Imiprothrin

sc-235352

Material Safety Data Sheet

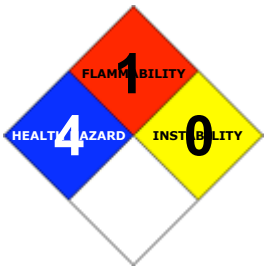
Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Imiprothrin

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877–715–9305
Outside the US & Canada: +800 2436 2255
(1–800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C17-H22-N2-O4, "[2, 5-dioxo-3-(2-propynyl)-1-imidazolidinyl]methyl(1RS)-cis/trans-", chrysanthemate, "2, 5-dioxo-3-prop-2ynylimidazolidin-1-ylmethyl(1R, 3S)-2, 2-dimethyl-3-", "(2-methylprop-1-enyl)cyclopropanecarboxylate (20%) mixture with (2, 5-dioxo-", "3-prop-2-ynylimidazolidin-1-ylmethyl(1R, 3R)-2, 2-dimethyl-2-(2-", "methylprop-1-enyl)cyclopropanecarboxylate (80%)", "[2, 5-dioxo-3-(2-propynyl)-1-imidazolidinyl]methyl", "2, 2-dimethyl-3-(2-methyl-1-propenyl)cyclopropanecarboxylate", Pralle, OPP-004006, pyrethroid/pyrethrum/pyrethrin

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	2		
Body Contact:	2		
Reactivity:	1		
Chronic:	2		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Harmful by inhalation, in contact with skin and if swallowed.
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
■ Limited evidence exists that the substance may cause irreversible but non-lethal mutagenic effects following a single exposure.
■ Ingestion of pyrethrins may produce nausea, vomiting, headache and other central nervous system disturbances.
Excitation, muscular tremors and a period of shock may be followed by death.

EYE

■ Although the liquid is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

SKIN

■ Skin contact with the material may be harmful; systemic effects may resultfollowing absorption.
■ The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis.
The material is unlikely to produce an irritant dermatitis as described in EC Directives .
■ Skin contact with natural pyrethrins may result in severe dermatitis and may also be associated with allergic rhinitis and asthma.
Absorption through the skin may result in a toxic syndrome similar to that produced by inhalation.
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.
■ The material is not thought to produce respiratory irritation (as classified using animal models).
Nevertheless inhalation of vapors, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
■ Inhalation of pyrethrins may produce nausea, vomiting, sneezing, serious nasal discharge, nasal stuffiness and asthma.
High concentrations may produce hyperexcitability, incoordination, tremors, muscular paralysis and death (due to respiratory failure).
■ This material, like natural pyrethrins, may cause central stimulation with nausea, vomiting, stomach upset, diarrhea, hypersensitivity, inco-ordination, tremors, muscle paralysis, convulsion, coma and respiratory failure.
There may be aggressive behavior, tremor and weakness.
■ Limited evidence exists that the substance may cause irreversible but non-lethal mutagenic effects following a single exposure.

CHRONIC HEALTH EFFECTS

■ Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.
There is limited evidence that, skin contact with this product is more likely to cause a sensitization reaction in some persons compared to the general population.
Exposure to the material may result in a possible risk of irreversible effects. The material may produce mutagenic effects in man. This concern is raised, generally, on the basis of
appropriate studies with similar materials using mammalian somatic cells in vivo. Such findings are often supported by positive results from in vitro mutagenicity studies.
Chronic poisoning by natural pyrethrins may result in convulsion, tetanic paralysis, rapid and uneven heart beat, liver and kidney damage, or death.
The natural pyrethrins may produce hypersensitivity, especially following previous sensitising exposure. In general, repeated exposures over 2 or 3 years are required to elicit a response and involve exposure to pyrethrum rather than its individual components (including pyrethrins). The sesquiterpene lactone (pyrethrosin) and the pyrethrum glycoproteins account for the immediate and delayed hypersensitivity seen in guinea pigs following a single injection of ground chrysanthemum in Freud's adjuvant. Mild erythematic vesicular dermatitis (with papules), pruritus, localized oedema (particularly of the face, lips and eyelids), rhinitis, tachycardia, pallor and sweating are the most common syndromes. An initial skin sensitisation can progress to marked dermal oedema and skin cracking. Pyrethrum dermatitis appears to increase in hot weather or under conditions were heavy perspiration is produced. The active ingredients of pyrethrum (except pyrethrin II) are inactive in patch tests. Those patients allergic to ragweed pollen are particularly sensitive to pyrethrin.
Rats fed on a diet of pyrethrins for 5000 ppm for 2 years showed some signs of tissue damage including liver lesions, bile duct proliferation and focal necrosis of the liver cells. A no-effect level of 1000 ppm found in animal experiments correspond to a daily dose of 3600 mg/man.
Based on the results of a developmental study in rabbits, imiprothin is not a developmental toxicant at dose levels which did not also produce maternal toxicity.
Rats were fed imiprothrin at 30, 100 or 300 mg/kg body weight/ day. The maternal NOEL was 30 mg/kg/body weight based on suppressed

