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Proposed Re-evaluation Decision

PRVD2021-09

Mustard Seed Powder (*Brassica hirta*) and Sodium Alpha-olefin Sulfonate and their Associated End-use Products

Consultation Document

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Proposed re-evaluation decision

Under the authority of the *Pest Control Product 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 safety 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.

Mustard seed powder (*Brassica hirta*) and sodium alpha-olefin sulfonate are registered to control Richardson ground squirrels and Norway rats via a physical mode of action (in other words, asphyxiation/suffocation). They are used in rangeland, ornamental plantings, orchards, golf courses, parks, nurseries and non-crop rights-of-way. These two active ingredients are registered as a co-formulation in both the technical grade active ingredient and the end-use product. The end-use product is applied as foam to the burrows of these animals. Currently registered products containing mustard seed powder and sodium alpha-olefin sulfonate can be found in Appendix I.

This document presents the proposed regulatory decision for the re-evaluation of mustard seed powder and sodium alpha-olefin sulfonate including the proposed risk mitigation measures.

These products also have value in providing a pest management solution. When the current label directions are followed, potential risks to human health (occupational, dietary, residential and bystander) and the environment (aquatic and terrestrial organisms) are considered to be acceptable. However, label updates are proposed to meet the current labelling standards. Mustard is a priority food allergen (Canada, 2017b). Therefore, a label warning statement that the product contains the allergen mustard is proposed. Other updates to standard label statements related to human health (wording around protective eye wear) and the environment (environmental precautions and storage) are also proposed.

Under the authority of the *Pest Control Products Act*, and based on the evaluation of currently available scientific information, products containing mustard seed powder and sodium alpha-olefin sulfonate (listed in Appendix I) are proposed for continued registration in Canada, with the proposed updates to label directions (Appendix II).

All products containing mustard seed powder and sodium alpha-olefin sulfonate registered in Canada are subject to this proposed re-evaluation decision. This document is subject to a 90-day public consultation period, during which the public, including the pesticide manufacturers and stakeholders, may submit written comments and additional information to [PMRA Publications](#). The final re-evaluation decision will be published taking into consideration the comments and information received.

Registered pesticide product labels include specific directions for use. Directions include risk mitigation measures to protect human health and the environment that must be followed by law.

As a result of the re-evaluation of mustard seed powder (*Brassica hirta*) and sodium alpha-olefin sulfonate, no additional risk mitigation measures are proposed by Health Canada.

Next steps

The public, including the registrants and stakeholders, are encouraged to submit comments and information on this proposed decision during the 90-day public consultation period¹ upon publication of this proposed re-evaluation decision.

All comments received during the 90-day public consultation period will be taken into consideration in preparation of the re-evaluation decision document,² which could result in revised risk mitigation measures. The re-evaluation decision document will include the final re-evaluation decision, the reasons for it and a summary of comments received on the proposed re-evaluation decision with Health Canada's responses.

Additional scientific information

Additional scientific data are not required at this time.

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*.

Science evaluation

1.0 Human health assessment

A toxicology review for mustard seed powder and sodium alpha-olefin sulfonates was previously conducted in 2005 (PRDD2005-04). The hazard assessment for mustard seed powder takes into consideration that it is a food grade commodity. Sodium alpha-olefin sulfonates are long-chain sulfonic acids which are also used in cosmetics, beauty products, surfactants and cleansing agents. Sodium alpha-olefin sulfonate is of low toxicity by oral, dermal and inhalation routes. The product is corrosive to the eyes, is moderately irritating to the skin and is not considered to be a dermal sensitizer. No significant systemic toxicity was observed in the subchronic feeding studies in rats or in the carcinogenicity feeding study in rats. The overall weight of evidence supports that sodium alpha-olefin sulfonate is not a carcinogen. No maternal or developmental toxicity was noted in a study conducted in rats. Developmental toxicity was observed at or above maternally toxic doses in mice, and rabbits. Although the PCPA factor was not characterized for sodium alpha-olefin sulfonates, an additional 10-fold factor was applied based on database quality, which is considered protective for the most sensitive human population. For more details on the toxicology assessment, refer to PRDD2005-04 (Canada, 2005).

There are no registered food or feed uses. The currently registered use pattern is expected to result in negligible exposure to the drinking water. Therefore, acute and chronic dietary assessments are not required.

Mustard is a priority food allergen (Canada, 2017a). A label statement is required indicating that the product contains the allergen mustard (Appendix II).

Handlers could be exposed to mustard seed powder and sodium alpha-olefin sulfonates when mixing and applying the end use product. Risks were shown to be acceptable for occupational workers under the current label directions wearing the label required personal protection equipment (protective eyewear (goggles, face-shield), waterproof gloves, a long-sleeved shirt, long pants, and footwear plus socks). However, the label statement is proposed to be updated to meet current labelling standards (Appendix II). No additional mitigation measures are proposed. As the burrow entrance is closed following application of the foam, postapplication exposure is considered minimal and the potential postapplication risk is considered acceptable. A residential assessment is not required since there are no domestic-class end-use products and commercial application to residential areas is not expected. For bystanders, the use of mustard seed powder and sodium alpha-olefin sulfonate is expected to result in minimal exposure. Therefore, no aggregate assessment was required.

2.5 Cumulative assessment

The *Pest Control Products Act* requires that Health Canada considers the cumulative exposure to pesticides with a common mechanism of toxicity. For the current re-evaluation, the PMRA did not identify any information indicating that sodium alpha-olefin sulfonate shared a common mechanism of toxicity with other pest control products. Therefore, there is no requirement for a

cumulative assessment for sodium alpha-olefin sulfonate at this time. Currently, a different species of mustard (oriental mustard seed meal) is registered as a pesticide. However, oriental mustard is registered as a soil fumigant used to suppress soil-borne nematodes and fungal pathogens on various crops such as vegetables, cereals, berries and small fruits, pome fruits and stone fruits, tree nuts and tobacco. Mustard seed powder is used as a rodenticide in rangeland, ornamental plantings, orchards, golf courses, parks, nurseries and non-crop rights-of-way. No domestic products are registered and direct residential exposure is not expected. Therefore, there is no requirement for a cumulative assessment for mustard seed powder at this time.

