



SILVER FERN CHEMICAL, INC.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 1/10

1. Identification

Product identifier used on the label

FERNFLEX DINCH

Recommended use of the chemical and restriction on use

Recommended use*: for industrial use only

* The "Recommended use" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

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

24 Hour Emergency Contact

Infotrac 1-800-535-5053 (USA & Canada)
Outside USA & Canada 1-352-323-3500

Other means of identification

Chemical family: dicarboxylic acid esters

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

No need for classification according to GHS criteria for this product.

Label elements

The product does not require a hazard warning label in accordance with GHS criteria.

Hazards not otherwise classified

Silver Fern Chemical, Inc.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 2/10

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture. See section 12 - Results of PBT and vPvB assessment.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

CAUTION:
INGESTION MAY CAUSE GASTRIC DISTURBANCES.
Prolonged or repeated contact may cause mild skin irritation.
Wear a NIOSH-certified (or equivalent) organic vapor respirator.
Avoid inhalation of mists/vapors.
Wear safety glasses with side-shields.
Wear chemical resistant protective gloves.
Wear protective clothing.
Avoid contact with the skin, eyes and clothing.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

This product does not contain any components classified as hazardous under the referenced regulation.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

| <u>CAS Number</u> | <u>Content (W/W)</u> | <u>Chemical name</u> |
|-------------------|----------------------|--|
| 474919-59-0 | >= 99.5 % | 1,2-Cyclohexanedicarboxylic acid, dinonyl ester, branched and linear |

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air. If breathing difficulties develop, aid in breathing and seek immediate medical attention.

If on skin:

Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

Seek medical attention.

If swallowed:

Rinse mouth immediately and then drink plenty of water, seek medical attention.

Silver Fern Chemical, Inc.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 3/10

Most important symptoms and effects, both acute and delayed

Symptoms: No significant symptoms are expected due to the non-classification of the product.
Hazards: No hazards anticipated.

Indication of any immediate medical attention and special treatment needed

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
carbon dioxide, dry powder, water spray, foam

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
The product is combustible. Cool endangered containers with water-spray.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice.

Environmental precautions

Discharge into the environment must be avoided.

Methods and material for containment and cleaning up

For small amounts: Spills should be contained, solidified, and placed in suitable containers for disposal.

For large amounts: Pump off product.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas.

Conditions for safe storage, including any incompatibilities

Segregate from strong oxidizing agents.

Further information on storage conditions: Containers should be stored tightly sealed in a dry place.

Silver Fern Chemical, Inc.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 4/10

8. Exposure Controls/Personal Protection

Advice on system design:

Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator as needed. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Hand protection:

Wear chemical resistant protective gloves.

Eye protection:

Safety glasses with side-shields.

Body protection:

Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Avoid inhalation of mists. Avoid contact with the skin, eyes and clothing.

9. Physical and Chemical Properties

| | | |
|----------------------|---------------------|---|
| Form: | liquid | |
| Odor: | almost odorless | |
| Color: | colorless | |
| pH value: | | not applicable, of very low solubility (DIN ISO 3016) |
| pour point: | -54 °C | (1,013 hPa) (Directive 92/69/EEC, A.2) |
| boiling temperature: | approx. 394 °C | Cannot be distilled without decomposition at normal pressure. |
| Flash point: | 224 °C | (Directive 92/69/EEC, A.9, closed cup) When exposed to high temperatures over a long period of time, formation of outgassing flammable decomposition products may occur. |
| Flammability: | not readily ignited | |

Silver Fern Chemical, Inc.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 5/10

| | | |
|---|--|--|
| Lower explosion limit: | | <p>As a consequence of the thermal decomposition behavior (see Thermal decomposition) it is not possible to determine meaningful figures expressed in units of volume- % when applying the standard DIN EN 1839 for determination of the lower explosion limit. Based on a theoretical assessment, it can be assumed that the vapors and decomposition products released from this liquid may form explosive mixtures upon mixing with air at concentrations $\geq 40 \text{ g/Nm}^3$ (temperature of mixture 20°C) or $\geq 33 \text{ g/Nm}^3$ (temperature of mixture 200°C).</p> <p>(approx. 170°C, approx. 1013 hPa) (DIN EN 15794, air) The lower explosion point of the substance/mixture has been determined. The explosion point describes the temperature of a flammable liquid at which the concentration of the saturated vapor mixed with air equals the lower explosion limit.</p> <p>As a consequence of the thermal decomposition behavior (see Thermal decomposition) the determination of the lower explosion point according to standard DIN EN 15794 does not generate a globally meaningful value.</p> |
| Upper explosion limit: | | <p>As a consequence of the thermal decomposition behavior (see Thermal decomposition) it is not possible to determine the upper explosion limit according to standard DIN EN 1839. (Directive 92/69/EEC, A.15)</p> |
| Autoignition: | 330 °C | (20°C) (Directive 92/69/EEC, A.4) |
| Vapor pressure: | < 0.000001 hPa | (20°C) (DIN 51757) |
| Density: | 0.944 - 0.954 g/cm ³ | not determined |
| Vapor density: | | (25°C) (Directive 92/69/EEC, A.8) |
| Partitioning coefficient n-octanol/water (log Pow): | 10 | |
| Refractive index: | 1.4622 | (20°C) (DIN 51423-2 (n _{20D20})) |
| Self-ignition temperature: | | (other) The substance does not initiate an exothermic reaction under test conditions. |
| Thermal decomposition: | 20 °C When exposed to high temperatures over a long period of time, formation of outgassing flammable decomposition products may occur. | not self-igniting |
| Viscosity, dynamic: | 44 - 60 mPa.s | (20°C) (calculated (from kinematic viscosity)) The value was determined by calculation from the detected kinematic viscosity. |
| Particle size: | | The substance / product is marketed or used in a non solid or granular form. |