body weight gain and food consumption, while the LOEL was 100 mg/kg body weight/ day.
At 300 mg/kg body weight/ day, premature labour, abortion, and mortality were noted. The developmental NOEL was not determined (i.e it is less than 100 mg/kg body weight/ day), on the basis of decreased foetal body weight and frontal bone hypoplasia. An increased incidence of the 27th pre-sacral vertebra occurred in all treatment groups. The LOEL was not determined.
An additional developmental study was conducted on rabbits at doses of 3, 10 or 30 mg/kg body weight/ day to determine the developmental end points which the earlier study was not able to define. This study showed no treatment related developmental effects. the developmental NOEL, based on both studies was 30 mg/kg/day while the LOEL was 100 mg/kg/ body weight/ day.
When subjected to the Ames test with Salmonella and with E. coli, imiprothin was not mutagenic. An in vitro gene mutation assay with Chinese hamster cells showed that this chemical does not have the potential to cause gene mutations. An in vitro chromosome aberration showed that imiprothrin did have the potential to cause chromosome aberrations in Chinese hamster lung cells in the presence of S9 metabolic activation. An in vivo mouse bone marrow micronucleus test did not show chromosome damage. Two in vivo/ in vitro unscheduled DNA synthesis test were conducted with primary rat hepatocytes; time course and dose response.
Neither UDS test showed an increase in such synthesis. Th weight of evidence indicates that imiprothrin is not genotoxic.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
imiprothrin	72963-72-5	>98

Section 4 - FIRST AID MEASURES

SWALLOWED
· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

EYE
■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN
■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED
· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN
■ For chronic or short term repeated exposures to pyrethrum and synthetic pyrethroids: Mammalian toxicity of pyrethrum and synthetic pyrethroids is low, in part because of poor bioavailability and a large first pass extraction by the liver. The most common adverse reaction results from the potent sensitizing effects of pyrethrins.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	1.388 (25 C)
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA
· Foam.
· Dry chemical powder.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.
When any large container (including road and rail tankers) is involved in a fire,
consider evacuation by 100 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
· Combustible.
· Slight fire hazard when exposed to heat or flame.
Combustion products include: carbon dioxide (CO_2), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY
■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids,chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION
Glasses:
Chemical goggles.
Gloves:
Respirator:
Type A-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
■ Environmental hazard - contain spillage.
· Clean up all spills immediately.
· Avoid breathing vapors and contact with skin and eyes.
MAJOR SPILLS
■ Environmental hazard - contain spillage.
Moderate hazard.
· Clear area of personnel and move upwind.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
· DO NOT allow clothing wet with material to stay in contact with skin.
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS
· Metal can or drum
· Packing as recommended by manufacturer.

STORAGE REQUIREMENTS
· Store in original containers.
· Store at 4° C.
· Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
Canada - Alberta Occupational Exposure Limits	imiprothrin (Pyrethrum)		5						
Canada - British Columbia Occupational Exposure Limits	imiprothrin (Pyrethrum)		5						S
US NIOSH Recommended Exposure Limits (RELs)	imiprothrin (Pyrethrum)		5						
US OSHA Permissible Exposure Levels (PELs) - Table Z1	imiprothrin (Pyrethrum)		5						
US ACGIH Threshold Limit Values (TLV)	imiprothrin (Pyrethrum)		5						TLV Basis: liver damage; lower respiratory tract irritation
US - Minnesota Permissible Exposure Limits (PELs)	imiprothrin (Pyrethrum)		5						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	imiprothrin (Pyrethrum)		5						

US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	imiprothrin (Pyrethrum)		5				
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	imiprothrin (Pyrethrum)		5				
US - California Permissible Exposure Limits for Chemical Contaminants	imiprothrin (Pyrethrum)		5				
US - Idaho - Limits for Air Contaminants	imiprothrin (Pyrethrum)		5				
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	imiprothrin (Pyrethrum)		5				
US - Hawaii Air Contaminant Limits	imiprothrin (Pyrethrum)		5		10		
US - Alaska Limits for Air Contaminants	imiprothrin (Pyrethrum)		5				
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	imiprothrin (Pyrethrum)		5		10		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	imiprothrin (Pyrethrum)	-	5	-	10		
US - Washington Permissible exposure limits of air contaminants	imiprothrin (Pyrethrum)		5		10		
US - Michigan Exposure Limits for Air Contaminants	imiprothrin (Pyrethrum)		5				
Canada - Prince Edward Island Occupational Exposure Limits	imiprothrin (Pyrethrum)		5				TLV Basis: liver damage; lower respiratory tract irritation
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	imiprothrin (Pyrethrum)		5				
Canada - Nova Scotia Occupational	imiprothrin (Pyrethrum)		5				TLV Basis: liver damage;

Exposure Limits					lower respiratory tract irritation
US - Oregon Permissible Exposure Limits (Z-1)	imiprothrin (Pyrethrum)	-	5		
Canada - Northwest Territories Occupational Exposure Limits (English)	imiprothrin (Pyrethrum)		5	10	

ENDOELTABLE

PERSONAL PROTECTION




RESPIRATOR

• type a-p filter of sufficient capacity.

