

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

---

**1. PRODUCT AND COMPANY IDENTIFICATION**

Chemical product name : Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

**Supplier's company name, address and phone number**

Company name of supplier : MSD

Address : 1-13-12, Kudan-kita, Chiyoda-ku, Tokyo, Japan

Telephone : 03-6272-1099

E-mail address : EHSDATASTEWARD@msd.com

Emergency telephone number : +1-908-423-6000

**Recommended use of the chemical and restrictions on use**

Recommended use : Veterinary product

Restrictions on use : Not applicable

---

**2. HAZARDS IDENTIFICATION****GHS classification of chemical product**

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 3

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2B

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

Specific target organ toxicity - single exposure : Category 2 (Nervous system)




Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

**GHS label elements**

**Pirimiphos-Methyl / Lambda-Cyhalothrin For-  
mulation**

Version	Revision Date:	SDS Number:	Date of last issue:
12.0	2025/04/14	1204426-00023	2024/09/28
			Date of first issue: 2017/01/09

Hazard pictograms	:	  
Signal word	:	Danger
Hazard statements	:	H302 Harmful if swallowed. H315 + H320 Causes skin and eye irritation. H331 Toxic if inhaled. H370 Causes damage to organs (Central nervous system). H371 May cause damage to organs (Nervous system). H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	:	<b>Prevention:</b> P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ 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. P273 Avoid release to the environment. P280 Wear protective gloves.  <b>Response:</b> 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 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. P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor. 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. P391 Collect spillage.  <b>Storage:</b> P405 Store locked up.  <b>Disposal:</b> P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards which do not result in classification**

None known.

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version 12.0      Revision Date: 2025/04/14      SDS Number: 1204426-00023      Date of last issue: 2024/09/28  
Date of first issue: 2017/01/09

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Concentration (% w/w)	ENCS No.
Polyvinyl chloride	9002-86-2	$\geq 70 - < 80$	6-66
Pirimiphos-methyl (ISO)	29232-93-7	16	-
lambda-cyhalothrin (ISO)	91465-08-6	7.817	-
Titanium dioxide	13463-67-7	$\geq 0.1 - < 1$	1-558, 5-5225

**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.  
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 (see section 8).
- Notes to physician : Treat symptomatically and supportively.

**5. FIREFIGHTING MEASURES**

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version 12.0	Revision Date: 2025/04/14	SDS Number: 1204426-00023	Date of last issue: 2024/09/28 Date of first issue: 2017/01/09
-----------------	------------------------------	------------------------------	---

---

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- 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 (NO<sub>x</sub>)  
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 firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

---

**6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.  
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 : Surround spill with absorbents and place a damp covering over the area to minimise entry of the material into the air.  
Add excess liquid to allow the material to enter into solution.  
Soak up with inert absorbent material.  
Clean up remaining materials from spill with suitable absorbent.  
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

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

certain local or national requirements.

**7. HANDLING AND STORAGE****Handling**

- |                         |   |  |
|-------------------------|---|--|
| Technical measures      | : | See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.  |
| Local/Total ventilation | : | If sufficient ventilation is unavailable, use with local exhaust ventilation.  |
| Advice on safe handling | : | Do not get on skin or clothing.<br>Avoid breathing dust, fume, gas, mist, vapours or spray.<br>Do not swallow.<br>Do not get in eyes.<br>Wash skin thoroughly after handling.<br>Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment<br>Keep container tightly closed.<br>Do not eat, drink or smoke when using this product.<br>Take care to prevent spills, waste and minimize release to the environment.                |
| Avoidance of contact    | : | Oxidizing agents   |
| Hygiene measures        | : | If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.<br>When using do not eat, drink or smoke.<br>Wash contaminated clothing before re-use.<br>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. |

**Storage**

- |                             |   |  |
|-----------------------------|---|--|
| Conditions for safe storage | : | Keep in properly labelled containers.<br>Store locked up.<br>Keep tightly closed.<br>Keep in a cool, well-ventilated place.<br>Store in accordance with the particular national regulations. |
| Materials to avoid          | : | Do not store with the following product types:<br>Strong oxidizing agents  |
| Packaging material          | : | Unsuitable material: None known.   |

