Environmental Protection Authority
Te Mana Rauhī Taiao

Te Kāwanatanga o Aotearoa
New Zealand Government

Submission form: Reassessment of chlorpyrifos

Overview

The EPA has initiated a full reassessment of chlorpyrifos because information about its human health and environmental risks suggests the risks from its use outweigh the benefits.

The approvals for chlorpyrifos and chlorpyrifos-containing substances will be reassessed under section 63 of the Hazardous Substances and New Organisms Act 1996 (HSNO Act).

Chlorpyrifos is an insecticide from the organophosphate group. In New Zealand, it's used to control a broad range of insect pests on plants. It can only be used by professionals.

We propose to ban the use of chlorpyrifos by revoking its approvals. The ban would mean chlorpyrifos can no longer be imported, manufactured or used in New Zealand.

We now assess that the risks outweigh the benefits. That's because:

- the levels of exposure considered to pose risks for human health are now 10 times lower
- as a result, most uses now have human health risks that can't be mitigated
- all uses have environment risks.

Risks we've identified include:

- human health risks for spray operators and workers re-entering sprayed sites for most use patterns, and for bystanders for some use patterns
- environmental risks, particularly to birds, bees and the aquatic environment.

We also propose that the benefits of using chlorpyrifos are decreasing because other international regulators are reviewing and restricting its use or have already done so.

Risk and benefits assessments

The assessment of risks and benefits are described in the staff assessment document "Staff assessment report – the application to reassess chlorpyrifos".
https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP204694/APP204694-Chlorpyrifos-staff-assessment-report.pdf

A quantitative assessment of human health risks has also been undertaken. This can be found in the document "Science memo: APP204694 chlorpyrifos"
https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP204694/APP204694_Science_memo_-chlorpyrifos.pdf

The full set of application documents can be found here:

HSNO application register | EPA

It may also be useful for submitters to be familiar with the previous assessment of chlorpyrifos which occurred as part of the 2013 Reassessment of Organophosphates and Carbamate Plant Protection Substances (APP201045). These documents can be found here: https://www.epa.govt.nz/database-search/hsno-application-register/view/APP201045

Feedback we're seeking

We'd like to get your feedback on our proposal to ban chlorpyrifos. To help prompt your responses we have asked questions for you to consider. We also welcome any general feedback on the reassessment.

While we will consider all information provided in submissions, we would like to encourage the submission of quantitative data on:

- the risks of chlorpyrifos
- mitigations for these risks
- benefits of chlorpyrifos (where possible, the specific benefit due to chlorpyrifos, including economic benefits)
- costs if chlorpyrifos can't be used, including the costs of replacing chlorpyrifos with alternatives.

Submissions close at 5.00 pm on 12 February 2025.

Publishing submissions

All submissions (including submitter names) will be published on our website at www.epa.govt.nz. We will not publish any personal contact details.

Confidential information

If you think your submission contains confidential information, please make this clear in your submission. Reasons may include, for example, that the information discloses commercially sensitive information.

If you would like more information about how we treat confidential information, see the section Supplying confidential or commercially sensitive information under the HSNO Act on our website.

Privacy statement

The EPA is collecting your personal information for the purpose of considering feedback on the proposals in this document. We will store your personal information securely. We may use your contact details to contact you about your submission if necessary. You have the right to access the personal information we hold about you and to ask for it to be corrected if it is wrong. If you

would like to access your personal information, or have it corrected, please contact us at info@epa.govt.nz.

Official information

The Official Information Act 1982 (OIA) applies to all information held by the EPA (subject to section 55 of the Hazardous Substances and New Organisms Act 1996), and information may be released under the OIA unless there are grounds to withhold it. Further information on the OIA is at www.ombudsman.parliament.nz

Submitter details

(All fields are required)

Title: PSGR New Zealand

Organisation name or submitter name: Physicians and Scientists for Global Responsibility

Contact person (for organisations only): Jodie Bruning

Email address: info@PSGR.org.nz

If no email address, please provide either a postal address or a telephone number:
Click or tap here to enter text.

Your submission

(All fields are required)

Please indicate whether you intend to present on behalf of your submission if a hearing is held for this application[1]

☐ I wish to present on behalf of my submission

☒ I do not wish to present on behalf of my submission.

Are the views expressed on behalf of an individual or an organisation?

