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Re-evaluation Decision

RVD2021-03

Pyriproxyfen and Its Associated End-use Products

Final Decision

(publié aussi en français)

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Re-evaluation decision for pyriproxyfen and its associated end-use products

Under the authority of the *Pest Control Products Act*, all registered pesticides must be re-evaluated by Health Canada's Pest Management Regulatory Agency (PMRA) to ensure that they continue to meet current health and environmental standards and continue to have value. The re-evaluation considers data and information from pesticide manufacturers, published scientific reports and other regulatory agencies, as well as comments received during public consultations. Health Canada applies internationally accepted risk assessment methods as well as current risk management approaches and policies.

Pyriproxyfen is an insect growth regulator that contributes to the management of white flies in greenhouse vegetable and ornamental production, flea control in indoor, non-food areas of structures and management of fleas on cats and dogs. Currently registered products containing pyriproxyfen can be found in the [Pesticide Label Search](#) and in Appendix I. The Proposed Re-evaluation Decision PRVD2019-10, *Pyriproxyfen and Its Associated End-use Products*¹ containing the evaluation of pyriproxyfen and proposed decision, underwent a 90-day consultation period ending on 4 February 2020. PRVD2019-10 proposed that products containing pyriproxyfen are acceptable for continued registration when used according to the proposed conditions of registration, which include new mitigation measures.

No comments were received during the consultation period. Health Incident report information was updated (see Science evaluation update), and the outcome of this update did not change the conclusions in PRVD2019-10. Therefore, this final decision is consistent with the proposed re-evaluation decision stated in PRVD2019-10, which also lists all information used as the basis for the re-evaluation decision.

This document presents the final re-evaluation decision² for the re-evaluation of pyriproxyfen, including the required amendments (risk mitigation measures) to protect human health and the environment, as well as any label amendments required to bring labels to current standards. All products containing pyriproxyfen that are registered in Canada are subject to this re-evaluation decision.

¹ "Consultation statement" as required by subsection 28(2) of the *Pest Control Products Act*.

² "Decision statement" as required by subsection 28(5) of the *Pest Control Products Act*.

Re-evaluation decision for pyriproxyfen

Health Canada has completed the re-evaluation of pyriproxyfen. Under the authority of the *Pest Control Products Act*, Health Canada has determined that continued registration of products containing pyriproxyfen is acceptable. An evaluation of available scientific information found that uses of pyriproxyfen products meet current standards for protection of human health and the environment and have acceptable value when used according to the revised conditions of registration which includes new mitigation measures. Label amendments, as summarized below and listed in Appendix II, are required.

Risk mitigation measures

Registered pesticide product labels include specific directions for use. Directions include risk mitigation measures to protect human health and the environment and must be followed by law. The required amendments, including any revised/updated label statements and/or mitigation measures, as a result of the re-evaluation of pyriproxyfen, are summarized below. Refer to Appendix II for details.

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Label improvements to meet current standards:

- Updated label statements for personal protective equipment
- Label statements to address the following:
 - Prohibit application of recycled greenhouse water to outdoor food crops
 - Prevent contamination of food and food surfaces during indoor applications
 - Clarifying and/or ensuring consistency regarding use directions and precautionary statements
 - Label amendments as per PMRA Guidance Document, Label Improvements for Spot-on Pesticides Used on Companion Animals (2019)

Risk Mitigation:

- Addition of personal protective equipment for products used to control fleas in indoor environments
- Prohibition of application using handheld mist blower or handheld fogging equipment due to lack of data to assess occupational exposure,

Environment

Label improvements to meet current standards:

- Standard label statements to inform users of the potential toxic effects of pyriproxyfen to aquatic organisms.

Next steps

To comply with this decision, the required amendments (mitigation measures and label updates) must be implemented on all product labels no later than 24 months after the publication date of this decision document. Accordingly, both registrants and retailers will have up to 24 months from the date of this decision document to transition to selling the product with the newly amended labels. Similarly, users will also have the same 24-month period from the date of this decision document to transition to using the newly amended labels, which will be available on the Public Registry.

