Proposed Maximum Residue Limit PMRL2026-02

1-Methylcyclopropene

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For further information, please contact:

Publications

Pest Management Regulatory Agency
Health Canada

2 Constellation Drive
8th floor, A.L. 2608 A
Ottawa, Ontario K1A 0K9

Internet:

canada.ca/pesticides
pmra.publications-arla@hc-sc.gc.ca

Information Service:

1-800-267-6315
pmra.info-arla@hc-sc.gc.ca

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Purpose of consultation

Maximum residue limits (MRLs)[1] are being proposed for the pesticide 1-methylcyclopropene, as part of the following applications for Canadian use, under submission numbers 2022-0620 and 2024-1657.

Under the authority of the *Pest Control Products Act*, Health Canada's Pest Management Regulatory Agency (PMRA) is proposing acceptability of the requested applications to add various commodities to the product label of HarvestHold Fresh containing technical grade 1-methylcyclopropene to extend the life (in other words, delay the ripening or maturing) of the produce at postharvest. The specific uses approved in Canada are detailed on this product label, *Pest Control Products Act* Registration Number 35071.

The evaluation of these 1-methylcyclopropene applications indicated that the end-use product has value, and the human health and environmental risks associated with the new uses are acceptable. Dietary risks from the consumption of foods listed in Table 1 were shown to be acceptable when 1-methylcyclopropene is used according to the supported label directions. Therefore, foods containing residues resulting from this use are safe to eat, and MRLs are being proposed as a result of this assessment. A summary of the residue data used to support the proposed MRLs can be found in Appendix I.

Dietary health assessment

In assessing the risk of a pesticide, Health Canada combines information on pesticide toxicity with information on the degree and duration of dietary exposure to the pesticide residue from food. The risk assessment process involves four distinct steps:

1) Identifying the toxicology hazards posed by the pesticide;
2) Determining the "acceptable dietary level" for Canadians (including all vulnerable populations), which is protective of adverse health effects;
3) Estimating human dietary exposure to the pesticide from all applicable sources (domestic and imported commodities); and
4) Characterizing health risk by comparing the estimated human dietary exposure to the acceptable dietary level.

Before registering a pesticide for food use in Canada, Health Canada must determine the quantity of residues that could remain in or on the food when the pesticide is used according to label directions and that such residues will not be a concern to human health (Steps 3 and 4). If estimated human exposure is less than or equal to the acceptable level (developed in Step 2), Health Canada concludes that consuming residues resulting from use according to approved label directions is not a health concern. The proposed MRL is then subject to consultation to legally specify it as an MRL. An MRL applies to the identified raw agricultural food commodity as well as to any processed food product that contains it, except for certain instances where different MRLs are specified for the raw agricultural commodity and its processed product(s).

[1] A maximum residue limit (MRL) is the maximum amount of residue that may remain in or on food when a pesticide is used according to label directions.

Consultation on the proposed MRLs for 1-methylcyclopropene is being conducted via this document. Health Canada invites the public to submit written comments on the proposed MRLs for 1-methylcyclopropene in accordance with the process outlined in the How to get involved Section of this document.

To comply with Canada's international trade obligations, consultation on the proposed MRLs is also being conducted internationally by notifying the World Trade Organization, as coordinated by the Canada's Notification Authority and Enquiry Point.

Proposed MRLs

The proposed MRLs, to be added to the MRLs already established for 1-methylcyclopropene, are summarized in Table 1.

Table 1 Proposed maximum residue limits for 1-methylcyclopropene

Common name	Residue definition	MRL (ppm)[1]	Food commodity
1-Methylcyclopropene	1-methylcyclopropene	0.01	Avocados, bell peppers, broccoli, cantaloupes, cucumbers, peaches

[1] ppm = parts per million

MRLs established in Canada may be found using the Maximum Residue Limit Database on the Maximum residue limits, human health, and food safety webpage. The database allows users to search for established MRLs, regulated under the *Pest Control Products Act*, both for pesticides or for food commodities.

International situation and trade implications

Table 2 compares the MRLs proposed for 1-methylcyclopropene in Canada with corresponding tolerances in the United States (U.S.) and Codex MRLs[2]. U.S. tolerances are listed in the Electronic Code of Federal Regulations, 40 CFR Part 180, by pesticide. Currently, there are no Codex MRLs listed for 1-methylcyclopropene in or on any commodity on the Codex Alimentarius Pesticide Index webpage.

[2] The Codex Alimentarius Commission is an international organization under the auspices of the United Nations that develops international food standards, including MRLs.

Table 2 Comparison of proposed Canadian MRLs, U.S. tolerances and Codex MRLs

Food commodity	Proposed Canadian MRL (ppm)	Esstablished U.S. tolerance (ppm)	Established Codex MRL (ppm)
Avocados, bell peppers, broccoli, cantaloupes, cucumbers, peaches	0.01	Not Established[1]	Not Established

ppm = parts per million

[1] exempt from the requirement of a U.S. tolerance in or on fruits and vegetables when used as a post harvest plant growth regulator (in other words, for the purpose of inhibiting the effects of ethylene)

How to get involved

Health Canada invites the public to submit written comments on the proposed MRLs for 1-methylcyclopropene up to 75 days from the date of publication of this document (by 11 April 2026). Please forward your comments to the Pest Management Regulatory Agency Publications Section. Health Canada will consider all comments received and a science-based approach will be applied in making a final decision on the proposed MRLs. Comments received will be addressed in a response to comments document found in Pesticides and pest management consultations. The established MRLs will be legally in effect as of the date that they are entered into the Maximum Residue Limit Database.

Appendix I

Summary of data used to support the proposed maximum residue limits

Previously assessed apple and avocado metabolism data, and residue studies on apples on file (conducted at proposed and exaggerated rates) were re-assessed in the context of these petitions. A broccoli residue study (conducted at proposed rates) was also assessed in the context of the current petitions.

Dietary risk assessment results

The available data indicates that 1-methylcyclopropene is rapidly absorbed and metabolized, and is considered to be of low acute toxicity by the oral, dermal, and inhalation exposure routes. Based on the toxicological data available, no reference values have been established for 1-methylcyclopropene. A qualitative dietary risk assessment was performed, and health risks were determined to be acceptable for the general population and all population subgroups.

Maximum residue limits

The recommendation for maximum residue limits (MRLs) for 1-methylcyclopropene was based upon the previously assessed and submitted residue data, and the principles of the Organisation for Economic Co-Operation and Development (OECD). Table A1 summarizes the residue data for 1-methylcyclopropene used to determine the proposed MRLs for avocados, broccoli, peaches, cantaloupes, cucumbers and bell peppers.

Table A1 Summary of data used to support the MRLs

Commodity	Application rate (ppm)	Preharvest interval (days)	Average residues (ppm)
Apples	1.2	0	0.009
	4	0	0.0153
Avocados	0.5	0	0.004
Broccoli	4	0	0.032

ppm = parts per million

Following the review of all available data, the MRLs proposed in Table 1 are recommended, in order to cover residues of 1-methylcyclopropene. While the 1-methylcyclopropene residue estimates in apples and broccoli are slightly above 0.01 ppm, these values are from studies in air tight containers. In reality, the produce boxes are vented and have constantly changing air environments as they move through the supply chain; thus, residue levels of 1-methylcyclopropene are not expected to exceed 0.01 ppm.

Overall, dietary risks from exposure to residues of 1-methylcyclopropene in these crop commodities at the proposed MRLs were shown to be acceptable for the general population and all subpopulations, including infants, children, adults and seniors. Thus, the foods that contain residues as listed in Table 1 are considered safe to eat.

References

None