Silver Fern Chemical, Inc.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 6/10

| | | |
|---------------------------|-------------------------------|----------------|
| % volatiles: | 0.65 % | |
| Solubility in water: | < 0.02 mg/l | (25 °C) |
| Solubility (qualitative): | soluble | |
| | solvent(s): organic solvents, | |
| Molar mass: | 424.66 g/mol | |
| Evaporation rate: | | not determined |

10. Stability and Reactivity

Reactivity

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
not fire-propagating (other)

Formation of flammable gases: Remarks: Forms no flammable gases in the presence of water.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

The product is chemically stable.

Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme heat.

Incompatible materials

strong oxidizing agents

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

When exposed to high temperatures over a long period of time, formation of outgassing flammable decomposition products may occur.

11. Toxicological information

Primary 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.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact.

Oral

Type of value: LD50

Species: rat

Value: > 5,000 mg/kg (OECD Guideline 423)

Dermal

Type of value: LD50

Species: rat

Value: > 2,000 mg/kg (OECD Guideline 402)

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Irritation / corrosion

Assessment of irritating effects: May cause slight irritation to the skin. Not irritating to the eyes.

Skin

Species: rabbit

Result: non-irritant

Method: OECD Guideline 404

Eye

Species: rabbit

Result: non-irritant

Method: OECD Guideline 405

Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Guinea pig maximization test

Species: guinea pig

Result: Non-sensitizing.

Method: OECD Guideline 406

Aspiration Hazard

not applicable

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Effects on the kidney of male rats were detected after repeated exposure. These effects are specific for the male rat and are known to be of no relevance to humans.

Genetic toxicity

Assessment of mutagenicity: No mutagenic effect was found in various tests with bacteria, microorganisms and mammalian cell culture. The substance was not mutagenic in studies with mammals.

Carcinogenicity

Assessment of carcinogenicity: In long-term animal studies in which the substance was given in high concentrations by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Silver Fern Chemical, Inc.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 8/10

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Symptoms of Exposure

No significant symptoms are expected due to the non-classification of the product.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish

LC50 (96 h) > 100 mg/l, Brachydanio rerio (OECD 203; ISO 7346; 84/449/EEC, C.1, static)

Tested above maximum solubility. The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates

EC50 (48 h) > 100 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An eluate has been tested.

Aquatic plants

EC50 (72 h) > 100 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static)

The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An eluate has been tested.

Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d) \geq 0.021 mg/l, Daphnia magna (OECD Guideline 211, semistatic)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Limit concentration test only (LIMIT test).

Soil living organisms

Toxicity to soil dwelling organisms:

LC50 (14 d) > 1,000 mg/kg, Eisenia foetida (OECD Guideline 207, artificial soil)

The details of the toxic effect relate to the nominal concentration.

Toxicity to terrestrial plants

No observed effect concentration (20 d) > 1.000 mg/kg, Avena sativa (OECD Guideline 208)

No observed effect concentration (21 d) > 1.000 mg/kg, Brassica napus (OECD Guideline 208)

No observed effect concentration (21 d) > 1.000 mg/kg, Vicia sativa (OECD Guideline 208)

Microorganisms/Effect on activated sludge

Silver Fern Chemical, Inc.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 9/10

Toxicity to microorganisms

DIN EN ISO 8192-OECD 209-88/302/EEC,P. C aquatic aerobic bacteria from a domestic water treatment plant/EC20 (180 min): > 1,000 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H2O)

Biodegradable.

Not readily biodegradable (by OECD criteria).

Elimination information

90 - 100 % CO₂ formation relative to the theoretical value (60 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) (aerobic, activated sludge, domestic, non-adapted)

70 - 80 % CO₂ formation relative to the theoretical value (28 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) (aerobic, activated sludge, domestic, adapted)

Bioaccumulative potential

Bioaccumulation potential

Bioconcentration factor: 189 (30 d), Brachydanio rerio (OECD Guideline 305 E)
Accumulation in organisms is not to be expected.

Mobility in soil

Assessment transport between environmental compartments

Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

Additional information

Other ecotoxicological advice:
Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:

Dispose of in a licensed facility. Do not discharge substance/product into sewer system. Dispose of in accordance with national, state and local regulations.

Container disposal:

Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Silver Fern Chemical, Inc.

Safety Data Sheet

FERNFLEX DINCH

Revision date : 2014/10/23
Version: 2.0

Page: 10/10

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Not hazardous;

NFPA Hazard codes:

Health : 1 Fire: 1 Reactivity: 0 Special:

HMIS III rating

Health: 1 Flammability: 1 Physical hazard:0

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Skin Corr./Irrit. 3 Skin corrosion/irritation

16. Other Information

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, expressed 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 responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way 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>