The majority of spot-on products containing pyriproxyfen were examined separately under the PMRA Guidance Document, Label Improvements for Spot-on Pesticides Used on Companion Animals (published 6 December 2019); registrants were notified of and consented to the label changes prior to publication (September/October 2019). The label amendments for the spot-on products in Appendix 2 of the Guidance Document will be implemented according to the timeline specified in the Guidance. The only exception includes 11 spot-on products containing imidacloprid (outlined in Appendix I, Table 2), which were registered just prior to the publication of the 2019 Guidance Document. Label amendments consistent with the Guidance Document have already been implemented as part of these registration decisions.

Refer to Appendix I, Table 1 for details on specific products impacted by this re-evaluation decision.

Other information

Any person may file a notice of objection³ regarding this decision on pyriproxyfen and its associated end-use products within 60 days from the date of publication of this Re-evaluation Decision. For more information regarding the basis for objecting (which must be based on scientific grounds), please refer to the Pesticides section of the Canada.ca website (Request a Reconsideration of Decision) or contact the PMRA's Pest Management Information Service by phone (1-800-267-6315) or by e-mail (hc.pmra-info-arla.sc@canada.ca).

The relevant confidential test data on which the decision is based (as referenced in PRVD2019-10) are available for public inspection, upon application, in the PMRA's Reading Room (located in Ottawa). For more information, please contact the PMRA's Pest Management Information Service.

³ As per subsection 35(1) of the *Pest Control Products Act*

Science evaluation update

1.0 Health incident reports

Since the publication of PRVD2019-10 (that is, from 7 December 2018 to 20 November 2020), Health Canada received 1802 additional incidents involving pyriproxyfen. The reported incident categories included domestic animals (1793 reports), humans (7 reports) and two reports involving both an animal and a human.

The findings in the current review of human and domestic animal incidents are consistent with the incident report trends and recommendations outlined in PRVD2019-10. The reported pyriproxyfen products were mainly co-formulated with synthetic pyrethroids and pyrethrins. The products are registered for use on companion animals (mainly spot-on products that are used on cats and dogs for the control of fleas and ticks), as well as for structural uses in and around residential sites. Minor skin effects were most commonly reported in people either following contact with a treated pet or when applying a product to a pet. In animals, minor skin effects were most commonly reported following treatment with a co-formulated pyriproxyfen product.

Overall, the recommendations outlined in PRVD2019-10 continue to remain the same. The product labels of spot-on companion animal products are to be updated as per the PMRA Guidance Document, *Label Improvements for Spot-on Pesticides Used on Companion Animals*, to better inform the consumer on the possible effects that may occur in animals following the use of co-formulated pyriproxyfen products. In addition, the label amendments as outlined in the PMRA Guidance Document, *Structural Pest Control Products: Label Updates* are also being implemented in order to minimize the likelihood of human or animal exposure to pyriproxyfen products co-formulated with synthetic pyrethroids when used in and around residential sites.

Appendix I Registered products containing pyriproxyfen in Canada

Table 1 Registered products containing pyriproxyfen in Canada requiring label amendments¹

