

## Fipronil Formulation

Version 2.5      Revision Date: 30.09.2023      SDS Number: 4789412-00010      Date of last issue: 04.04.2023  
Date of first issue: 27.08.2019

---

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Fipronil Formulation

#### Manufacturer or supplier's details

Company : MSD

Address : 50 Tuas West Drive  
Singapore - Singapore 638408

Telephone : +1-908-740-4000

Emergency telephone number : 65 6697 2111 (24/7/365)

E-mail address : EHSDATASTEWARD@msd.com

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

Recommended use : Veterinary product

Restrictions on use : Not applicable

---

### 2. HAZARDS IDENTIFICATION

#### GHS Classification

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 3

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2

Specific target organ toxicity - repeated exposure : Category 2 (Central nervous system, Kidney)

Short-term (acute) aquatic hazard : Category 1





Long-term (chronic) aquatic hazard : Category 1

#### GHS label elements

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

Hazard pictograms :    

Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.  
H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H331 Toxic if inhaled.  
H373 May cause damage to organs (Central nervous system, Kidney) through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe mist or vapours.  
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/ protective clothing/ eye protection/ face protection.

**Response:**  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
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.  
P314 Get medical advice/ attention if you feel unwell.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P391 Collect spillage.

**Storage:**  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.

## Fipronil Formulation

Version 2.5      Revision Date: 30.09.2023      SDS Number: 4789412-00010      Date of last issue: 04.04.2023  
 Date of first issue: 27.08.2019

**Disposal:**

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

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

Vapours may form explosive mixture with air.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
2-Butoxyethanol	111-76-2	>= 70 -< 90
Ethanol#	64-17-5	>= 10 -< 20
Fipronil (ISO)	120068-37-3	>= 1 -< 2.5

# Voluntarily-disclosed substance

**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 irritation.  
 Causes serious eye irritation.  
 Toxic if inhaled.  
 May cause damage to organs through prolonged or repeated exposure.

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

There may be delayed neurological effects, including brain oedema.

Protection of first-aiders : Must not be confused with organophosphorous compounds!  
: 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**

Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.  
Flash back possible over considerable distance.  
Vapours may form explosive mixtures with air.  
Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Nitrogen oxides (NO<sub>x</sub>)  
Sulphur oxides  
Carbon oxides  
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 : Remove all sources of ignition.  
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.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for : Non-sparking tools should be used.

---

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

containment and cleaning up

Soak up with inert absorbent material.  
 Suppress (knock down) gases/vapours/mists with a water spray jet.  
 For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. 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 certain local or national requirements.

---

**7. HANDLING AND STORAGE**

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation	:	If sufficient ventilation is unavailable, use with local exhaust ventilation. Use explosion-proof electrical, ventilating and lighting equipment.
Advice on safe handling	:	Do not get on skin or clothing. Do not breathe mist or vapours. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Non-sparking tools should be used. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product. Take care to prevent spills, waste and minimize release to the environment.
Conditions for safe storage	:	Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.
Materials to avoid	:	Do not store with the following product types: Self-reactive substances and mixtures Organic peroxides Oxidizing agents Flammable gases Pyrophoric liquids Pyrophoric solids

## Fipronil Formulation

Version 2.5      Revision Date: 30.09.2023      SDS Number: 4789412-00010      Date of last issue: 04.04.2023  
 Date of first issue: 27.08.2019

Self-heating substances and mixtures  
 Poisonous gases  
 Explosives

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2-Butoxyethanol	111-76-2	PEL (long term)	25 ppm 121 mg/m <sup>3</sup>	SG OEL
		TWA	20 ppm	ACGIH
Ethanol	64-17-5	PEL (long term)	1,000 ppm 1,880 mg/m <sup>3</sup>	SG OEL
		STEL	1,000 ppm	ACGIH
Fipronil (ISO)	120068-37-3	TWA	2 µg/m <sup>3</sup> (OEB 4)	Internal
Further information: Skin				
		Wipe limit	20 µg/100 cm <sup>2</sup>	Internal

## Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
2-Butoxyethanol	111-76-2	Butoxyacetic acid (BAA)	Urine	End of shift (As soon as possible after exposure ceases)	200 mg/g creatinine	ACGIH BEI

**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.  
 Essentially no open handling permitted.  
 Use closed processing systems or containment technologies.  
 If handled in a laboratory, use a properly designed biosafety cabinet, fume hood, or other containment device if the potential exists for aerosolization. If this potential does not exist, handle over lined trays or benchtops.  
 Use explosion-proof electrical, ventilating and lighting equipment.