EYE

· Safety glasses with side shields.
· Chemical goggles.

HANDS/FEET

■ Wear chemical protective gloves, eg. PVC.
NOTE: The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).
· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
· Contaminated gloves should be replaced.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

OTHER

· Overalls.
· P.V.C. apron.
· Barrier cream.
· Skin cleansing cream.
· Eye wash unit.

ENGINEERING CONTROLS

■ General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear an approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.

State	Liquid	Molecular Weight	318.37
Melting Range (°F)	34; 1.122	Viscosity	Not Available
Boiling Range (°F)	Not available	Solubility in water (g/L)	Immiscible
Flash Point (°F)	230	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	Not Available	pH (as supplied)	5.22 (5.95)

Autoignition Temp (°F)	Not available.	Vapor Pressure (mmHg)	1.388 (25 C)
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not available
Volatile Component (%vol)	Negligible	Evaporation Rate	Not available

APPEARANCE
Golden yellow (amber) with slightly sweet with slightly sweet odour; does not mix with water. Viscosity 60 cP. Stable to metal, metal ions, sunlight and elevated temperatures.

log Kow 2.9

Material	Value

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
· Presence of heat source and direct sunlight.
· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY
■ Pyrethrins and permethrins:
· are unstable in the presence of light, heat, moisture and air
· are hydrolysed by oxygen and/ or sunlight
· may react with strong oxidisers to produce fire and explosions
· are incompatible with alkalis.
· Avoid strong acids, bases.
Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

imiprothrin

TOXICITY AND IRRITATION
IMIPROTHRIN:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 1800 mg/kg (male) *	Eye (rabbit): non-irritating *
Oral (rat) LD50: 900 mg/kg (female) *	Skin (rabbit): non-irritating *
Dermal (rat) LD50: 2000 mg/kg *	Eye (rabbit): non-irritating *
Inhalation (rat) LC50: 1.2 mg/l *	Skin (rabbit): non-irritating *
Oral (rat) LD50: 4500 mg/kg (male) *	
Oral (rat) LD50: 2400 mg/kg (female) *	
Dermal (rat) LD50: >2000 mg/kg *	
Inhalation (rat) LC50: >2 mg/l *	

Mild sensitiser in guinea pig (Magnussen & Kligman test); non-sensitiser
(Buehler method) *
for Pralle (50.5% imiprothin)
Not a sensitiser *
* US EPA Pesticide Fact Sheet

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment.
Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
imiprothrin	No Data Available	No Data Available		

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions
All waste must be handled in accordance with local, state and federal regulations.
¦ Puncture containers to prevent re-use and bury at an authorized landfill.
Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:
· Reduction
· Reuse
· Recycling
· Disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
· Recycle wherever possible or consult manufacturer for recycling options.
· Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

DOT:
Symbols: G Hazard class or Division: 9
Identification Numbers: UN3082 PG: III
Label Codes: 9 Special provisions: 8, 146,
335, IB3,
T4, TP1,
TP29
Packaging: Exceptions: 155 Packaging: Non- bulk: 203
Packaging: Exceptions: 155 Quantity limitations: No limit
Passenger aircraft/rail:
Quantity Limitations: Cargo No limit Vessel stowage: Location: A
aircraft only:
Vessel stowage: Other: None
Hazardous materials descriptions and proper shipping names:
Environmentally hazardous substance, liquid, n.o.s

Air Transport IATA:
ICAO/IATA Class: 9 ICAO/IATA Subrisk: None
UN/ID Number: 3082 Packing Group: III
Special provisions: A97
Cargo Only
Packing Instructions: 450 L Maximum Qty/Pack: 964
Passenger and Cargo Passenger and Cargo
Packing Instructions: 450 L Maximum Qty/Pack: 964
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: 30 kg G Maximum Qty/Pack: Y964
Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S. *(CONTAINS IMIPROTHRIN)

Maritime Transport IMDG:
IMDG Class: 9 IMDG Subrisk: None
UN Number: 3082 Packing Group: III
EMS Number: F-A , S-F Special provisions: 179 274 335 909
Limited Quantities: 5 L Marine Pollutant: Yes
Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(contains imiprothrin)

Section 15 - REGULATORY INFORMATION

imiprothrin (CAS: 72963-72-5) is found on the following regulatory lists;
"Canada - Saskatchewan Environmental Persistent or Chronic Hazardous Substances","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - Massachusetts Oil & Hazardous Material List","US - Pennsylvania - Hazardous Substance List","US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances","US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides","US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act"

Section 16 - OTHER INFORMATION

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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