Registration number	Marketing class	Registrant	Product name	Formulation type	Active ingredient
25105	Technical Grade Active Ingredient	Sumitomo Chemical Company Ltd.	SUMILARV TECHNICAL GRADE	Solid	Pyriproxyfen 98.7%
25489	Manufacturing Concentrate	McLaughlin Gormley King Company	NYLAR 50% CONCENTRATE	Solution	Pyriproxyfen 50%
27545		Rolf C. HAGEN Inc.	PERMETHRIN NYLAR SQUEEZE ON MANUFACTURING BLEND	Solution	Pyriproxyfen 1.9% Permethrin 45%
27705			ETOFENPROX NYLAR SQUEEZE ON MANUFACTURING BLEND		Pyriproxyfen 2.2% Etofenprox 55%
25490	Commercial	McLaughlin Gormley King Company	NYGUARD IGR CONCENTRATE	Emulsifiable Concentrate	Pyriproxyfen 10%
28414		VALENT Canada Inc.	DISTANCE	Emulsifiable Concentrate	Pyriproxyfen 103 g/L
31119	Domestic	HARTZ Canada Inc.	HARTZ ULTRAGUARD PLUS FLEA & TICK HOME SPRAY	Solution	Pyriproxyfen 0.015% D-phenothrin 0.40% Piperonyl butoxide 1%
25491	Domestic	McLaughlin Gormley King Company	NYLAR PRESSURIZED SPRAY 2618	Pressurized product	Pyriproxyfen 0.015% D-phenothrin 0.30% Tetramethrin 0.40%
31941	Domestic	Neogen Corporation	PROZAP PET GUARD IGR FLEA SPRAY	Pressurized product	Pyriproxyfen 0.015% D-phenothrin 0.30% Tetramethrin 0.40%
26179	Domestic	Premier Tech Ltd.	C-I-L FLEA KILLER SURFACE SPRAY	Pressurized product	Pyriproxyfen 0.015% D-phenothrin 0.300% Tetramethrin 0.400%
26502	Domestic	Rolf C. HAGEN Inc.	SERGEANT'S PRETECT HOUSEHOLD FLEA SPRAY	Pressurized product	Pyriproxyfen 0.015% D-phenothrin 0.3% Tetramethrin 0.4%
31647			SENTRY HOUSEHOLD FLEA SPRAY		Pyriproxyfen 0.015% D-phenothrin 0.30% Tetramethrin 0.40%

¹ as of 5 November 2020, excluding discontinued products or products with a submission for discontinuation

Table 2 List of spot-on pyriproxyfen products used on companion animals¹

Registration number	Marketing class	Registrant	Product name	Formulation type	Active ingredient
Subject to PMRA Guidance Document, Label Improvements for Spot-on Pesticides Used on Companion Animals (2019)					
27581	Domestic	Elanco Canada Limited	ADVANTAGE II SMALL DOG	Solution	Pyriproxyfen 0.46% Imidacloprid 9.1%
27582			ADVANTAGE II LARGE DOG		
27583			ADVANTAGE II MEDIUM DOG		
27584			ADVANTAGE II EXTRA LARGE DOG		
27585			ADVANTAGE II SMALL CAT/RABBIT/FERRET		
27586			ADVANTAGE II LARGE CAT		
29777			K9 ADVANTIX II SMALL DOG		Pyriproxyfen 0.44% Permethrin 44% Imidacloprid 8.8%
29778			K9 ADVANTIX II MEDIUM DOG		

29779			K9 ADVANTIX II EXTRA LARGE DOG		
29780			K9 ADVANTIX II LARGE DOG		
31517			ADVANTAGE II KITTENS		Pyriproxyfen 0.46% Imidacloprid 9.1%
28113	Domestic	Rolf C. HAGEN Inc.	SERGEANT'S PRETECT SQUEEZE-ON FLEA, TICK & MOSQUITO CONTROL FOR DOGS (UP TO 15 KG)	Liquid	Pyriproxyfen 1.9% Permethrin 45%
28280			SEARGEANT'S PRETECT SQUEEZE-ON FLEA, TICK & MOSQUITO CONTROL FOR DOGS (OVER 30 KG)	Solution	
28281			SERGEANTS PRETECT SQUEEZE-ON FLEA, TICK & MOSQUITO CONTROL FOR DOGS (15-30 KG)		
28610			SERGEANT'S PRE TECT SQUEEZE-ON FLEA CONTROL FOR CATS AND KITTENS		Pyriproxyfen 2.2%
31608			SENTRY FLEA SQUEEZE-ON FOR CATS AND KITTENS		
31609			SENTRY FLEA, TICK & MOSQUITO SQUEEZE-ON FOR DOGS (15 TO 30 KG)		Pyriproxyfen 1.9% Permethrin 45%
31610			SENTRY FLEA, TICK & MOSQUITO SQUEEZE-ON FOR DOGS (OVER 30 KG)		
31611			SENTRY FLEA, TICK & MOSQUITO SQUEEZE-ON FOR DOGS (UP TO 15 KG)		
Label amendments consistent with PMRA Guidance Document, Label Improvements for Spot-on Pesticides Used on Companion Animals (2019) were previously implemented for the following products as part of these registration decisions:					
33738	Domestic	Evergreen Animal Health, LLC.	EVERGREEN II SPOT ON FOR EXTRA LARGE DOGS	Solution	Pyriproxyfen 0.36% Permethrin 35.6% Imidacloprid 7.12%
33739			EVERGREEN II SPOT ON FOR LARGE DOGS		
33740			EVERGREEN II SPOT ON FOR MEDIUM DOGS		
33741			EVERGREEN II SPOT ON FOR SMALL DOGS		
33789			PARAPET K9 PRAVENTA 360 FOR EXTRA LARGE DOGS		
33790			PARAPET K9 PRAVENTA 360 FOR LARGE DOGS		
33791			PARAPET K9 PRAVENTA 360 FOR MEDIUM DOGS		
33792			PARAPET K9 PRAVENTA 360 FOR SMALL DOGS		
33419	Domestic	Vetech Laboratories Inc., DBA Ceva Animal Health	VECTRA 3D FOR DOGS WEIGHING 25.1 TO 43 KG	Solution	Pyriproxyfen 0.44% Dinotefuran 4.95% Permethrin 36.08%
33420			VECTRA 3D FOR DOGS AND PUPPIES OVER 7 WEEKS OF AGE WEIGHING 9.1 TO 25 KG		
33421			VECTRA 3D FOR DOGS AND PUPPIES OVER 7 WEEKS OF AGE WEIGHING 4.6 TO 9.0 KG		

