

Pirimiphos Methyl / Lambda-Cyhalothrin Formulation

Version 2.2 Revision Date: 05/02/2017 SDS Number: 1204432-00004 Date of last issue: 04/04/2017
Date of first issue: 01/09/2017

SECTION 1. IDENTIFICATION

Product name : Pirimiphos Methyl / Lambda-Cyhalothrin Formulation

Manufacturer or supplier's details

Company name of supplier : Merck & Co., Inc

Address : 2000 Galloping Hill Road
Kenilworth - New Jersey - USA 1685

Telephone : 908-740-4000

Telefax : 908-735-1496

Emergency telephone : 1-908-423-6000

E-mail address : EHSDATASTEWARD@merck.com

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 3

Skin irritation : Category 2

Eye irritation : Category 2B

Carcinogenicity (Inhalation) : Category 2

Specific target organ systemic toxicity - single exposure : Category 1 (Central nervous system, Nervous system)

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H302 Harmful if swallowed.
H315 + H320 Causes skin and eye irritation.
H331 Toxic if inhaled.

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H351 Suspected of causing cancer if inhaled.
 H370 Causes damage to organs (Central nervous system, Nervous system).

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P307 + P311 IF exposed: Call a POISON CENTER or doctor/physician.
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Polyvinyl chloride	9002-86-2	>= 70 - < 90
Pirimiphos-methyl (ISO)	29232-93-7	>= 10 - < 20

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lambda-cyhalothrin (ISO)	91465-08-6	>= 5 - < 10
Titanium dioxide	13463-67-7	>= 0.1 - < 1

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
 When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
 If not breathing, give artificial respiration.
 If breathing is difficult, give oxygen.
 Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
 Get medical attention.
 Wash clothing before reuse.
 Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
 If easy to do, remove contact lens, if worn.
 Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel.
 Get medical attention.
 Rinse mouth thoroughly with water.
 Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed.
 Causes skin and eye irritation.
 Toxic if inhaled.
 Suspected of causing cancer if inhaled.
 Causes damage to organs.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
- Notes to physician : Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
 Alcohol-resistant foam
 Carbon dioxide (CO₂)
 Dry chemical

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- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NOx)
Chlorine compounds
Fluorine compounds
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Sweep up or vacuum up spillage and collect in suitable container for disposal.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use with local exhaust ventilation.
- Advice on safe handling : Do not get on skin or clothing.
Do not swallow.
Do not get in eyes.

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Handle in accordance with good industrial hygiene and safety practice.
Keep container tightly closed.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labeled containers.
Store locked up.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
Organic peroxides
Explosives
Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Polyvinyl chloride	9002-86-2	TWA (Respirable fraction)	1 mg/m ³	ACGIH
Pirimiphos-methyl (ISO)	29232-93-7	TWA	60 µg/m ³ (OEB 3)	Merck
	Further information: Skin			
		Wipe limit	600 µg/100 cm ²	Merck
lambda-cyhalothrin (ISO)	91465-08-6	TWA	5 µg/m ³ (OEB 4)	Merck
	Further information: Skin			
		Wipe limit	50 µg/100 cm ²	Merck
Titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA	10 mg/m ³ (Titanium dioxide)	ACGIH

Engineering measures : All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).
Minimize open handling.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where

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concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

- Hand protection
Material : Chemical-resistant gloves
- Remarks : Consider double gloving.
- Eye protection : Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
- Skin and body protection : Work uniform or laboratory coat. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces. Use appropriate degowning techniques to remove potentially contaminated clothing.
- Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use. The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : solid
- Color : No data available
- Odor : characteristic
- Odor Threshold : No data available
- pH : No data available

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Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	Not applicable
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not classified as a flammability hazard
Flammability (liquids)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Solubility(ies) Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reac-	:	Can react with strong oxidizing agents.

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tions

Conditions to avoid : None known.

Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful if swallowed.
Toxic if inhaled.

