Proposed Re-evaluation Decision PRVD2023-03

Sodium Chloride and Its Associated End-use Products

Consultation Document

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Proposed re-evaluation decision

Under the *Pest Control Products Act*, all registered pesticides must be re-evaluated regularly by Health Canada's Pest Management Regulatory Agency (PMRA) to ensure that they continue to meet health and environmental safety standards and continue to have value. The re-evaluation considers data and information from various sources such as information from pesticide manufacturers, incident reports, and other regulatory agencies. Health Canada applies internationally accepted risk assessment methods, risk management approaches and policies to all re-evaluations.

This document presents the proposed regulatory decision for the re-evaluation of sodium chloride, including any proposed amendments (risk mitigation measures) to protect human health and the environment, as well as the science evaluation on which the proposed decision is based.

Sodium chloride is a post-emergent herbicide applied as a directed spray to control weeds on non-cropland sites which include roadsides, highways, walkways, vacant lots, industrial sites, parks, playgrounds, cycleways, driveways, residential lands, sidewalks, pathways, and rights-of-way. Application of sodium chloride results in a loss in turgor pressure in the target plants through the rapid loss of water from the plant leaf cells, leading to the desiccation of the plant tissue. Currently registered products containing sodium chloride are listed in Appendix I.

Based on available information, products containing sodium chloride were shown to have value in providing a pest management solution, and potential risks to human health (occupational, dietary, residential, and bystander) and the environment are considered to be acceptable when the proposed label directions are followed. Labels of registered pesticide products include specific directions for use. Directions include risk-reduction measures to protect human and environmental health and must be followed by law. As a result of the re-evaluation of sodium chloride, label updates, including standard drift statements, personal protective equipment (PPE), updated buffer zone label statements, and standard precautionary label statements are being proposed to meet current labelling standards and to improve clarity (Appendix II).

Under the authority of the *Pest Control Products Act* and based on an evaluation of currently available scientific information, products containing sodium chloride (Appendix I) are being proposed for continued registration in Canada, with the proposed label updates (Appendix II).

All products containing sodium chloride registered in Canada are subject to this proposed re-evaluation decision. This document is subject to a public consultation,[1] during which written comments and additional information may be submitted to PMRA Publications. The final re-evaluation decision will be published taking into consideration the comments and information received during the consultation period.

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

Next steps

The public, including the registrant and stakeholders, are encouraged to submit written comments and additional information during the 90-day public consultation period 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.

Other information

When Health Canada makes its re-evaluation decision, it will publish a Re-evaluation Decision on sodium chloride (based on the Science Evaluation of PRVD2023-03). In addition, the test data referenced in this consultation document will be available for public inspection, upon application, in the PMRA's Reading Room.

Additional scientific information

Additional scientific data are not required at this time.

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

Science evaluation

Sodium chloride is a contact herbicide and is applied to weeds at early growth stages. Commercial class products containing sodium chloride are used to control weeds on non-cropland sites which include roadsides, highways, walkways, vacant lots, industrial sites, parks, playgrounds, cycleways, driveways, residential lands, sidewalks, pathways, and rights-of-way. They are applied using a sprayer with directed jets (hand-held nozzle or boom), or a conventional tractor with spray-mount fixed boom. Domestic class products are used to control weeds on residential land (lawns) along driveways, walkways, and in vacant lots, and are applied via ready to use spray containers, backpack sprayers or atomizer bottles.

1.0 Human health assessment

Sodium chloride in the registered technical products meets the classification of food grade (Canada, 2006a) according to the Food Chemicals Codex (FCC). Toxicological and exposure assessment was conducted and detailed in PRDD2006-01 and Evaluation Report (Canada, 2006a, 2013) for sodium chloride and are summarized below.

Sodium chloride is of low acute toxicity via the oral, dermal, and inhalation routes, minimally irritating to the eyes, non-irritating to slightly irritating to the skin and not considered a dermal sensitizer (Canada, 2006a). Precautionary statements to avoid contact with eyes and skin are currently on all product labels.

