory or in compliance with the inventory.

Section 16: Other Information

16.1 HMIS III Classification

HEALTH	2
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

16.2 NFPA Classification



16.3 Preparation / Revision Date

July 26, 2024



Silver Fern Chemical, Inc.

Safety Data Sheet

Dibutyl Maleate

Revision Date: July 26, 2024

Section 16: Other Information - continued

16.4 Preparation / Revision Information

Section 3.1	Added additional GHS Classifications.
Section 4.1	Added "General Advice".
Section 4.2	Revised "Skin Contact".
Section 5.2	Added "Hazardous Combustion Products".
Section 6.3	Added "Containment".
Section 7.1	Added "Additional Hazards When Processed" and "Advice on General Occupational Hygiene".
Section 7.2	Added "Shelf Life".
Section 8.3	Revised PPE data.
Section 11.1	Removed numerical data.
Section 11.3	Added symptoms of exposure to the product.
Section 11.4	Revised effects of exposure to the product.
Section 11.5	Added numerical data.
Section 12.1	Revised toxicity data.
Section 12.2	Added "Biodegradability".
Section 12.5	Retitled as "Other Adverse Effects".
Section 13	Reformatted and revised data.
Section 14.5	Added "Special Precautions for User".
Section 16.3	Revised date of preparation.
Section 16.5	Reformatted as "Acronyms".
Section 16.6	Retitled as "Disclaimer".

16.5 Acronyms

ACGIH – American Conference of Governmental Industrial Hygienists / ANSI – American National Standards Institute / ASTM – American Society for the Testing of Materials / bw – Body Weight / CAS – Chemical Abstracts Service / CERCLA – Comprehensive Environmental Response Compensation and Liability Act / CFR – Code of Federal Regulations / DHS – Department of Homeland Security / DIN – Standard of the German Institute for Standardization / DOT – Department of Transportation / EHS – Extremely Hazardous Substance / EPA – Environmental Protection Agency / ERG – Emergency Response Guide / GHS – Globally Harmonized System / HMIS – Hazardous Materials Identification System / IARC – International Agency for Research on Cancer / IATA - International Air Transport Association / IBC – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk / IC50 – Half Maximal Inhibitory Concentration / ICAO – International Civil Aviation Organization / IDLH – Immediately Dangerous to Life or Health / IMDG – International Maritime Dangerous Goods / IMO – International Maritime Organization / ISO – International Organization of Standardization / LC50 – Lethal Concentration to 50% of a Test Population / LD50 – Lethal Dose to 50% of a Test Population (Median Lethal Dose) / MSHA – Mine Safety and Health Administration / NFPA – National Fire Protection Association / NIOSH – National Institute of Occupational Safety and Health / n.o.s. – Not Otherwise Specified / NO(A)EC – No Observed (Adverse) Effect Concentration / NO(A)EL – No Observed (Adverse) Effect Level / NTP – National Toxicology Program / OECD – Organization for Economic Co-operation and Development / OSHA – Occupational Safety and Health Administration / PBT – Persistent, Bioaccumulative and Toxic / PEL – Permissible Exposure Limit / PPM – Parts Per Million / RCRA – Resource Conservation and Recovery Act / REL – Recommended Exposure Limit / RQ – Reportable Quantity / SADT – Self-Accelerating Decomposition Temperature / SARA – Superfund Amendments and Reauthorization Act / SCBA – Self-Contained Breathing Apparatus / SDS – Safety Data Sheet / STEL – Short Term Exposure Limit / TDG – Transport of Dangerous Goods (Canada) / TLV – Threshold Limit Value / TWA – Time Weighted Average / UN – United Nations / vPvB – Very Persistent and Very Bioaccumulative



Silver Fern Chemical, Inc.
Safety Data Sheet
Dibutyl Maleate

Revision Date: July 26, 2024

Section 16: Other Information - continued

16.6 Disclaimer

DISCLAIMER OF RESPONSIBILITY

The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly disclaim liability for loss, connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.

End of Document