3.0 Environment risk assessment

Sodium alpha-olefin sulfonate is not expected to be persistent in soil and water and not expected to be mobile. Mustard seed powder is expected to be readily metabolized by soil micro-organisms. Based on the use pattern, the potential for leaching of sodium alpha-olefin sulfonate into groundwater is expected to be low. Sodium alpha-olefin sulfonate and mustard seed powder are not considered as Track 1 substance as they do not meet all the Track 1 criteria as per the Toxic Substances Management Policy.

Use of mustard seed powder and sodium alpha-olefin sulfonate as foam asphyxiants presents an acceptable risk to aquatic organisms as well as terrestrial invertebrates, birds, plants and mammals (Canada, 2005) as the foam is only used in burrows of Richardson's ground squirrel (*Spermophilus richardsonii*) and Norway rats (*Rattus norvegicus*). However, possible exposure and risk to non-target terrestrial animals that inhabit or use vacated burrows was identified.

To minimize the risk of accidental kills of non-target animals, including species-at-risk, label statements are currently required to instruct applicators to observe the potential treatment area before treating burrows to confirm the presence of activity of Richardson's ground squirrels or Norway rats. Inactive or unoccupied burrows are not to be treated. This may be determined, for example, by observing sites early morning and late evening for 24 hours before treating burrows. Applicators must ensure there is no evidence of species-at-risk activity or presence in burrows before treatment. No additional risk mitigation measures are proposed. However, updates to standard label statements (environmental precautions, and storage; information related to species-at-risk) are proposed to meet current labelling standards.

4.0 Other information

In 2017, the Government of Canada completed a Screening Assessment for Alkyl Sulfates and α -Olefin Sulfonate Group (Canada, 2017). The assessment concluded that sodium C14-16 olefin sulfonate does not meet the criteria under paragraph 64(a), (b) and (c) of *Canadian Environmental Protection Act* (CEPA), as it is not entering the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment, human life or health in Canada.

5.0 Incident reports

As of 7 June 2021, no human, domestic animal or environmental incident reports involving mustard seed powder and sodium alpha-olefin sulfonate have been reported to Health Canada.

6.0 Value assessment

Unlike other registered pest control products (for example, anticoagulants), there is no risk of the development of physiological resistance by Norway rats and Richardson's ground squirrels to the product containing mustard seed powder and sodium alpha-olefin sulfonate. It does not require pests to consume baits which may not be attractive to individuals that have developed behavioral resistance (in other words, bait shy) or when alternative food sources to baits are readily available (for example, crops) later in the growing season. It provides faster mortality than bait-based products. It also provides a reduced risk alternative to the fumigant phosphine (aluminum phosphide) to control Richardson's ground squirrels in their burrows.

Appendix I Registered mustard seed powder and sodium alpha-olefin sulfonate products in Canada as of 7 June 2021

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Active Ingredient
29305	Technical Grade Active Ingredient (ISP)	Rodent Control Inc.	Rocon ISP	Emulsifiable Concentrate	BRA 10.89%; SAS 6.91%
27400	Commercial	Rodent Control Inc.	Rocon Concentrate Rodenticide	Emulsifiable Concentrate	BRA 10.89%; SAS 6.91%

BRA: Mustard Seed Powder (*Brassica hirta*)

SAS: Sodium Alpha-Olefin Sulfonate

Appendix II Label updates for products containing mustard seed powder and sodium alpha-olefin sulfonate products

The label amendments presented below do not include all label requirements for the registered end-use product, such as first aid statements, disposal statements, precautionary statements, and supplementary protective equipment. Information on labels of currently registered products should not be removed unless it contradicts the label statements provided below.

For the end use product containing mustard seed powder and sodium alpha-olefin sulfonate:

1. On the front panel, add the following statement

“Warning, contains the allergen mustard”

2. The following statement must be included in a section entitled PRECAUTIONS:

“In addition, wear protective eyewear (goggles or face shield) during mixing and loading application, clean-up.”

3. The following statement must be included in a section entitled ENVIRONMENTAL PRECAUTIONS:

“The foam produced with this product is toxic through asphyxiation to wildlife using burrows. Ensure that only target species are using burrows where this product is applied. Do not apply to burrows occupied by non target species, including species at risk or endangered species. Follow instructions under Directions for Use.”

Under ENVIRONMENTAL PRECAUTIONS, remove the following statement “Do not contaminate aquatic habitats, such as lakes, rivers, sloughs, ponds, coulees, prairies potholes, creeks, marshes, streams, reservoirs and wetlands, when cleaning and rinsing equipment or containers”

4. The following statements must be included in a section entitled DIRECTIONS FOR USE:

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

Under USE RESTRICTIONS, remove “Consult your provincial regulatory agency to determine specific requirements in your area” and replace with

“For information on Species at Risk in your area, contact your provincial or federal wildlife officials.”

5. The following statement must be included in a section entitled STORAGE:

“Store this product away from food or feed”

References

PMRA#	Reference
1080060	Canada, 2005, Proposed Regulatory Decision Document, PRDD2005-04, EXIT™ ISP
3196122	Canada, 2017a, Screening Assessment Alkyl Sulfates and α -Olefin Sulfonate Group
3196120	Canada, 2017b, Mustard - A priority food allergen