Workers can be exposed to sodium chloride while handling or applying the commercial end-use products. Exposure is expected to be by the dermal and inhalation routes. To align with current standards, workers will be required to wear personal protective equipment (PPE) to mitigate potential exposure: “Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab.” With the proposed PPE, potential risk to occupational workers is considered acceptable. Based on the current use pattern, and low toxicity potential, post-application risk is expected to be minimal and considered acceptable.

There is potential for bystander and post-application residential exposure from the application of commercial class sodium chloride products. As such, a standard drift label statement is proposed for all commercial class products as a best practice to reduce potential exposure, “Apply only when the potential for drift to non-target areas of human habitation and human activity is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.”

There is potential for residential (handler and post application) exposure to sodium chloride from the use of domestic class products. To align with current standards, a drift label statement is proposed for all domestic class products as a best practice to reduce potential residential exposure to people and domestic pets: “This product should not be applied in a way that will contact other people or domestic pets, either directly or through drift.”

Based the current use pattern and the inherent low toxicity of sodium chloride, risks to workers, residential users, bystanders and individuals in residential areas are considered acceptable when products containing sodium chloride are used according to the proposed label directions and precautions.

Sodium chloride is not registered in Canada for food or feed uses, and contamination of drinking water sources is expected to be minimal. Therefore, dietary exposure to sodium chloride resulting from pesticidal uses is expected to be minimal and considered acceptable under the current conditions of use.

Aggregate exposure is the total exposure to a single pesticide that may occur from food, drinking water, residential, and other non-occupational sources, and from all known or plausible exposure routes (oral, dermal, and inhalation). Under the current conditions of use, dietary (food and drinking water) exposure is expected to be minimal and the potential risk from residential and bystander exposure is considered acceptable. Thus, risk from aggregate exposure to sodium chloride is also considered to be acceptable.

The *Pest Control Products Act* requires that Health Canada consider the cumulative exposure to pesticides with a common mechanism of toxicity. While sodium chloride may share a common moiety with other sodium salt-containing active ingredients, the potential risks from cumulative exposure to sodium chloride and other sodium salt pest control products are acceptable given the inherent low toxicity profile of sodium chloride. Therefore, a cumulative assessment for sodium chloride is not required at this time.

2.0 Environment assessment

Sodium chloride is highly soluble in water and will not bioaccumulate. It is relatively non-volatile under field conditions from water and moist soil surfaces. Since sodium chloride is an inorganic molecule, no breakdown beyond dissociation of the molecule will occur. Sodium chloride is not subjected to other transformation processes such as hydrolysis, phototransformation, and biotic transformation. Dissipation of sodium and chloride ions can occur through leaching and runoff and to some extent through plant uptake. Under most Canadian conditions, accumulation of sodium and chloride ions in soil and/or contamination of surface water from the use of sodium chloride as a herbicide is expected to be minimal (Canada, 2006a).

Sodium chloride is not considered a Track 1 substance as it does not meet all of the criteria as per the Toxic Substance Management Policy (Canada, 2006a).

Birds and mammals may consume vegetation or water containing sodium chloride as a result of spray application. However, the risk is expected to be mitigated by the ability of birds and mammals to have access to uncontaminated drinking water under field conditions during the time of application (late spring through to early fall). Consumption of uncontaminated drinking water is expected to offset any potential toxicity through “flushing” of ingested sodium chloride. Furthermore, ingestion of solid forms of sodium chloride as a herbicide by birds and mammals is not anticipated since the registered products are applied as spray solutions (Canada 2006a).

There is potential for exposure to non-target terrestrial plants and aquatic organisms from the use of sodium chloride as a herbicide. Buffer zones are currently stipulated on labels for commercial class products to mitigate potential risk to aquatic organisms and terrestrial plants in certain use sites including rights-of-way, vacant lots, industrial sites, and turfgrass (Canada, 2013). Updates to the buffer zone label statements are proposed to meet current standards and for clarity. In addition, standard precautionary label statements to caution users of potential hazards to terrestrial and aquatic organisms are proposed for all end-use products (Appendix II). Under field conditions, the potential risk to non-target organisms is considered acceptable with the proposed label updates.

