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Proposed Re-evaluation Decision

PRVD2024-04

# Foramsulfuron and Its Associated End-use Products

*Consultation Document*

*(publié aussi en français)*

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## **Proposed re-evaluation decision for foramsulfuron and 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. Health Canada applies internationally accepted risk assessment methods as well as current risk management approaches and policies.

Foramsulfuron is a selective sulfonylurea herbicide used to control post-emergence broadleaf weeds in field corn (Eastern Canada and Manitoba) and lowbush blueberry (Eastern Canada only) sites. It is applied once per season by field sprayer and may be applied with tank-mix to enhance weed control efficacy. Currently registered products containing foramsulfuron can be found in the [Pesticide Product Information Database](#) and in Appendix I. Appendix II lists all uses for which foramsulfuron is presently registered.

This document presents the proposed re-evaluation decision for foramsulfuron including the proposed label amendments (risk mitigation measures) to protect human health and the environment, as well as the science evaluation on which the proposed decision is based. All products containing foramsulfuron that are registered in Canada are subject to this proposed re-evaluation decision.

This proposed re-evaluation decision is a consultation document.<sup>1</sup> Health Canada will accept written comments on this proposal up to 90 days from the date of publication of this document. Please forward any comments to Publications (please see contact information on the cover page of this document). The final re-evaluation decision will be published after taking into consideration the comments and information received during the consultation period.

### **Proposed re-evaluation decision for foramsulfuron**

Under the authority of the *Pest Control Products Act* and based on an evaluation of available scientific information, Health Canada is proposing continued registration of all uses of foramsulfuron and associated end-use products registered for sale and use in Canada.

With respect to human health, dietary (food and drinking water), occupational (handlers and postapplication) and non-occupational (bystander) risks were shown to be acceptable when foramsulfuron is used according to proposed conditions of registration, which include label amendments to meet current labelling standards such as updates to personal protective equipment for mixers, loaders and applicators, and standard restricted-entry intervals.

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

The environmental risk assessment found that risks to the environment (terrestrial and aquatic) associated with the use of foramsulfuron were shown to be acceptable when used according to proposed conditions of registration, which include precautionary statements, and spray buffer zones for the protection of terrestrial and aquatic habitats.

Foramsulfuron is valued as a weed management tool for field corn growers who practice conventional tillage and for lowbush blueberry production where fescue grasses infestation is an issue.

## **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 proposed label amendments as a result of the re-evaluation of foramsulfuron, are summarized below. Refer to Appendix IV for details.

### **Human health**

As a result of the re-evaluation of foramsulfuron, Health Canada is proposing label improvements to meet current labelling standards:

- Updates to personal protective equipment (PPE) label statements as per current labeling standards.
- A standard restricted-entry interval (REI) of 12 hours to protect workers entering treated areas.

### **Environment**

To protect the environment, the following risk mitigation measures are proposed:

- Precautionary statements to inform users of the toxicity of foramsulfuron to aquatic organisms and terrestrial plants.
- Updated spray buffer zones for the protection of non-target habitats.

### **Next steps**

Upon publication of this proposed re-evaluation decision, the public, including the registrants and stakeholders are encouraged to submit comments during the 90-day public consultation period.

Health Canada will accept written comments on this proposal up to 90 days from the date of publication of this document. Before making a re-evaluation decision on foramsulfuron, the comments received during the consultation period will be taken into consideration in preparation of re-evaluation decision document.

A science-based approach will be applied in making a final decision on foramsulfuron. Health Canada will then publish a final re-evaluation decision document, which will include the decision,<sup>2</sup> the reasons for it, a summary of comments received on the proposed re-evaluation decision, and Health Canada's response to these comments.

Refer to Appendix I for details on specific products impacted by this proposed decision.

### **Other information**

The relevant confidential test data on which the proposed decision is based are available for public inspection, upon application, in PMRA's Reading Room. For more information, please contact the [Pest Management Information Service](#).

### **Additional scientific information**

Additional scientific data are not required at this time.