**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 : Combined particulates and organic vapour type

**Fipronil Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

## Hand protection

Material : Chemical-resistant gloves

Remarks : Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

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 : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers 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.

---

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	: liquid
Colour	: yellow
Odour	: characteristic
Odour Threshold	: No data available
pH	: No data available
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: 78.5 °C
Flash point	: 52 °C
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

Flammability (liquids)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	0.91 - 0.95
Relative density	:	0.91 - 0.95
Density	:	No data available
Solubility(ies)		
Water solubility	:	slightly soluble
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition 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	:	Not applicable

---

**10. STABILITY AND REACTIVITY**

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Flammable liquid and vapour. Vapours may form explosive mixture with air. Can react with strong oxidizing agents.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

---

**11. TOXICOLOGICAL INFORMATION**



**Fipronil Formulation**

Version 2.5      Revision Date: 30.09.2023      SDS Number: 4789412-00010      Date of last issue: 04.04.2023  
Date of first issue: 27.08.2019

---

Information on likely routes of exposure : Inhalation  
Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Harmful if swallowed.  
Toxic if inhaled.

**Product:**

Acute oral toxicity : Acute toxicity estimate: 1,290 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 3 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: Calculation method

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

**Components:****2-Butoxyethanol:**

Acute oral toxicity : LD50 (Guinea pig): 1,200 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 3 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: Expert judgement

Acute dermal toxicity : LD50 (Guinea pig): > 2,000 mg/kg

**Ethanol:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 124.7 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

**Fipronil (ISO):**

Acute oral toxicity : LD50 (Rat): 92 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.36 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 354 mg/kg

**Fipronil Formulation**

Version 2.5      Revision Date: 30.09.2023      SDS Number: 4789412-00010      Date of last issue: 04.04.2023  
Date of first issue: 27.08.2019

---

**Skin corrosion/irritation**

Causes skin irritation.

**Components:****2-Butoxyethanol:**

Species : Rabbit  
Method : Directive 67/548/EEC, Annex V, B.4.  
Result : Skin irritation

**Ethanol:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

**Fipronil (ISO):**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Components:****2-Butoxyethanol:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 21 days  
Method : OECD Test Guideline 405

**Ethanol:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 21 days  
Method : OECD Test Guideline 405

**Fipronil (ISO):**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

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

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

**Components:****2-Butoxyethanol:**

Test Type	: Maximisation Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

**Ethanol:**

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

**Fipronil (ISO):**

Test Type	: Buehler Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

**Germ cell mutagenicity**

Not classified based on available information.

**Components:****2-Butoxyethanol:**

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

	Test Type: Chromosome aberration test in vitro
	Result: negative

	Test Type: In vitro mammalian cell gene mutation test
	Result: negative

	Test Type: In vitro sister chromatid exchange assay in mam-
	malian cells
	Result: equivocal

Genotoxicity in vivo	: Test Type: Mammalian erythrocyte micronucleus test (in vivo
	cytogenetic assay)
	Species: Rat
	Application Route: Intraperitoneal injection
	Result: negative

	Test Type: Mammalian erythrocyte micronucleus test (in vivo
	cytogenetic assay)
	Species: Mouse
	Application Route: Intraperitoneal injection

## Fipronil Formulation

Version 2.5      Revision Date: 30.09.2023      SDS Number: 4789412-00010      Date of last issue: 04.04.2023  
Date of first issue: 27.08.2019

---

Result: negative

**Ethanol:**

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)  
Species: Mouse  
Application Route: Ingestion  
Result: equivocal

**Fipronil (ISO):**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo  
cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

Test Type: Unscheduled DNA synthesis (UDS) test with  
mammalian liver cells in vivo  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 486  
Result: negative

**Carcinogenicity**

Not classified based on available information.