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Threshold limit value and permissible exposure limits for each component in the work environment**

Components	CAS-No.	Value type	Control parame-	Basis
------------	---------	------------	-----------------	-------

# Pirimiphos-Methyl / Lambda-Cyhalothrin For- mulation

Version 12.0      Revision Date: 2025/04/14      SDS Number: 1204426-00023      Date of last issue: 2024/09/28  
Date of first issue: 2017/01/09

		(Form of exposure)	ters / Concentration standard / Permissible concentration	
Polyvinyl chloride	9002-86-2	TWA (Respirable particulate matter)	1 mg/m <sup>3</sup>	ACGIH
Pirimiphos-methyl (ISO)	29232-93-7	TWA	60 µg/m <sup>3</sup> (OEB 3)	Internal
	Further information: Skin			
		Wipe limit	600 µg/100 cm <sup>2</sup>	Internal
lambda-cyhalothrin (ISO)	91465-08-6	TWA	5 µg/m <sup>3</sup> (OEB 4)	Internal
	Further information: Skin			
		Wipe limit	50 µg/100 cm <sup>2</sup>	Internal
Titanium dioxide	13463-67-7	OEL-M (Respirable particulate matter)	1.5 mg/m <sup>3</sup> (Titanium)	JP OEL JSOH
	Further information: Group 2B: possibly carcinogenic to humans			
		OEL-M (Total particulate matter)	2 mg/m <sup>3</sup> (Titanium)	JP OEL JSOH
	Further information: Group 2B: possibly carcinogenic to humans			

**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** : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

**Filter type** : Particulates type

**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.

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

---

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.

---

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical state	:	solid
Colour	:	No data available
Odour	:	characteristic
Odour Threshold	:	No data available
Melting point/freezing point	:	No data available
Boiling point, initial boiling point and boiling range	:	No data available
Flammability (solid, gas)	:	Not classified as a flammability hazard
Flammability (liquids)	:	No data available
Lower explosion limit and upper explosion limit / flammability limit		
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	Not applicable
Decomposition temperature	:	No data available
pH	:	No data available
Evaporation rate	:	No data available
Auto-ignition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

---

Vapour pressure	:	No data available
Density and / or relative density	:	
Relative density	:	No data available
Density	:	No data available
Relative vapour density	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle characteristics	:	
Particle size	:	No data available

---

**10. STABILITY AND REACTIVITY**

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents.
Conditions to avoid	:	None known.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

---

**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: 654.55 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: 0.7676 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method

---



**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version 12.0	Revision Date: 2025/04/14	SDS Number: 1204426-00023	Date of last issue: 2024/09/28 Date of first issue: 2017/01/09
-----------------	------------------------------	------------------------------	---

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg  
Method: Calculation method

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

Acute oral toxicity	: LD50 (Rat): 1,180 mg/kg 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
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.

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

---

**Components:****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.

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

Species	: Rabbit
Result	: Mild eye irritation

**lambda-cyhalothrin (ISO):**

Species	: Rabbit
Result	: Mild eye irritation

**Titanium dioxide:**

Species	: Rabbit
Result	: No eye irritation

**Respiratory or skin sensitisation****Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

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

Test Type	: Maximisation Test
Exposure routes	: Dermal
Species	: Guinea pig
Result	: Not a skin sensitizer.

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

---

**lambda-cyhalothrin (ISO):**

Test Type	: Magnusson-Kligman-Test
Exposure routes	: Dermal
Species	: Guinea pig
Result	: Not a skin sensitizer.

**Titanium dioxide:**

Test Type	: Local lymph node assay (LLNA)
Exposure routes	: Skin contact
Species	: Mouse
Result	: negative

**Germ cell mutagenicity**

Not classified based on available information.