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

# Science evaluation

## 1.0 Introduction

Foramsulfuron is a selective sulfonylurea herbicide used to control post-emergence broadleaf weeds in field corn in Eastern Canada and Manitoba. It is also applied to lowbush blueberry (Eastern Canada only) but only during the sprout (non-bearing) year. It is applied once per season by ground equipment and may be applied with tank-mixing to enhance weed control efficacy.

Appendix I lists all products containing foramsulfuron that are registered under the authority of the *Pest Control Products Act*. Appendix II lists all the uses for which foramsulfuron is presently registered.

Based on low dietary risk, large margins of exposure in all occupational exposure scenarios, and low potential environmental risk, the present re-evaluation of foramsulfuron was mostly based on existing Health Canada assessments. However, cumulative assessment, pollinator risk, buffer zones, and risk mitigation measures were updated for all registered products containing foramsulfuron.

## 2.0 Human health assessment

### 2.1 Toxicology summary

Foramsulfuron is of low toxicity via the oral and dermal route. No inhalation reference value was established. Foramsulfuron is not genotoxic, carcinogenic, neurotoxic, or a developmental or reproductive toxicant. Standard uncertainty factors of 10-fold for interspecies extrapolation and 10-fold for intraspecies variability were applied. Since no sensitivity of the young was observed in developmental and reproductive toxicity studies, the *Pest Control Products Act* factor was reduced to onefold. The composite assessment factor is thus 100. The most recent evaluations of foramsulfuron by the USEPA (USEPA, 2015a) and EFSA (EFSA, 2016) did not contain new studies related to the potential toxicity of foramsulfuron that were not considered previously by Health Canada. The USEPA has not established toxicology reference values for foramsulfuron due to the absence of toxicity in the toxicology studies while EFSA's toxicology reference values are lower than those established by Health Canada.

Foramsulfuron has toxicology reference values that were previously established by Health Canada. An acute reference dose (ARfD) has not been established as no acute oral toxicity was observed at the highest doses tested. For chronic oral exposure, the Acceptable Daily Intake (ADI) is set at 8.49 mg/kg bw/day based on a no-observable-adverse-effect level (NOAEL) of 849 mg/kg bw/day from a two-year dietary study in rats, and a composite assessment factor of 100 (Canada, 2008a). For dermal exposure, Health Canada has previously established a NOAEL at 1000 mg/kg bw/day based on a 28-day dermal toxicity study in rats (Canada, 2008a). Based on the toxicological profile of foramsulfuron, the target margin of exposure (MOE) is set at 100 for occupational exposure.

For further details on the toxicology assessment of foramsulfuron, refer to REG2003-08 (Canada, 2003), PRD2008-05 (Canada, 2008a) and RD2008-08 (Canada, 2008b).

## **2.2 Dietary exposure and risk assessment**

Foramsulfuron is applied to corn. It is also applied to lowbush blueberry but only during the sprout (non-bearing) year. Therefore, there is no expectation that finite residues of foramsulfuron would occur in blueberry.

The residue definition for risk assessment and enforcement in plant and animal commodities was previously determined to be foramsulfuron. MRLs of 0.01 ppm were also previously established for foramsulfuron on field corn, popcorn grain, and sweet corn kernels plus cob with husks removed. No changes to the current residue definition and MRLs are proposed.

The residue definition for drinking water assessment was previously determined to be foramsulfuron. No change to this residue definition is proposed.

Since an ARfD has not been established, an acute dietary risk assessment was not required.

Chronic food residue estimates for foramsulfuron were based on Canadian MRLs for corn commodities. Residues in drinking water were estimated using Level 1 estimated environmental concentration of 0.53 µg a.i./L. The chronic dietary risk assessment was conducted for the general population and all population subgroups. Chronic risks from exposure through food and drinking water were shown to be acceptable for all populations at less than 0.1% of the ADI.

For further details on the dietary risk assessment of foramsulfuron, refer to REG2003-08 (Canada, 2003), PRD2008-05 (Canada, 2008a) and RD2008-08 (Canada, 2008b).

## **2.3 Occupational and non-occupational exposure and risk assessment**

There is potential for occupational exposure to foramsulfuron during mixing, loading and applying the pesticide, and when entering a treated site to conduct postapplication activities such as hand harvesting.