☐ I am expressing my own personal views

☒ I am expressing the views of a company, organisation, or business group

[1] In accordance with section 60 of the HSNO act a hearing may be held if
(a) the Authority considers that a hearing is necessary; or
(b) the applicant has made a written request to the Authority for a hearing; or
(c) a person who has made a submission stated in that submission that he or she wishes to be heard and has not subsequently advised that he or she does not wish to be heard.

Please indicate which submitter group(s) you belong to:

☐ HSNO enforcement agency

☐ Central government agency

☐ Local government

☐ Industry group

☐ Iwi representative

☐ Researcher

☐ Importer

☐ Manufacturer

☐ Retailer

☐ Private business

☐ Indivdiual

☒ Other

Charity – health and environment research

Questions about the reassessment of chlorpyrifos

1. Do you agree with the EPAs proposal to revoke the approvals for chlorpyrifos?

☒ Yes

☐ No

☐ Agree or oppose in part (provide comment)

Click or tap here to enter text.

2. What are your comments on the risks of chlorpyrifos? Please provide information in support of your assessment or comments on the risks associated with chlorpyrifos. Where possible provide quantitative risk assessment and/or quantitative information which supports and/or is evidence of your consideration of these risks.

Chlorpyrifos (CPY) is a well established developmental neurotoxin. The evidence that supports this is contained 50 years of toxicological and epidemiological research. The primary risk concerns risks to pregnant women and children who live on, or near sprayed sites, or pregnant women working in and around sprayed sites, including nurseries, crops, turf, sprayed fields for pasture and arable cropping and publicly accessible areas.

The risk is extensive and cannot be contained, and there is evidence that very low exposures are associated with developmental harm and reduced IQ. Please see our attached appendices discussing the extent of studies already considered by global regulators.

3. **What are your comments on the estimated benefits of chlorpyrifos containing substances? Please provide information on any benefits you have identified. Where available please provide quantitative information and where possible provide information which indicates the specific contribution to these benefits that is attributable to the use of chlorpyrifos.**

The estimated benefits cannot be weighted against the risks. There are substitute products that confer far less toxicity, particularly to pregnant women and children.

4. **What are your comments on the assessed impacts of chlorpyrifos approvals, and the proposal to revoke these approvals, on Māori? Please provide information on any impacts you have identified. Where possible provide information which indicates the specific contribution to these impacts which is attributable to the use of chlorpyrifos and/or the impact of these substances becoming unavailable.**

For far too long Māori farmworkers and growers and their families have been exposed to CPY. This is exacerbated by New Zealand lagging other jurisdictions to start the revocation of CYP process, and now, taking a long time for consultation.

5. **What are your comments on the estimated costs of the proposed revocation of chlorpyrifos approvals? Please provide information on any costs you have identified. Where possible provide information which indicates the specific contribution of chlorpyrifos being unavailable to these costs, or the specific costs of replacing the use of chlorpyrifos with any available alternative.**

Resistance of agricultural chemicals (not just herbicides) is far more common than publicly acknowledged. Increasing toxicity of insecticides to cope with insect resistance, to substitute, diazinon, or clothianidin, use of which are banned elsewhere, or restricted from outdoors use, presents a trade-related risk. FAR acknowledges that the market is driving NZ away from more toxic ‘solutions’, as New Zealand is not a leader in stewarding highly toxic chemicals, we will be a follower of offshore regulatory decisions.

New Zealand is not a leader in soil nutrition – because our science funding channels directs science away from basic science to applied research.Scientists will then spend years addressing a technical solution, as funding pathways permit this.

[1] If brassica growers are concerned about costs PSGR recommend that ozone (O3) treatment is considered. O3 reduces fungal infection and insect populations, while promoting growth, producing larger brassicas. We have added this information as part of our appendices. New biologics used by the organics sector, in addition to focusing on soil biology support a shift away from toxic insecticides.

[2] Porina and grassgrub. Please note demanding ‘specific costs’ is disingenous when government policies deter scientific research for low cost options for farmers. This is because research proposals will be pushed down the funding ladder if there is no ‘innovation’ and potential IP as an outcome. If NZEPA are interested in alternative practices, and moving away from chemicals which insect populations develop resistance to, which are bioaccumulative, toxic and persistent, NZEPA will consider the information that follows:

If livestock and arable farmers are concerned about porina and grassgrub infestations they have an opportunity to examine management practices and address soil health – from the physical structure, to chemical/elemental composition, and pore spaces for water and oxygen. The relationship of lime – calcium/magnesium is underemphasised with lime/magnesium deficiency a more common problem (as a driver of poor outcomes) than recognised. Often because the bioavailable calcium is not assessed or known.