¹ as of 5 November 2020, excluding discontinued products or products with a submission for discontinuation

Appendix II Label amendments for products containing pyriproxyfen

Information on approved labels of currently registered products should not be removed unless it contradicts the label statements provided below.

General label improvements:

1. On the PRINCIPAL DISPLAY PANEL of all technical and end use product labels, replace “guarantee” with “active ingredient”.

I. For Technical Grade of the Active Ingredient and Manufacturing Concentrate:

The following must appear under a section titled “ENVIRONMENTAL PRECAUTIONS”:

“TOXIC to aquatic organisms.”

“**DO NOT** discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters.”

II. For Commercial Class Products:

Products for Greenhouse Uses:

1. **Remove** the following under the "PRECAUTIONS" section:

“This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.”

2. Under the section “**ENVIRONMENTAL HAZARDS**”, **remove** the following:

“This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present.”

And **replace** with the following:

“This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms.”

3. Change the heading “ENVIRONMENTAL HAZARDS” to “ENVIRONMENTAL PRECAUTIONS”
4. Under “DIRECTIONS FOR USE: MIXING INSTRUCTIONS (Booklet label)”:

Add:

“As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.”

“**DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.”

5. Statements related to the personal protective equipment (PPE) and restricted-entry interval (REI) must be updated to current wording.

- For PPE, **replace:**

“Wear coveralls or long-sleeved shirt and long pants, rubber boots, goggles, gloves (rubber, PVC, neoprene or nitrile) and hat during mixing, loading, cleanup and application.”

with:

“Wear a long-sleeved shirt, long pants, chemical-resistant gloves (rubber, PVC, neoprene or nitrile), socks and shoes during mixing, loading, application, clean-up and repair.”

- For REI, **replace:**

“**DO NOT** re-enter treated areas within 12 hours.”

with:

“**DO NOT** enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.”

6. Add:

- “**DO NOT** apply using handheld mistblower/airblast or handheld fogging equipment in greenhouses.”

7. Add to Directions For Use:

- “**DO NOT** apply greenhouse processing water containing this product to field crops (food and feed).”

Products with label directions to control fleas in indoor environments:

1. The following PPE as per the occupational risk assessment are required to be added to the label:

“Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair.”

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2. Statements related to entry after application are required to be updated to current wording as follows:

“BROADCAST APPLICATION: **DO NOT** allow people or pets to enter treated areas for 2 hours or until sprays have dried.

SPOT AND CRACK AND CREVICE APPLICATION: **DO NOT** allow people or pets to enter treated areas until sprays have dried.”

