



SILVER FERN CHEMICAL, INC.

SAFETY DATA SHEET

Dibutyl Maleate

1. Product and company identification

Trade Name: Dibutyl Maleate

Identified uses: Industrial use

**Details of the supplier of the safety data sheet
Distributor**

Silver Fern Chemical, Inc.
2226 Queen Anne Avenue North, Suite C
Seattle WA 98109, USA
Phone: 1-866-282-3384

Business Contact

Customer Service: 1-866-282-3384
info@silverfernchemical.com

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

2. Hazard Identification

GHS Classification

Hazards

Specific target organ systemic toxicity (repeated exposure)
Skin sensitization

Category

Category 2
Category 1A

Label elements



Signal Word

Warning

Hazard Statements

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

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves
P272 Contaminated work clothing should not be allowed out of the workplace
P302+P352 IF ON SKIN: Wash with plenty of water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention
P363 Wash contaminated clothing before reuse.
P314 Get medical advice/attention if you feel unwell
P501 Dispose of contents/ container to an approved waste disposal plant.

3. Composition/information on ingredients

Components	CAS-No	Percent %
Dibutyl maleate	105-76-0	> 95
Dibutyl fumarate	105-75-9	< 5

4. First aid measures

General Information

Remove contaminated, soaked clothing immediately and dispose of safely.

Skin

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eyes

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Inhalation

Keep at rest. Aerate with fresh air. If symptoms persist, call a physician.

Ingestion

Call a physician immediately. Do not induce vomiting without medical advice.

5. Fire-fighting measures

NFPA: **Health:** 2

Flammability: 1

Instability: 0

Suitable extinguishing media

Foam, Dry chemical, Carbon dioxide (CO₂)

Extinguishing media which must not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire.

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases

Under conditions giving incomplete combustion, hazardous gases produced may consist of

Carbon monoxide

Carbon dioxide (CO₂)

Combustion gases of organic materials must in principle be graded as inhalation poisons

Special protective equipment for fire-fighters

self-contained breathing apparatus (EN 133).

Environmental precautions

Water used to fight fire runoff can cause environmental damage. Dike and collect water used to fight fire.

Other Information

Cool containers / tanks with water spray



6. Accidental release measures

Personal precautions

Avoid contact with the skin and the eyes. Keep away from heat and sources of ignition. Provide adequate ventilation.

Isolation

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. Isolate for 800 meters or 0.5 miles in all directions if tank, rail car, or tank truck is involved in fire. Evacuate downwind areas as conditions warrant to prevent exposure and to allow vapors or fumes to dissipate. Spills may expose downwind areas to toxic or flammable concentrations over considerable distances in some cases.

Environmental precautions

Prevent further leakage or spillage. Do not discharge into the drains/surface waters/groundwater.

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Dispose of in accordance with local regulations.

7. Handling and storage

Advice on safe handling

Provide sufficient air exchange and/or exhaust in work rooms.

Protection - fire and explosion:

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge. Ground and bond containers when transferring material. In case of fire, emergency cooling with water spray should be available.

Technical measures/Storage conditions

Keep tightly closed in a dry, cool and well-ventilated place. Handle an open container with care.

Material storage

Keep in a dry, cool and well-ventilated place.

Incompatible products

No hazards to be especially mentioned

8. Exposure controls / personal protection

OSHA Exposure Limits

No exposure limits established.

ACGIH Exposure Limits

No exposure limits established.

Mexico National Exposure Limits

No exposure limits established



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Exposure controls

Engineering measures

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Protective equipment

A safety shower and eyebath should be readily available.

General advice

Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Use only in an area equipped with a safety shower. Hold eye wash fountain available.

Respiratory protection

Based on workplace contaminant level and working limits of the respirator, use a respirator approved by NIOSH. The following is the minimum recommended equipment for an occupational exposure level. To estimate an occupational exposure level see Section 8 and Section 11.

For concentrations > 1 and < 10 times the occupational exposure level: Use air-purifying respirator with full facepiece and organic vapor cartridge(s) or air-purifying full facepiece respirator with an organic vapor canister or a full facepiece powered air-purifying respirator fitted with organic vapor cartridge(s). The air purifying element must have an end of service life indicator, or a documented change out schedule must be established. Otherwise, use supplied air.

For concentrations more than 10 times the occupational exposure level and less than the lower of either 100 times the occupational exposure level or the IDLH: Use Type C full facepiece supplied-air respirator operated in positive-pressure or continuous-flow mode.

For concentrations > 100 times the occupational exposure level or greater than the IDLH level or unknown concentrations (such as in emergencies): Use self-contained breathing apparatus with full facepiece in positive-pressure mode or Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

For escape: Use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.

Eye/face protection:

Wear chemical goggles when there is a reasonable chance of eye contact..

9. Physical and chemical properties

Appearance

Form	liquid
Color	colourless
Odor	ester-like
Molecular Weight	228.29
Flash point	121°C(249.8°F)
Method	EN 22719
Autoignition Temperature	265 °C
Method	DIN 51794



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Decomposition Temperature	not determined
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Melting point/range	-85°C (-121°F)
Boiling point/range	280°C (536°F) @ 1013 hPa
Density	0.99 g/ml @ 20°C
pH	not determined
Viscosity	2.51 mPa*s @ 20°C
Method	calculated
Vapor pressure	0.0027 hPa @ 20°C 0.039 hPa @ 50°C
Vapor density	7.87 (Air=1)
Evaporation Rate	not determined
Water solubility	0.17 g/l @ 20°C
Solubility in other solvents	not determined
Partition coefficient (n-octanol/water)	3.39 (measured)

10. Stability and reactivity

Chemical stability

Stable under normal conditions of handling, use and transportation.