**Components:****2-Butoxyethanol:**

Species : Rat  
Application Route : inhalation (vapour)  
Exposure time : 2 Years  
Result : negative

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

**Fipronil (ISO):**

Species : Mouse  
 Application Route : Ingestion  
 Exposure time : 78 weeks  
 Method : Directive 67/548/EEC, Annex V, B.32.  
 Result : negative

Species : Rat  
 Application Route : Ingestion  
 Exposure time : 104 weeks  
 Method : Directive 67/548/EEC, Annex, B.33  
 Result : positive  
 Remarks : The mechanism or mode of action is not relevant in humans.

**Reproductive toxicity**

Not classified based on available information.

**Components:****2-Butoxyethanol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
 Species: Mouse  
 Application Route: Ingestion  
 Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
 Species: Rat  
 Application Route: Ingestion  
 Result: negative

Test Type: Embryo-foetal development  
 Species: Rat  
 Application Route: inhalation (vapour)  
 Result: negative

**Ethanol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
 Species: Mouse  
 Application Route: Ingestion  
 Result: negative

**Fipronil (ISO):**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
 Species: Rat  
 Application Route: Ingestion  
 Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
 Species: Rabbit

**Fipronil Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative

**STOT - single exposure**

Not classified based on available information.

**STOT - repeated exposure**

May cause damage to organs (Central nervous system, Kidney) through prolonged or repeated exposure.

**Components:****Fipronil (ISO):**

Exposure routes : Ingestion  
Target Organs : Central nervous system, Kidney  
Assessment : Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

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

Species : Rat  
NOAEL : 1,280 mg/kg  
LOAEL : 3,156 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days

**Fipronil (ISO):**

Species : Rabbit  
NOAEL : 5 mg/kg  
LOAEL : 10 mg/kg  
Application Route : Skin contact  
Exposure time : 21 Days  
Method : OECD Test Guideline 410

Species : Rat, male  
NOAEL : 0.059 mg/kg  
LOAEL : 0.019 mg/kg  
Application Route : Ingestion  
Exposure time : 89 Weeks  
Method : Directive 67/548/EEC, Annex, B.33

**Aspiration toxicity**

Not classified based on available information.

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity****Components:****2-Butoxyethanol:**

- |  |   |   |
|--|---|---|
| Toxicity to fish   | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 1,464 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203            |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 (Daphnia magna (Water flea)): 1,800 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202                     |
| Toxicity to algae/aquatic plants                                       | : | ErC50 (Pseudokirchneriella subcapitata (green algae)): 1,840 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201 |
|  |   | EC10 (Pseudokirchneriella subcapitata (green algae)): 679 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201    |
| Toxicity to fish (Chronic toxicity)                                    | : | NOEC (Danio rerio (zebra fish)): > 100 mg/l<br>Exposure time: 21 d  |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | EC10 (Daphnia magna (Water flea)): 134 mg/l<br>Exposure time: 21 d<br>Method: OECD Test Guideline 211                       |

**Ethanol:**

- |  |   |  |
|--|---|--|
| Toxicity to fish   | : | LC50 (Pimephales promelas (fathead minnow)): > 1,000 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 (Ceriodaphnia (water flea)): > 1,000 mg/l<br>Exposure time: 48 h            |
| Toxicity to algae/aquatic plants                                       | : | ErC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l<br>Exposure time: 72 h  |
|  |   | EC10 (Chlorella vulgaris (Fresh water algae)): 11.5 mg/l<br>Exposure time: 72 h  |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Daphnia magna (Water flea)): 9.6 mg/l<br>Exposure time: 9 d                |
| Toxicity to microorganisms   | : | EC50 (Pseudomonas putida): 6,500 mg/l<br>Exposure time: 16 h                     |

**Fipronil Formulation**

Version 2.5      Revision Date: 30.09.2023      SDS Number: 4789412-00010      Date of last issue: 04.04.2023  
Date of first issue: 27.08.2019