3. Best practice statements to update the precautionary label directions as per PMRA Guidance Document, Structural Pest Control Products: Label Updates (2020) are required:

Under “**DIRECTIONS FOR USE**”:

“**DO NOT** apply to mattresses, linens, toys or clothing.”

“**DO NOT** apply to overhead areas or in confined spaces without appropriate respiratory and eye protection.”

“**DO NOT** allow spray to drip or allow drift onto non-target surfaces; any spray residue on non-target areas must be removed by the applicator.”

“**DO NOT** apply as a space spray.”

“Use a coarse droplet size and low pressure spray not exceeding 345 kPa (50 psi) to avoid splashing onto non-target surfaces.”

Under “**PRECAUTIONS**”:

“**DO NOT** apply to surfaces that may come into contact with food/feed.”

“Cover or remove all food/feed. Cover all food/feed processing surfaces, equipment and utensils or thoroughly wash following treatment.”

“Ventilate treated areas after application either by opening windows and doors or through use of air exchange/ventilation systems confirmed to be operational. Use fans where required to aid in the circulation of air.”

“**DO NOT** apply when people or pets are present.”

III. Domestic-class products

End-use products with instructions for indoor applications to control fleas and which are co-formulated with tetramethrin or d-phenothrin have conflicting application directions as a result of label changes required for the re-evaluation of tetramethrin or d-phenothrin. Therefore, label changes are required to clarify application directions for specific use sites while ensuring consistency with the evaluations of tetramethrin and d-phenothrin.

These label amendments include:

- Removal of label statements restricting application to crack and crevice and perimeter applications. Directions for spot treatment are to remain for products co-formulated with tetramethrin.
- Application directions, including clarification of rates, are to be added for specific uses on the current labels, that is, for pet bedding, indoor surfaces (rugs, carpets and drapes) and upholstery.

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- In addition, best practice statements to update the precautionary label directions as per PMRA Guidance Document, Structural Pest Control Products: Label Updates (2019) are required:

Under “**DIRECTIONS FOR USE**”:

“**DO NOT** apply to mattresses, linens, toys or clothing.”

“**DO NOT** apply to overhead areas or in confined spaces (for example, attics and crawlspaces).”

“**DO NOT** allow spray to drip or allow drift onto non-target surfaces.”

“**DO NOT** apply as a space spray.”

Under “**PRECAUTIONS**”:

“**DO NOT** apply to surfaces that may come into contact with food/feed.”

“Cover or remove all food/feed. Cover all food/feed processing surfaces, equipment and utensils or thoroughly wash following treatment.”

“Ventilate treated areas after application either by opening windows and doors or using fans, where required, to aid in the circulation of air.”

“**DO NOT** apply when people or pets are present.”

“**DO NOT** allow people or pets to enter/contact treated areas [“until sprays have dried” or re entry time currently stated on label].”

- Remove from all domestic-class indoor application labels:
“[Retreat/Repeat] as necessary.”

For registered spot-on, pyriproxyfen products, the following precautionary label directions as per PMRA Guidance Document, Label Improvements for Spot-on Pesticides Used on Companion Animals (2019) are required:

- For products used on dogs:

“Monitor your dog after application. Side effects may include: skin irritation such as redness or scratching; changes in behaviour such as agitation or lethargy; or gastrointestinal effects such as vomiting or loss of appetite. If these or other side effects occur consult your veterinarian or [Registrant at 1-800-number].”

For products used on cats:

“Monitor your cat after application. Side effects may include: skin irritation such as scratching or hair loss at the application site, or changes in behaviour such as agitation or lethargy. Gastrointestinal effects such as drooling, vomiting, or loss of appetite may also occur. If these or other side effects occur consult your veterinarian or [Registrant at 1-800-number].”

The following label improvements for spot-on products are required:

- Remove label language that allows re-application of the product before the end of the effective control period. For example, products that are labeled as providing four weeks of control, should not have statements such as “Reapply after one week if necessary”.
- Add label language to contraindicate use of other flea control products with the same active ingredients as the spot-on (For example: “This product contains [name of active ingredient(s)]. Do not apply another pest control product such as a shampoo, collar, or powder which contains [name of active ingredient(s)] to the treated animal when using [name of spot-on product]”).