3.0 Incident reports

As of 22 February 2023, no human, domestic animal, or environmental incident reports involving sodium chloride as a pesticide have been reported to Health Canada.

4.0 Value assessment

Sodium chloride is a non-selective contact herbicide. It desiccates emerged broad-leafed weedsby causing a loss in turgor pressure in the target plants through the rapid loss of water from cells within plant leaves. Sodium chloride has acceptable value as an active ingredient in nonconventional pesticidal products.

Appendix I Registered products in Canada containing sodium chloride

Table 1 Registered products containing sodium chloride[3]

Registration number	Marketing class	Registrant	Product name	Formulation type	Active ingredient (%)
28235	T	Herbanatur Inc.	Sodium Chloride Technical	Soluble granules	99.86
29189	T	G.D.G. Environnement Ltee	Sel de Qualité Technique	Soluble granules	99.86
28236	C	Herbanatur Inc.	Adios Ambros Water Soluble Granule	Soluble granules	99.86
29190	C	G.D.G. Environnement Ltee	Ragweed Off	Soluble granules	99.86
30940	C	Herbanatur Inc.	A.D.I.O.S.	Soluble granules	99.86
30406	D	Herbanatur Inc.	Adios Ready to Use Weed Killer	Solution	12
31491	D	Herbanatur Inc.	A.D.I.O.S. Weed Killer Concentrate	Solution	26
34305	D	Herbanatur Inc.	A.D.I.O.S. WSG Weed Killer	Soluble granules	99.86

T – Technical, C –Commercial, D – Domestic

[3] Excluding discontinued products or products with a submission for discontinuation as of 22 February 2023.

Appendix II Proposed label amendments for products containing sodium chloride

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

For all products:

I. On the principal display, remove "Guarantee" and replace with "Active Ingredient".

For commercial class products:

I. Under PRECAUTIONS, add the following statements:

"Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab."

"Apply only when the potential for drift to non-target areas of human habitation and human activity is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings."

II. Replace "ENVIRONMENTAL HAZARDS" with "ENVIRONMENTAL PRECAUTIONS"

III. Under ENVIRONMENTAL PRECAUTIONS, add the following statements:

"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."

"TOXIC to aquatic organisms and non-target terrestrial plants."

"TOXIC to birds and small wild animals."

IV. Under DIRECTIONS FOR USE, add the following statement:

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

And replace the following statement:

"DO NOT apply using aerial application equipment."
With
"DO NOT apply by air."

V. For Registration Number 29190, under Buffer zones:

Remove the following statement:

"For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not require; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g., wind direction, low wind speed) and spray equipment (e.g., coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats."

Replace the current buffer zone table with the table below:

Method of application	Buffer zones (meters) required for the protection of:				
	Freshwater habitat of depths:		Estuarine/Marine habitats of depths:		Terrestrial habitat
	Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	**1**	**0**	**1**	**0**	**1**

Remove the following statement:

"*Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including roadsides, highways and pathways."

For domestic class products:

I. Under the PRECAUTIONS section, add the following statements:

"Do not apply this product in a way that will contact other people/domestic pets, either directly or through drift."

II. Replace "ENVIRONMENTAL HAZARDS" with "ENVIRONMENTAL PRECAUTIONS"

III. Under ENVIRONMENTAL PRECAUTIONS, add the following statements:

"TOXIC to aquatic organisms and non-target terrestrial plants."

"TOXIC to birds and small wild animals."

"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."

IV. Under DIRECTIONS FOR USE, add the following statements:

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

"DO NOT apply to any body of water."

V. Under STORAGE, add the following statement:

"Store this product away from food or feed."

References

PMRA Document Number	Reference
	Canada, 2006a. Proposed Regulatory Decision Document – Sodium Chloride. PRDD2006-01.
	Canada, 2006b. Regulatory Decision Document – Sodium Chloride. RDD2006-06.
2228367	Canada, 2013. Evaluation Report for Category B, Subcategory B.3.1, B.3.11, B.3.3, C3.15 and C8.1 Application. Application Number 2012-2212. A.D.I.O.S., Registration Number 30940.