Product:

Acute oral toxicity : Acute toxicity estimate: 685.81 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 0.75 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 4,963 mg/kg
Method: Calculation method

Ingredients:**Pirimiphos-methyl (ISO):**

Acute oral toxicity : LD50 (Rat): 2,400 - 5,976 mg/kg
LD50 (Mouse): > 575 mg/kg
LD50 (Dog): > 1,500 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.04 mg/l
Exposure time: 4 h

Acute dermal toxicity : LD50 (Rabbit): 2,000 mg/kg
LD50 (Rat): > 4,592 mg/kg

lambda-cyhalothrin (ISO):

Acute oral toxicity : LD50 (Rat): 56 - 79 mg/kg
LD50 (Mouse): 20 mg/kg

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Acute inhalation toxicity : LC50 (Rat): 0.06 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): 632 - 696 mg/kg

Acute toxicity (other routes of administration) : LD50 (Rat): 250 - 750 mg/kg
Application Route: Intraperitoneal

Titanium dioxide:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 6.82 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Skin corrosion/irritation

Causes skin irritation.

Ingredients:**Pirimiphos-methyl (ISO):**

Species: Rabbit
Result: irritating

lambda-cyhalothrin (ISO):

Species: Rabbit
Result: No skin irritation

Titanium dioxide:

Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation

Causes eye irritation.

Ingredients:**Pirimiphos-methyl (ISO):**

Species: Rabbit
Result: Mild eye irritation

lambda-cyhalothrin (ISO):

Species: Rabbit
Result: Mild eye irritation

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Titanium dioxide:

Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Ingredients:**Pirimiphos-methyl (ISO):**

Test Type: Maximization Test
Routes of exposure: Dermal
Species: Guinea pig
Result: Not a skin sensitizer.

lambda-cyhalothrin (ISO):

Test Type: Magnusson-Kligman-Test
Routes of exposure: Dermal
Species: Guinea pig
Result: Not a skin sensitizer.

Titanium dioxide:

Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Result: negative

Germ cell mutagenicity

Not classified based on available information.

Ingredients:**Pirimiphos-methyl (ISO):**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: equivocal

: Test Type: sister chromatid exchange assay
Result: positive

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse
Result: negative

Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Result: negative

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lambda-cyhalothrin (ISO):

- Genotoxicity in vitro
- : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
 - : Test Type: Chromosomal aberration
Species: Human lymphocytes
Result: negative
 - : Test Type: unscheduled DNA synthesis assay
Species: rat hepatocytes
Result: negative
 - : Test Type: In vitro mammalian cell gene mutation test
Species: mouse lymphoma cells
Result: negative
- Genotoxicity in vivo
- : Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal
Result: negative

Titanium dioxide:

- Genotoxicity in vitro
- : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
- Genotoxicity in vivo
- : Test Type: In vivo micronucleus test
Species: Mouse
Result: negative

Carcinogenicity

Suspected of causing cancer if inhaled.

Ingredients:**Pirimiphos-methyl (ISO):**

Species: Rat
Application Route: Oral
Exposure time: 2 Years
Result: negative

Species: Mouse
Application Route: Oral
Exposure time: 80 weeks
Result: negative

- Carcinogenicity - Assessment
- : Animal testing did not show any carcinogenic effects.

lambda-cyhalothrin (ISO):

Species: Mouse
Application Route: oral (feed)

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Exposure time: 2 Years
 Result: negative
 Remarks: Based on data from similar materials

Species: Rat
 Application Route: oral (feed)
 Exposure time: 2 Years
 Result: negative
 Remarks: Based on data from similar materials

Titanium dioxide:

Species: Rat
 Application Route: inhalation (dust/mist/fume)
 Exposure time: 2 Years
 Method: OECD Test Guideline 453
 Result: positive
 Remarks: The mechanism or mode of action may not be relevant in humans.

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in inhalation studies with animals.

IARC Group 2B: Possibly carcinogenic to humans

Titanium dioxide 13463-67-7

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Ingredients:

Pirimiphos-methyl (ISO):

Effects on fertility : Test Type: Two-generation reproduction toxicity study
 Species: Rat
 Application Route: Oral
 Fertility: NOAEL: 15.4 mg/kg body weight
 Result: No effects on fertility.

Effects on fetal development : Test Type: Development
 Species: Rat
 Application Route: Oral
 Developmental Toxicity: NOAEL: 150 mg/kg body weight
 Result: No effects on early embryonic development.
 Remarks: Maternal toxicity observed.

