

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2-methyl-4-oxo-3-(penta-2,4-dienyl)cyclopent-2-enyl [1R-[1Î±[S*(Z)],3Î²]]-chrysanthemate

1.2 Other means of identification

Product number -

Other names (1S)-2-methyl-4-oxo-3-[(2Z)-penta-2,4-dien-1-yl]cyclopent-2-en-1-yl (1R,3R)-2,2-dimethyl-3-(2-methylprop-1-en-1-yl)cyclopropane-1-carboxylate; Dehydroleucodin; Lidbeckialactone

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research uses.

Uses advised against no data available

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral

Acute toxicity - Category 4, Dermal

Acute toxicity - Category 4, Inhalation

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H302 Harmful if swallowed

H312 Harmful in contact with skin

H332 Harmful if inhaled

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P317 Get medical help.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P391 Collect spillage.

Storage

none

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-methyl-4-oxo-3-(penta-2,4-dienyl)cyclopent-2-enyl [1R-[1Î±[S*(Z)],3Î²]]-chrysanthemate	2-methyl-4-oxo-3-(penta-2,4-dienyl)cyclopent-2-enyl [1R-[1Î±[S*(Z)],3Î²]]-chrysanthemate	121-21-1	204-455-8	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

INHALATION: Sneezing, serous nasal discharge, nasal stuffiness. A few cases of extrinsic asthma have been reported. Rare: anaphylactic reaction, peripheral vascular collapse and respiratory difficulty. EYES: May be irritating. SKIN: Contact dermatitis - a mild erythematous, vesicular dermatitis with papules in moist areas and intense pruritis. INGESTION: Excitation - to convulsions - to tetanic paralysis; muscular fibrillations; death from respiratory failure. (USCG, 1999)

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

The additives (e.g. petroleum distillate), when present, represent a greater toxic threat to the patient than the active ingredient itself. ... Emesis should not be induced when petroleum distillate additives are present unless the product ingested is estimated to contain a near lethal dose (1 g/kg) of pyrethrum or pyrethrins... Pulmonary & allergic sequelae are treated symptomatically with airway maintenance, oxygen, & ventilatory assistance as required. Standard drugs and management protocols may be used for treatment of bronchospasm & anaphylaxis. Seizures are treated with diazepam. Pyrethrum and synthetic pyrethroids

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Fire-fighting: Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive-pressure mode. Pyrethrum

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Highly toxic fumes are imminent. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

If pyrethrum is spilled, the following steps should be taken: 1) Ventilate area of spill. 2) For small quantities, sweep onto paper or other suitable material, place in an appropriate container and burn in a safe place (such as a fume hood). Large quantities may be reclaimed; however, if this is not practical, dissolve in a flammable solvent (such as alcohol) and atomize in a suitable combustion chamber. Pyrethrum

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Should be refrigerated and stored in darkness.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Component	2-methyl-4-oxo-3-(penta-2,4-dienyl)cyclopent-2-enyl [1R-[1 [±] [S*(Z)],3 [±]]]-chrysanthemate
CAS No.	121-21-1
	Recommended Exposure Limit: 10 Hour Time-Weighted Average: 5 mg/cu m /pyrethrum/

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Pyrethrins, [liquid] is a viscous yellow to brown liquid with the characteristic odor of the carrier. Sinks in water. (USCG, 1999)
Colour	Viscous liquid
Odour	no data available
Melting point/freezing point	no data available
Boiling point or initial boiling point and boiling range	424.3Å°C at 760mmHg
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	182.3Å°C
Auto-ignition temperature	Not flammable (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Insoluble (NIOSH, 2016)
Partition coefficient n-octanol/water	log Kow = 5.9
Vapour pressure	2.09E-07mmHg at 25Å°C
Density and/or relative density	1.04g/cm3
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

5000 mg/cu m Pyrethrum

10.2 Chemical stability

Oxidizes readily and becomes inactive in air.

10.3 Possibility of hazardous reactions

PYRETHRINS are incompatible with the following: Strong oxidizers (NIOSH, 2016).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible with lime and ordinary soaps because acids & alkalies speed up processes of hydrolysis. Pyrethrins

10.6 Hazardous decomposition products

When heated to decomp it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat (male) oral 2370 mg/kg pyrethrins
- Inhalation: LC50 Rat inhalation 3.4 mg/l/4 hr pyrethrins
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Cancer Classification: Suggestive Evidence of Carcinogenicity but Not Sufficient to Assess Human Carcinogenic Potential Pyrethrins

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: Oncorhynchus mykiss (Rainbow trout); Concentration: 56 ppb for 24 hr /Conditions of bioassay not specified; Pyrethrins
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

Although environmental biodegradation data specific to pyrethrin I are not available, the pyrethrin class of insecticides is readily degraded by ambient microorganisms(1,2); based upon its structure, pyrethrin I is also expected to readily biodegrade(1,2).

12.3 Bioaccumulative potential

An estimated BCF of 200 was calculated in fish for pyrethrin I(SRC), using a log Kow of 5.9(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is high(SRC), provided the compound is not metabolized by the organism(SRC). However, bioconcentration studies on compounds which are structurally similar suggest that bioconcentration may be lower than that indicated by the regression-derived equations due to the ability of aquatic organisms to readily metabolize this class of compounds(4).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of pyrethrin I can be estimated to be 10,200(SRC). According to a classification scheme(2), this estimated Koc value suggests that pyrethrin I is expected to be immobile in soil(SRC).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
2-methyl-4-oxo-3-(penta-2,4-dienyl)cyclopent-2-enyl [1R-[1Î±[S*(Z)],3Î²]]-chrysanthemate	2-methyl-4-oxo-3-(penta-2,4-dienyl)cyclopent-2-enyl [1R-[1Î±[S*(Z)],3Î²]]-chrysanthemate	121-21-1	204-455-8
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019

Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>