### **2.3.1 Occupational exposure and risk assessment**

#### **2.3.1.1 Mixer, loader, and applicator exposure and risk assessment**

Based on the registered use pattern, mixer/loader/applicator exposure is expected to be short-term and to occur via the dermal route. The existing calculated MOEs ranged from 70 000 to 384 000 which were greater than the target MOE of 100, and therefore risks were shown to be acceptable for workers mixing, loading and applying foramsulfuron under the current conditions of use. No additional mitigation measures are proposed.

To meet current labelling standards, updates to personal protective equipment statements are proposed to be included on all commercial-class product labels (Appendix IV).



For further details on the occupational risk assessment of foramsulfuron, refer to REG2003-08 (Canada, 2003), PRD2008-05 (Canada, 2008a) and RD2008-08 (Canada, 2008b).

### **2.3.1.2 Postapplication worker exposure and risk assessment**

The occupational postapplication risk assessment considered exposures to workers who enter treated sites to conduct agronomic activities involving foliar contact such as scouting.

Based on the registered use pattern, there is potential for short-term postapplication exposure to foramsulfuron. Foramsulfuron is low in volatility; therefore, after 12 hours have passed, inhalation exposure to foramsulfuron is not expected for postapplication workers. For workers entering treated corn and lowbush blueberry crops to conduct postapplication activities, dermal exposure is considered to be the primary route of exposure.

The MOEs calculated in previous assessments ranged from 83 000 to 125 000 which were greater than the target MOE of 100 on the day of application (day zero), and therefore shown to be acceptable for all postapplication activities. To meet current labelling standards, the minimum restricted-entry interval (REI) of 12 hours for agricultural crops is proposed to be included on all commercial-class product labels (Appendix IV).

### **2.3.2 Non-occupational exposure and risk assessment**

Non-occupational (residential) risk assessment involves estimating risks to the general population, including adults, youth, and children, during or after pesticide application.

Based on the registered use pattern, residential exposure is not expected. There is a potential for exposure to bystanders during outdoor agricultural applications. To minimize the potential for bystander exposure, all commercial-class product labels currently include a standard spray drift statement. No additional mitigation measures are proposed.

## **2.4 Aggregate exposure and risk assessment**

Aggregate exposure is the total exposure to a single pesticide that may occur from dietary (food and drinking water), residential, and other non-occupational sources, and from all known or plausible exposure routes (oral, dermal and inhalation). In an aggregate risk assessment, the combined potential risk associated with food, drinking water and various residential (non-occupational) exposure pathways are assessed. A major consideration is the likelihood of co-occurrence of exposures and durations of exposures. Additionally, only exposures from routes that share common toxicological effects are aggregated.

As foramsulfuron is not registered for use in residential areas and exposure is expected to be minimal in residential settings, the aggregate risk assessment considered exposure from food and drinking water only, which was shown to be acceptable (see section 3.2).

## 2.5 Cumulative assessment

The *Pest Control Products Act* requires that Health Canada consider the cumulative exposure to pesticides with a common mechanism of toxicity. Accordingly, an assessment of potential mechanisms of toxicity with other pesticides was undertaken. Foramsulfuron belongs to the sulfonyleurea class of herbicides. This class of herbicides includes the following which **are not** registered in Canada: bensulfuron-methyl, imazosulfuron, primisulfuron-methyl, sulfometuron-methyl, sulfosulfuron, triasulfuron, and trifloxysulfuron-sodium. This class also includes the following which **are** registered in Canada: chlorsulfuron, chlorimuron-ethyl, ethametsulfuron-methyl, flazasulfuron, halosulfuron-methyl, iodosulfuron-methyl-sodium, mesosulfuron-methyl, metsulfuron-methyl, nicosulfuron, prosulfuron, rimsulfuron, thifensulfuron-methyl, triflurosulfuron-methyl, and tribenuron-methyl. Sulfonyleurea herbicides share a common structural element, the sulfonyl group bound to a nitrogen atom of a ureylene group. This structural element defines the sulfonyleurea class and is responsible in part for their herbicidal mechanism of action which involves inhibition of acetolactate synthase (ALS). An analogous mammalian ALS enzyme exists in humans which may be inhibited by sulfonyleurea herbicides. However, while deleterious effects in humans associated with ALS inhibition have not yet been investigated, the available information on this class of herbicides indicates both low mammalian toxicity and health risk. Other herbicide classes which inhibit ALS include imidazolinones, triazolopyrimidines, pyrimidinyl oxybenzoates, and sulfonylamino carbonyl triazolinones. Sulfonyleurea herbicides do not appear to share a common toxic effect across the class. While some members of the sulfonyleurea class affect the liver, kidneys, or eyes, these effects are not conserved across the class. In general, the toxic effects of sulfonyleurea herbicides appear to be non-specific in nature including liver, bodyweight effects, and blood effects.