Test Type: Development
 Species: Rabbit

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Application Route: Oral
Developmental Toxicity: NOAEL: 48 mg/kg body weight
Result: No effects on early embryonic development.
Remarks: Maternal toxicity observed.

lambda-cyhalothrin (ISO):

Effects on fertility : Test Type: Three-generation study
Species: Rat
Application Route: oral (feed)
General Toxicity Parent: NOAEL: 2 mg/kg body weight
General Toxicity F1: LOAEL: 6.7 mg/kg body weight
Symptoms: Reduced offspring weight gain.
Result: No effects on fertility.
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Development
Species: Rat
Application Route: Oral
General Toxicity Maternal: NOAEL: 10 mg/kg body weight
Developmental Toxicity: LOAEL: 15 mg/kg body weight
Result: No effects on fetal development., Reduced maternal body weight gain., Reduced fetal weight.
Remarks: Based on data from similar materials

Test Type: Development
Species: Rabbit
Application Route: Oral
General Toxicity Maternal: NOAEL: 10 mg/kg body weight
Developmental Toxicity: NOAEL: 30 mg/kg body weight
Result: No effects on fetal development., Reduced maternal body weight gain., Reduced fetal weight.

STOT-single exposure

Causes damage to organs (Central nervous system, Nervous system).

Ingredients:

Pirimiphos-methyl (ISO):

Target Organs: Central nervous system
Assessment: Causes damage to organs.

lambda-cyhalothrin (ISO):

Target Organs: Nervous system
Assessment: Causes damage to organs.

STOT-repeated exposure

Not classified based on available information.

Ingredients:

Pirimiphos-methyl (ISO):

Remarks: Not classified due to inconclusive data.

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Repeated dose toxicity

Ingredients:

Pirimiphos-methyl (ISO):

Species: Rat
NOAEL: 0.5 mg/kg
LOAEL: 2.5 mg/kg
Application Route: Oral
Exposure time: 28 d
Target Organs: Central nervous system
Symptoms: cholinesterase inhibition

Species: Dog
LOAEL: 2 mg/kg
Application Route: Oral
Exposure time: 13 Weeks
Target Organs: Central nervous system
Symptoms: cholinesterase inhibition

Species: Rat
NOAEL: 25 mg/kg
Application Route: Oral
Exposure time: 90 d
Target Organs: Central nervous system
Symptoms: cholinesterase inhibition
Remarks: No significant adverse effects were reported

Species: Dog
LOAEL: 0.5 mg/kg
Application Route: Oral
Exposure time: 2 y
Target Organs: Central nervous system
Symptoms: cholinesterase inhibition

Species: Rat
LOAEL: 2.1 mg/kg
Application Route: Oral
Exposure time: 2 y
Target Organs: Central nervous system
Symptoms: cholinesterase inhibition

lambda-cyhalothrin (ISO):

Species: Dog
NOAEL: 2.5 mg/kg
LOAEL: 12.5 mg/kg
Application Route: oral (feed)
Exposure time: 90 d

Species: Rat
NOAEL: 10 mg/kg
LOAEL: 50 mg/kg

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Application Route: Dermal
Exposure time: 21 d
Target Organs: Nervous system

Species: Rat
NOAEL: 0.08 mg/kg
LOAEL: 0.9 mg/kg
Application Route: Inhalation
Exposure time: 21 d
Target Organs: Nervous system

Species: Dog
NOAEL: 0.1 mg/kg
LOAEL: 0.5 mg/kg
Application Route: Oral
Exposure time: 1 y
Target Organs: Nervous system
Symptoms: Gastrointestinal disturbance, Vomiting, Convulsions

Titanium dioxide:

Species: Rat
NOAEL: 24,000 mg/kg
Application Route: Ingestion
Exposure time: 28 Days

Species: Rat
NOAEL: 10 mg/m³
Application Route: inhalation (dust/mist/fume)
Exposure time: 2 y

Aspiration toxicity

Not classified based on available information.

Experience with human exposure

Ingredients:

Pirimiphos-methyl (ISO):

Ingestion : Symptoms: Nausea, Vomiting, Dizziness, confusion, Headache, Weakness, stomach discomfort, Blurred vision, muscle twitching

lambda-cyhalothrin (ISO):

Inhalation : Symptoms: Cough, Local irritation

Skin contact : Symptoms: Skin irritation, tingling, superficial burning sensation, Local irritation
Remarks: Can be absorbed through skin.