**Components:****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

**lambda-cyhalothrin (ISO):**

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES)
	Result: negative
	Test Type: Chromosomal aberration
	Test system: Human lymphocytes
	Result: negative
	Test Type: unscheduled DNA synthesis assay
	Test system: rat hepatocytes
	Result: negative
	Test Type: In vitro mammalian cell gene mutation test
	Test system: mouse lymphoma cells
	Result: negative
Genotoxicity in vivo	: Test Type: Micronucleus test

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

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**

Not classified based on available information.

**Components:****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)  
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

**Pirimiphos-Methyl / Lambda-Cyhalothrin For-  
mulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

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.
------------------------------	---

**Reproductive toxicity**

Not classified based on available information.

**Components:****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 foetal 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 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 foetal 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 foetal development, Reduced maternal
-------------------------------	--

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

body weight gain, Reduced foetal 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 foetal development, Reduced maternal  
body weight gain, Reduced foetal weight  
Remarks: Based on data from similar materials

**STOT - single exposure**

Causes damage to organs (Central nervous system).  
May cause damage to organs (Nervous system).

**Components:****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.

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

Remarks	: Not classified due to inconclusive data.
---------	--

**Repeated dose toxicity****Components:****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

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

---

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 yr
Target Organs	: Central nervous system
Symptoms	: cholinesterase inhibition

Species	: Rat
LOAEL	: 2.1 mg/kg
Application Route	: Oral
Exposure time	: 2 yr
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
Symptoms	: reduced body weight gain, reduced food consumption

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

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

---

NOAEL	: 0.1 mg/kg
LOAEL	: 0.5 mg/kg
Application Route	: Oral
Exposure time	: 1 yr
Target Organs	: Nervous system
Symptoms	: Gastrointestinal disturbance, Vomiting, Convulsions, ataxia, Liver effects

**Titanium dioxide:**

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

Species	: Rat
NOAEL	: 10 mg/m <sup>3</sup>
Application Route	: inhalation (dust/mist/fume)
Exposure time	: 2 yr

**Aspiration toxicity**

Not classified based on available information.

**Experience with human exposure****Components:****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, sneezing
Skin contact	: Symptoms: Skin irritation, tingling, superficial burning sensation, Local irritation Remarks: Can be absorbed through skin.
Eye contact	: Symptoms: Eye irritation
Ingestion	: Symptoms: Gastrointestinal disturbance



# Pirimiphos-Methyl / Lambda-Cyhalothrin For- mulation

Version 12.0	Revision Date: 2025/04/14	SDS Number: 1204426-00023	Date of last issue: 2024/09/28 Date of first issue: 2017/01/09
-----------------	------------------------------	------------------------------	---

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### **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/aquatic plants	:	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 toxicity)	:	10,000

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue:
12.0	2025/04/14	1204426-00023	2024/09/28
			Date of first issue: 2017/01/09

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/aquatic plants : 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****Components:****Pirimiphos-methyl (ISO):**

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

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

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

**lambda-cyhalothrin (ISO):**

Bioaccumulation : Bioconcentration factor (BCF): 2,240  
Method: OECD Test Guideline 305

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

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

**Mobility in soil****Components:****lambda-cyhalothrin (ISO):**

Distribution among environmental compartments : log Koc: 5.5

**Hazardous to the ozone layer**

Not applicable

**Other adverse effects**

No data available

**13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.  
Do not dispose of waste into sewer.

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.

**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

Environmentally hazardous : yes

**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.  
(lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO))

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

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.

**National Regulations**

Refer to section 15 for specific national regulation.

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

ERG Code	:	154
----------	---	-----

**15. REGULATORY INFORMATION****Related Regulations****Fire Service Law**

Not applicable to dangerous materials / designated flammables.

**Chemical Substance Control Law**

Not applicable for Specified Chemical Substance, Monitoring Chemical Substance and Priority Assessment Chemical Substance.