In the 2016 EFSA evaluation of foramsulfuron, a common aminopyrimidine metabolite (AE F092944) which is conserved across the pyrimidine subclass of sulfonyleurea herbicides was identified (EFSA, 2016). Registered pyrimidinylsulfonyleurea herbicides which have the potential to form this common soil metabolite include foramsulfuron, chlorimuron-ethyl, flazasulfuron, halosulfuron-methyl, mesosulfuron-methyl, nicosulfuron, and rimsulfuron. The EFSA has requested additional studies on the common metabolite while renewing the registration of foramsulfuron until 2035 as a complete mammalian toxicology package was not available. The aminopyrimidine metabolite is formed in soil as a result of the cleavage at the sulfonyleurea linkage. It is not preferentially taken up by crops resulting in low levels observed in food commodities. The aminopyrimidine metabolite has low potential for mobility in soil and is unlikely to reach drinking water sources, as such it was not included in the residue definition for drinking water. Therefore, the potential cumulative exposure to the aminopyrimidine common metabolite from dietary sources is not of concern.

The USEPA has published an interim registration review decision for 22 sulfonyleurea herbicides including foramsulfuron. The USEPA concluded that although the sulfonyleureas share some chemical and toxicological characteristics, the toxicological database did not support a testable hypothesis for a common mechanism of action, and no further cumulative evaluation was necessary.

For the current re-evaluation, Health Canada did not identify information indicating foramsulfuron shares a known common mechanism of toxicity with other pest control products in this class. A cumulative risk assessment is not being conducted at this time.

Health Canada will continue to monitor the available information on this class of pesticides. If new information becomes available that indicates the need for a cumulative risk assessment, this will be conducted according to the process described in the Health Canada framework on cumulative health risk assessment ([SPN2018-02](#)).

## **2.6 Health incident reports**

As of 12 October 2023, no human or domestic animal incident reports involving foramsulfuron have been reported to Health Canada.

## **3.0 Environment assessment**

Existing assessments were considered for environment review. In addition, the pollinator risk assessment and buffer zone calculations were updated as part of the current re-evaluation.

Refer to REG2003-08 (Canada, 2003), PRD2008-05 (Canada, 2008a) and RD2008-08 (Canada, 2008b) for more additional details on other environmental assessments of foramsulfuron.

### **3.1 Fate and behaviour in the environment**

Foramsulfuron is non-volatile, and not expected to be persistent or bioaccumulative in the environment. Biotransformation is a principal route of transformation of foramsulfuron in soil and water systems. Foramsulfuron is very mobile in soil and may leach to groundwater (Canada, 2008a).

Foramsulfuron and its transformation products do not meet all of the Toxic Substances Management Policy (TSMP) criteria for Track 1 substances under the policy. Foramsulfuron and its end-use products do not contain any formulants or contaminants identified in the List of Pest Control Product Formulants and Contaminants of Health or Environmental Concern.

### **3.2 Environmental risk characterization**

#### **3.2.1 Risks to terrestrial organisms**

Foramsulfuron is of low toxicity to wild mammals, birds, earthworms and bees. Potential risks to non-target terrestrial organisms associated with its use are acceptable. Buffer zones of 1 to 3 meters are included on current product labels. As part of this re-evaluation, buffer zone calculations were updated and it is proposed that the buffer zone for terrestrial habitat on Reg. No. 27424 be updated from 3 to 5 meters and that of Reg. No. 27425 be updated from 3 to 10 meters to protect terrestrial habitat from spray drift (no change is proposed to the 1 meter buffer zone for Reg. No. 27422). Current labels include information to reduce potential runoff and non-target exposure. Label updates are being proposed for clarity and to protect terrestrial systems, as per current labelling standards (Appendix IV). With these mitigation measures in place, risks to terrestrial species are considered acceptable.