Eye contact : Symptoms: Eye irritation

Ingestion : Symptoms: May cause, Gastrointestinal disturbance

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Pirimiphos-methyl (ISO):

- | | | |
|--|---|--|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 0.2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 0.00021 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202 |
| Toxicity to algae | : | EC50 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201 |
| M-Factor (Acute aquatic toxicity) | : | 1,000 |
| Toxicity to fish (Chronic toxicity) | : | NOEC (Pimephales promelas (fathead minnow)): 0.13 mg/l
Exposure time: 35 d
Method: OECD Test Guideline 210 |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Daphnia magna (Water flea)): 0.00011 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211 |
| M-Factor (Chronic aquatic toxicity) | : | 100 |

lambda-cyhalothrin (ISO):

- | | | |
|---|---|--|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00019 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials |
| | | LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00021 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 0.00004 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials |
| M-Factor (Acute aquatic tox- | : | 10,000 |

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Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.000062 mg/l
Exposure time: 32 d
Method: OECD Test Guideline 210
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.0035 µg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

M-Factor (Chronic aquatic toxicity) : 10,000

Titanium dioxide:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Skeletonema costatum (marine diatom)): > 10,000 mg/l
Exposure time: 72 h

Toxicity to microorganisms : EC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Persistence and degradability**Ingredients:****Polyvinyl chloride:**

Biodegradability : Result: Not readily biodegradable.

Pirimiphos-methyl (ISO):

Stability in water : Hydrolysis: 50 %(117 d)

Bioaccumulative potential**Ingredients:****Pirimiphos-methyl (ISO):**

Partition coefficient: n-octanol/water : log Pow: 4.2

lambda-cyhalothrin (ISO):

Bioaccumulation : Bioconcentration factor (BCF): 2,240

Pirimiphos Methyl / Lambda-Cyhalothrin Formulation

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Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 7.0 (20 °C)

Mobility in soil

Ingredients:

lambda-cyhalothrin (ISO):

Distribution among environmental compartments : log Koc: 5.5

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 2811
Proper shipping name : TOXIC SOLID, ORGANIC, N.O.S.
(lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO))
Class : 6.1
Packing group : III
Labels : 6.1

IATA-DGR

UN/ID No. : UN 2811
Proper shipping name : Toxic solid, organic, n.o.s.
(lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO))
Class : 6.1
Packing group : III
Labels : Toxic
Packing instruction (cargo aircraft) : 677
Packing instruction (passenger aircraft) : 670

IMDG-Code

UN number : UN 2811
Proper shipping name : TOXIC SOLID, ORGANIC, N.O.S.

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	(lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO))
Class	: 6.1
Packing group	: III
Labels	: 6.1
EmS Code	: F-A, S-A
Marine pollutant	: yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	: UN 2811
Proper shipping name	: Toxic solids, organic, n.o.s. (lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO))
Class	: 6.1
Packing group	: III
Labels	: TOXIC
ERG Code	: 154
Marine pollutant	: yes(Pirimiphos-methyl (ISO), lambda-cyhalothrin (ISO))

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Pirimiphos-methyl (ISO)	29232-93-7	>= 10 - < 20 %
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US State Regulations

Pennsylvania Right To Know

Polyvinyl chloride	9002-86-2
Pirimiphos-methyl (ISO)	29232-93-7
lambda-cyhalothrin (ISO)	91465-08-6

California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer.
Titanium dioxide 13463-67-7

The ingredients of this product are reported in the following inventories:

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AICS : not determined

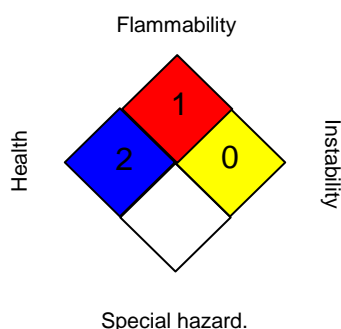
DSL : not determined

IECSC : not determined

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS® IV:

HEALTH	*	4
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

ACGIH / TWA : 8-hour, time-weighted average

OSHA Z-1 / TWA : 8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Pre-

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vention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 05/02/2017

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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