Conditions to avoid

Avoid any source of ignition. Avoid contact with heat, sparks, open flame, and static discharge.

Incompatible Materials

None known

Hazardous Combustion or Decomposition Products:

Thermal decomposition products may include oxides of carbon.

Possibility of hazardous reactions

Polymerization can occur.

11. Toxicological information

Potential health effects

Routes of exposure

Skin, eyes, inhalation, ingestion.

Immediate effects

Skin

May cause allergic skin reaction. May cause slight skin irritation. Symptoms of overexposure include: Redness or discoloration, swelling, itching, burning or blistering of skin.

Eyes

May cause slight irritation

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system

Ingestion Essentially non-toxic. Symptoms of exposure may include: Nausea, vomiting, loss of appetite, gastrointestinal irritation and/or diarrhea.

Target organ effects Allergic reaction and local irritation of the skin

Medical conditions which may be aggravated by exposure: Skin

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Acute oral toxicity	LD50: >= 3730 mg/kg
Acute dermal toxicity	LD50: > 2000 mg/kg
Acute inhalation toxicity	LC50 (4h): > 5000 mg/m ³
Method	OECD 403
Skin corrosion/irritation	slight irritant effect - does not require labelling
Species	rabbit female
Method	OECD 404
Skin Sensitization	sensitizing
Species	guinea pig female
Method	OECD 406
Serious eye damage/eye irritation	slight irritant effect - does not require labelling
Species	rabbit eye
Method	OECD 405
Carcinogenic effects	No evidence of carcinogenicity
in vitro Mutagenicity	Ames Test: negative - with and without metabolic activation - Method: OECD 471 Cytogenicity Assay in Chinese hamster cells: positive - with and without metabolic activation - Method: OECD 473 Mouse lymphoma cell gene-mutation: negative - with and without metabolic activation - Method: OECD 476
in vivo Mutagenicity	Mammalian Erythrocyte Micronucleus Test in mice: negative - Method: OECD 474
Reproductive toxicity	No adverse reproductive effects at the highest dose tested
Routes of exposure	oral gavage
Species	rat
Repeated exposure	Chronic progressive nephropathy and mineralization in the kidneys
Routes of exposure	oral gavage
Species	rats
Method	OECD 408 LOAEL: 30 mg/kg/d

12. Ecological Information

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12. Ecological Information

Acute fish toxicity	LC50: 1.2 mg/l (96h)
Species:	Oncorhynchus mykiss (rainbow trout)
Method	OECD 203
Acute daphnia toxicity	EC50: 21 mg/l (48h)
Species:	Daphnia magna
Method	OECD 202
Toxicity to aquatic plants	EC50: 6.2 mg/l (72h)
Species:	Desmodesmus subspicatus
Method	OECD 201
Toxicity to bacteria	EC50: 488.6 mg/l (3h)
Species:	in activated sludge
Method	OECD 209
Biodegradation	Readily biodegradable
Method	EU C.4-B
Bioconcentration factor (BCF)	81.34 l/kg
Other potential hazards	The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

13. Disposal considerations

Disposal considerations

Dispose of spilled material in accordance with state and local regulations for waste that is non-hazardous by Federal definition. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste.

14. Transport information

US Department of Transportation Not regulated

TDG Not regulated

Mexico Transport Information Not regulated

ICAO/IATA Not restricted

IMDG Not regulated



15. Regulatory Information

US State Regulations

Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):

none

U.S. FEDERAL REGULATIONS

TSCA Inventory:

We certify that all components are either on the TSCA inventory or qualify for an exemption.

Environmental Regulations:

SARA 311:

Acute health:	Yes
Chronic health:	No
Fire:	No
Sudden release of pressure:	No
Reactive:	No

INTERNATIONAL REGULATIONS

International Inventories

Listed on the chemical inventories of the following countries or qualifies for an exemption:

Australia (AICS)
Canada (DSL)
China (IECSC)
Europe (EINECS)
Japan (ENCS)
Japan (ISHL)
Korea (KECI)
New Zealand (NZIoC)
Philippines (PICCS)
United States (TSCA)

16. Other information

NFPA: Health: 2
HMIS: Health: 2

Flammability: 1
Flammability: 1

Instability: 0
Physical Hazard: 0



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Other Information:

Observe national and local legal requirements

Changes against the previous version are marked by ***

Abbreviation and Acronym:

ADR = Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

CAS = Chemical Abstracts Service (division of the American Chemical Society)

CLP = Classification, Labeling and Packaging

DNEL = Derived No Effect Level

EINECS = European Inventory of Existing Commercial Chemical Substances

GHS = Globally Harmonized System of Classification and Labeling of Chemicals

IATA = International Air Transport Association

IBC Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IMO)

ICAO = International Civil Aviation Organization

IMDG = International Maritime Code for Dangerous Goods

LC50 = Lethal Concentration

LD50 = Lethal Dose

LOAEC = Low Observed Adverse Effect Concentration

LOAEL = Low Observed Adverse Effect Level

LOEL = Low Observed Effect Level

MEST = Mouse Ear Swelling Test

NOAEC = No Observed Adverse Effect Concentration

NOAEL = No Observed Adverse Effect Level

NOEC = No Observed Effect Concentration

NOEL = No Observed Effect Level

PBT = Persistent, Bioaccumulative and Toxic

PNEC = Predicted No Effect Concentration

RCR = Risk Characterization Ratio

RID = Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

R-Phrases = Risk Phrases

S-Phrases = Safety Phrases

STOT RE = Specific Target Organ Toxicity Repeated Exposure

STOT SE = Specific Target Organ Toxicity Single Exposure

STP = Sewage Treatment Plant

vPvB = very Persistent and very Bioaccumulative

DISCLAIMER OF RESPONSIBILITY

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