**Industrial Safety and Health Law****Harmful Substances Prohibited from Manufacture**

Not applicable

**Harmful Substances Required Permission for Manufacture**

Not applicable

**Substances Prevented From Impairment of Health**

Not applicable

**Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity**

Not applicable

**Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity**

Not applicable

**Substances Subject to be Notified Names**

Law Article 57-2 (Ministerial Order Article 34-2 Appended Table 2)

Chemical name	Concentration (%)	Remarks
---------------	-------------------	---------

## SAFETY DATA SHEET



## Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

Version 12.0      Revision Date: 2025/04/14      SDS Number: 1204426-00023      Date of last issue: 2024/09/28  
Date of first issue: 2017/01/09

O-2-Diethylamino-6-methylpyrimidin-4-yl O,O-dimethyl phosphorothioate	$\geq 10 - < 20$	From April 1st, 2025
rel-(R)-Cyano(3-phenoxyphenyl)methyl (1S,3S)-3-[(Z)-2-chloro-3,3,3-trifluoroprop-1-en-1-yl]-2,2-dimethylcyclopropanecarboxylate	$\geq 1 - < 10$	From April 1st, 2025
Titanium(IV) oxide	$\geq 0.1 - < 1$	-

**Substances Subject to be Indicated Names**

Law Article 57 (Ministerial Order Article 30 Appended Table 2)

Chemical name	Remarks
O-2-Diethylamino-6-methylpyrimidin-4-yl O,O-dimethyl phosphorothioate	From April 1st, 2025
rel-(R)-Cyano(3-phenoxyphenyl)methyl (1S,3S)-3-[(Z)-2-chloro-3,3,3-trifluoroprop-1-en-1-yl]-2,2-dimethylcyclopropanecarboxylate	From April 1st, 2025

**Skin and Eye Damage Substances (ISHL MO Art. 594-2)**

Not applicable

**Carcinogenic Substances (Article 577-2 of the Occupational Health and Safety Regulations)**

Not applicable

**Ordinance on Prevention of Hazards Due to Specified Chemical Substances**

Not applicable

**Ordinance on Prevention of Lead Poisoning**

Not applicable

**Ordinance on Prevention of Tetraalkyl Lead Poisoning**

Not applicable

**Ordinance on Prevention of Organic Solvent Poisoning**

Not applicable

**Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)**

Not applicable

**Poisonous and Deleterious Substances Control Law**

Deleterious substance

Chemical name	Cabinet Order Number
Organic cyanide compounds and preparations	32

**Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof****Class I Designated Chemical Substances**

Chemical name	Administration number	Concentration (%)
O-2-Diethylamino-6-methylpyrimidin-4-yl O,O-dimethyl phosphorothioate	146	16

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

---

**High Pressure Gas Safety Act**

Not applicable

**Explosive Control Law**

Not applicable

**Vessel Safety Law**

Toxic and infectious substances (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

**Aviation Law**

Toxic and infectious substances (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

**Marine Pollution and Sea Disaster Prevention etc Law**

Bulk transportation : Not classified as noxious liquid substance

Pack transportation : Classified as marine pollutant

**Narcotics and Psychotropics Control Act**

Narcotic or Psychotropic Raw Material (Export / Import Permission)

Not applicable

Specific Narcotic or Psychotropic Raw Material (Export / Import permission)

Not applicable

**Waste Disposal and Public Cleansing Law**

Industrial waste

**The components of this product are reported in the following inventories:**

AICS : not determined

DSL : not determined

IECSC : not determined

---

**16. OTHER INFORMATION**

In this SDS, if the concentration of substances subject to notification under the Industrial Safety and Health Law is indicated as a range, it includes cases where it is a trade secret.

**Further information**

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

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

Date format : yyyy/mm/dd

**Full text of other abbreviations**

**Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2024/09/28
12.0	2025/04/14	1204426-00023	Date of first issue: 2017/01/09

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
JP OEL JSOH : Japan. The Japan Society for Occupational Health. Recommendation of Occupational Exposure Limits

ACGIH / TWA : 8-hour, time-weighted average  
JP OEL JSOH / OEL-M : Occupational Exposure Limit-Mean

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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 Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals 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; WHMIS - Workplace Hazardous Materials Information System

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.

JP / EN