### **3.2.2 Risks to aquatic organisms**

Foramsulfuron is of low toxicity to aquatic invertebrates, fish, algae, and aquatic plants. A buffer zone of 1 meter for aquatic habitats is included on current product labels. As part of this re-evaluation, no changes to the current buffer zone for the protection of aquatic habitats from spray drift is proposed. Label updates are proposed for clarity and to protect aquatic systems, as per current labelling standards (Appendix IV). With these mitigation measures in place, risks to aquatic and amphibian species are considered acceptable.

### **3.3 Environmental water monitoring**

Foramsulfuron was included for analysis in recent water monitoring programs in Canada. Data from many Canadian sources were available, including Health Canada's pilot program for a long-term, collaborative National-scale Water Monitoring Program for Pesticides (NWMPP). Foramsulfuron was not detected in any Canadian surface water samples.

### **3.4 Environmental incident reports**

As of 12 October 2023, no environment incidents involving foramsulfuron have been reported to Health Canada.

## **4.0 Value assessment**

Foramsulfuron is an important weed management tool for field corn growers who use conventional tillage practice which accounts for certain portion of current field corn production. It provides effective control of quackgrass, which is a troublesome perennial grassy weed causing significant yield losses of field corn.

Foramsulfuron also provides a weed control option in lowbush blueberry production where fescue grasses (for example, fine-leaf sheep fescue, sheep fescue, red fescue and tall fescue) infestation is an issue.

**List of abbreviations**

ADI	Acceptable daily intake
AE F092944	Aminopyrimidine metabolite from the pyrimidine subclass of sulfonylureas
a.i.	active ingredient
ALS	Acetolactate synthase
ARfD	Acute reference dose
d	Day
EEC	estimated environmental concentration
g	gram
ha	hectare
L	litre
LD <sub>50</sub>	Lethal dose, 50%
MOE	Margin of exposure
MRL	Maximum residue limit
NWMPP	National-scale Water Monitoring Program for Pesticides
NOAEL	No-observable-adverse-effect level dose
OECD	Organisation for Economic Co-operation and Development (OECD)
PMRA	Pest Management Regulatory Agency
PPE	Personal protective equipment
PRD	Proposed registration decision
RD	Registration decision
REG	Regulatory note
REI	Restricted-entry interval
RQ	risk quotient
TSMP	Toxic Substances Management Policy
µg	microgram

## Appendix I Registered products containing foramsulfuron in Canada<sup>1</sup>

**Table 1 Products containing foramsulfuron subject to proposed label amendments**

<b>Registration number</b>	<b>Marketing class</b>	<b>Registrant</b>	<b>Product name</b>	<b>Formulation type</b>	<b>Guarantee</b>
<b>27423</b>	<b>Technical</b>	<b>Bayer CropScience Inc.</b>	<b>Foramsulfuron Technical Herbicide</b>	<b>Solid</b>	<b>98.8%</b>
<b>27422</b>	<b>Commercial</b>	<b>Bayer CropScience Inc.</b>	<b>Tribute Solo 32 DF Herbicide</b>	<b>Wettable Granules</b>	<b>Foramsulfuron: 30.0% Iodosulfuron-methyl-sodium: 2.0%</b>
<b>27424</b>	<b>Commercial</b>	<b>Bayer CropScience Inc.</b>	<b>Option 2.25 OD Liquid Herbicide</b>	<b>Suspension</b>	<b>22.5 g/L</b>
<b>27425</b>	<b>Commercial</b>	<b>Bayer CropScience Inc.</b>	<b>Option 35 DF Herbicide</b>	<b>Wettable Granules</b>	<b>35%</b>

<sup>1</sup> As of 2 August 2023, excluding discontinued products or products with a submission for discontinuation.