---

**Fipronil (ISO):**

- Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 85.2 µg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Mysidopsis bahia (opossum shrimp)): 0.14 µg/l  
Exposure time: 96 h
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 68 µg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 201
- NOEC (Desmodesmus subspicatus (green algae)): 40 µg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 201
- M-Factor (Acute aquatic toxicity) : 1,000
- Toxicity to fish (Chronic toxicity) : NOEC (Cyprinodon variegatus (sheepshead minnow)): 2.9 µg/l  
Exposure time: 35 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Mysidopsis bahia (opossum shrimp)): 0.0077 µg/l  
Exposure time: 28 d
- M-Factor (Chronic aquatic toxicity) : 10,000
- Toxicity to microorganisms : EC50: > 1,000 mg/l  
Exposure time: 3 h

**Persistence and degradability****Components:****2-Butoxyethanol:**

- Biodegradability : Result: Readily biodegradable.  
Biodegradation: 90.4 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

**Ethanol:**

- Biodegradability : Result: Readily biodegradable.  
Biodegradation: 84 %  
Exposure time: 20 d

**Fipronil (ISO):**

- Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 47 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B



## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

**Bioaccumulative potential****Components:****2-Butoxyethanol:**

Partition coefficient: n-octanol/water : log Pow: 0.81

**Ethanol:**

Partition coefficient: n-octanol/water : log Pow: -0.35

**Fipronil (ISO):**

Bioaccumulation : Species: *Lepomis macrochirus* (Bluegill sunfish)  
Bioconcentration factor (BCF): 321

Partition coefficient: n-octanol/water : log Pow: 4

**Mobility in soil**

No data available

**Other adverse effects**

No data available

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

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

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Empty containers retain residue and can be dangerous.  
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.  
If not otherwise specified: Dispose of as unused product.

**14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

UN number : UN 1992

Proper shipping name : FLAMMABLE LIQUID, TOXIC, N.O.S.  
(Ethanol, Fipronil (ISO))

Class : 3

Subsidiary risk : 6.1

Packing group : III

Labels : 3 (6.1)

Environmentally hazardous : no

**IATA-DGR**

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

UN/ID No. : UN 1992  
Proper shipping name : Flammable liquid, toxic, n.o.s.  
(Ethanol, Fipronil (ISO))  
Class : 3  
Subsidiary risk : 6.1  
Packing group : III  
Labels : Flammable Liquids, Toxic  
Packing instruction (cargo aircraft) : 366  
Packing instruction (passenger aircraft) : 355

**IMDG-Code**

UN number : UN 1992  
Proper shipping name : FLAMMABLE LIQUID, TOXIC, N.O.S.  
(Ethanol, Fipronil (ISO))  
Class : 3  
Subsidiary risk : 6.1  
Packing group : III  
Labels : 3 (6.1)  
EmS Code : F-E, S-D  
Marine pollutant : yes

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

Not applicable for product as supplied.

**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.

---

**15. REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture****Workplace Safety and Health Act and Workplace Safety and Health (General Provisions) Regulations: This product is subjected to the SDS, labelling, PEL and other requirements in the Act/Regulations.**

Environmental Protection and Management Act and : Fipronil  
Environmental Protection and Management (Hazardous Substances) Regulations

Fire Safety (Petroleum and Flammable Materials) : Ethanol  
Regulations

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

AICS : not determined  
DSL : not determined

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

IECSC : not determined

---

**16. OTHER INFORMATION**

Revision Date : 30.09.2023

**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/>

Date format : dd.mm.yyyy

**Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
 ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)  
 SG OEL : Singapore. Workplace Safety and Health (General Provisions) Regulations - First Schedule Permissible Exposure Limits of Toxic Substances.

ACGIH / TWA : 8-hour, time-weighted average  
 ACGIH / STEL : Short-term exposure limit  
 SG OEL / PEL (long term) : Permissible Exposure Level (PEL) Long Term

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; TECL - Thailand Existing Chemicals Inventory; TSCA - Toxic Sub-

## Fipronil Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
2.5	30.09.2023	4789412-00010	Date of first issue: 27.08.2019

---

stances 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.

SG / EN