## Appendix II Registered uses of foramsulfuron in Canada<sup>1</sup>

**Table 1 Registered commercial uses of foramsulfuron in Canada**

Use Site Category	Sites <sup>2</sup>	Weed s	Formu lation type	Applic ation Metho d and Equip ment	Maximum Application Rate <sup>3</sup> (g a.i./ha)		Preha rvest interv al (days)
					Sing le	Cumul ative Per Year	
7 - Terrestrial Non-food and Non-feed Seed and Fibre Crops  13 - Terrestrial Feed crops  14 - Terrestrial Food Crops	Field corn (Eastern Canada and Manitoba only)	Annua l grass and broad leaf weed s	Suspen sion Wetttabl e granule	Ground	15–35.1	35.1	70
14 - Terrestrial Food Crops	Lowbush blueberry Non-bearing year only (Eastern Canada only)	Annua l grass and broad leaf weed s	Suspen sion	Ground	35.1	35.1	Not applic able

<sup>1</sup> As of 2 August 2023, excluding discontinued products or products with a submission for discontinuation

<sup>2</sup> Sites are listed either as stated on the label or as interpreted by Health Canada so as to achieve consistency.

<sup>3</sup> The maximum number of applications is once per year. Note that the maximum number of applications per year was not stated on registered end-use product labels but was interpreted as such by Health Canada based on the label instructions for each end use product.

## Appendix III Environmental assessment (related to pollinators)

**Table 1 Effects of foramsulfuron on pollinators**

Organism	Exposure	Test substance	Endpoint value	Degree of toxicity <sup>a</sup>
Bee	72-h acute contact (adult)	Foramsulfuron (98%)	LD <sub>50</sub> : >100 µg a.i./bee (highest concentration tested) NOED: ≥ 100 µg a.i./bee	Relatively non-toxic (Atkins et al. 1981)
		Option 2.25 SC	LD <sub>50</sub> : > 9.2 µg a.i./bee NOED: = 9.2 µg a.i./bee LOED: > 9.2 µg a.i./bee	Relatively non-toxic up to moderately toxic (Atkins et al. 1981)
		Option 35 DF	LD <sub>50</sub> : > 48.2 µg a.i./bee NOED: = 48.2 µg a.i./bee LOED: > 48.2 µg a.i./bee	Relatively non-toxic (Atkins et al. 1981)
	72-h acute oral (adult)	Foramsulfuron (98%)	LD <sub>50</sub> : > 110.1 µg a.i./bee NOED: = 81.4 µg a.i./bee LOED: = 110.1 µg a.i./bee	Relatively non-toxic (Atkins et al. 1981)
		Option 2.25 SC	LD <sub>50</sub> : > 5.3 µg a.i./bee NOED (mortality): = 1.5 µg a.i./bee LOED: 4.7 µg end-use product/bee	Relatively non-toxic up to moderately toxic (Atkins et al. 1981)
		Option 35 DF	LD <sub>50</sub> : > 9.8 µg a.i./bee NOED (mortality): = 9.8 µg a.i./bee LOED: > 9.8 µg a.i./bee	Relatively non-toxic up to moderately toxic (Atkins et al. 1981)
	10-d chronic (adult)	Foramsulfuron WG 50 W (not registered in Canada)	NOED ≥ 5.2 µg a.i./bee/d	-
	Bee larvae, single exposure	-	NOED ≥ 100 µg a.i./bee	Relatively non-toxic
	4-d Brood study (semi-field)	Foramsulfuron + isoxadifen-ethyl OD 45	NOEL ≥ 60 g foramsulfuron/ha.	-

<sup>a</sup>Toxicity classification in accordance with the USEPA (1985), unless otherwise stated.



Table 2 Risk to pollinators

Organism	Exposure	Test substance	Endpoint value	EEC	RQ
<b>Invertebrates</b>					
Bee	Acute Oral (adult)	Foramsulfuron	LD <sub>50</sub> : > 110 µg a.i./bee	1.002 µg a.i./bee	> 110
		Option 2.25 SC	LD <sub>50</sub> : > 5.3 µg a.i./bee		> 5.3
		Option 35 DF	LD <sub>50</sub> : > 9.8 µg a.i./bee		≥ 9.5
	Acute Oral (larvae)	Foramsulfuron	LD <sub>50</sub> : > 100 µg a.i./bee	0.425 µg a.i./bee	> 235
	Chronic Oral (adult)	Foramsulfuron	NOED: ≥ 5.2 µg a.i./bee/d	1.002 µg a.i./bee	≥ 5.2
	Acute Contact (adult)	Foramsulfuron	NOED: ≥ 100 µg a.i./bee	0.084 µg a.i./bee	≥ 1200
		Option 2.25 SC	NOED: ≥ 9.2 µg a.i./bee	0.084 µg a.i./bee	≥ 109
		Option 35 DF	NOED: ≥ 48.2 µg a.i./bee	0.072 µg a.i./bee	≥ 574

RQ (risk quotient) = Endpoint ÷ EEC.

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## Appendix IV      Proposed label amendment for products containing Foramsulfuron

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

### 1.0      Label amendments for foramsulfuron technical product

On the front panel display change the active ingredient guarantee from 98.8% to 98.2%.

### 2.0      Label amendments for foramsulfuron commercial end-use products

#### A. Under pre-cautions:

1. Replace:

“Wear long sleeved shirt, long pants, socks and footwear during mixing, loading, application, clean-up, and repair. In addition, wear chemical-resistant gloves during mixing, loading, cleanup, and repair.”

With:

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

2. Replace:

“DO NOT enter or allow worker entry into treated areas until residues have dried.”

With:

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

#### B. Under Directions for Use, in the Tank-Mix subsection:

1. Add:

“When tank-mixes are permitted, read, and observe all label directions, including rates and restrictions for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading, and applying stated on both product labels.”

#### C. Under Directions for Use, in the Application subsection:

1. Add:

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

2. Replace:

“DO NOT apply using aerial application equipment.”

With:

“DO NOT apply by air.”

3. Replace:

The whole buffer zone section

With:

“SPRAY BUFFER ZONES

A spray buffer zone is NOT required for uses with hand-held application equipment permitted on this label.

Spray buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Spray Buffer Zones (metres) Required for the Protection of:		
		Aquatic Habitat of Depths		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	
Field sprayer	Corn (Reg. No. 27422, Reg. No. 27425) Corn, lowbush blueberry (Reg. No. 27424)	1	1	1 m (Reg. No. 27422) 5 m (Reg. No. 27424) 10 m (Reg. No. 27425)

When tank mixes are permitted, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.”

**D. Under Environmental Precautions and Information:**

Replace:

“Do not apply in areas where there is a potential for run-off. If rainfall is imminent, delay spraying. Do not apply, drain, or flush spray equipment on or near desirable trees or other plants or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.”

With:

“DO NOT apply in areas where there is a potential for run-off. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.

DO NOT apply, drain, or flush spray equipment on or near desirable trees or other plants or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.”

## References

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3072202	Government of Ontario. Pesticide water monitoring data from the Hudson Bay watershed 2003 – 2019
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PMRA Document Number	Reference
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3490036	USEPA, 2015c. Preliminary Ecological Risk Assessment for Registration Review of 22 Sulfonylurea Herbicides Case Number 0387. August 2015.
3490037	USEPA, 2017. Interim Registration Review Decision for 22 Sulfonylurea (SU) Herbicides. Case Number 0387. June 2017.
3490092	USEPA, 2015d: Drinking Water Exposure Assessment of the Registration Review of 22 Sulfonylurea Herbicides. United States Environmental Protection Agency. 12 August 2015.
3509021	US Environmental Protection Agency's Storage and Retrieval (STORET) data warehouse. Downloaded {June 22 <sup>nd</sup> , 2023}. <a href="#">Water Quality Data Home</a>
3509024	Health Canada Pest Management Regulatory Agency (2023). Downloaded {June 13th, 2023}. <a href="#">National Water Monitoring Program for Pesticides (NWMPP) Data - Open Government Portal (canada.ca)</a>
3517460	Master Water Monitoring Data for Foramsulfuron Re-evaluation (PRD2022)