The New Zealand soil (math units) test result can be significantly improved from current benchmarks. Other tests are reasonably accurate and not a problem in terms of accuracy of levels of content. The problem that requires addressing is the issue of fertiliser company advice to laboratories. There is evidence that the advice that various fertiliser companies give soil test laboratories, where to draw the lines on the chart that indicates whether farmers are in a low/med/high bracket may not reflect best available evidence for New Zealand farmers. For example for phosphorous, magnesium, calcium etc. Tests that fertiliser companies give for free – we believe - establish lines where they state there is a low or high level of deficiency to sell more of what they want to sell. We are concerned that this may be misleading and not reflect a large body of scientific evidence.

This particularly concerns the importance of calcium, and the ratio of calcium to magnesium to ensure optimum bioavailability in soil. In New Zealand the Albrecht test has been roundly vilified for 30 years and the scientific evidence that supports the reasoning for the Albrecht test, not addressed and dismissed. Scientists, policy-makers and scientists will not be aware of why the Albrecht test emphasises a 7:3 Ca:Mg ratio. At a physics level – due to the the charge and size of these cations, the ideal ratio of these 2 major positively charged cation charges in the soil produces beneficial effects in addition to the only parameter New Zealand agriculture seem to focus on (soil acidity) – this fundamental change impacts whether the soil is – or is not – a hostile environment for grassgrub and porina. Nothing else compares in charge and size in the soil. Calcium and magnesium tend to repel each other. In an entire soil profile of several metres, (noting that calcium is the heaviest molecule) these are the most heavily charged particles in soil – Ca^{2+} and Mg^{2+} - both cations, repel each other. This effect, creating a distance of repelling throughout the soil, produces microscopic and measurable effects in terms of results and microbial response, and through this process, creates more air in the soil. This includes, infiltration, microbial response, and soil health.

New Zealand does not view lime in this capacity, to open soil and feed beneficial fungi – New Zealand agriculture tends to exclusively view calcium as an alkalising agent, to pull soi pH back to something more neutral. Liming is solely based on pH correction. But, for example, PSGR suggest that pH levels closer to 6.4 or 7 may prove better for other factors other than (and as well as) correcting soil acidity and arresting pH. Superphosphate cannot achieve this effect.

In addition, chlorpyrifos (with phosphate) holds the potential to locks up (bind to) a certain amount of available calcium in the soil. PSGR emphasises that the conventional stripping chemicals (mining assay) used on soil tests advises farmers and growers of the total amount of calcium which could be stripped out. We emphasise that this does not equate to total bioavailable calcium for required for both microorganisms and plants.

The mining assay is not an availablility measure. We emphasise that detected calcium may be microbially unavailable – not only plants but beneficial fungi need calcium. Farmers and growers will observe increasingly hardened soils that become crusty and hydrophilic, developing a water infiltration problem. This increases vulnerability in dry seasons and droughts. Long term agricultural research funding for soil-based drought preventative management practices does not exist despite climate variation being an acknowledged issue. The problem of bioaccumulation of heavy metals in soil, including cadmium from synthetic fertiliser and glyphosate formulations (heavy metals including cadmium and lead are a component of the formulation - Defarge et al 2018) exacerbates nutrient depletion.

Unfortunately MBIE through its science policy and funding process have created barriers to basic science research funding to critically examine this in terms of global best practice and test against broader outcomes. Our science institutions should have capacity to review 'alternative' soil test options, available both in New Zealand, for example to review the experiences of farmers and advisers using the Albrecht method, but also exploring how how the Ecofarm soil test, and overseas (for example, but not limited to, the Perry Agricultural Laboratory (Missouri) soil test) might compare, and the optimum mineral levels advised. Study outcomes could include milk yield, quality increases, reproduction/ lifetime births for a dairy cow, relationship between sugar levels and insect populations.

6. What are your comments on the estimated costs of retaining chlorpyrifos approvals and ongoing use of substances which contain this active ingredient? Please provide information on any costs you have identified. Where possible provide information which indicates the specific contribution of chlorpyrifos to these costs

Risk from contamination in export meat of chloryprifos and the primary metabolite may present a trade-related risk if that product is shipped into markets such as the European Union where CYP is banned. Lamb/sheep meat may be especially vulnerable to contamination due to bioaccumulation in meat fat.

Please see answer to (5).

7. What are your comments on the overall assessment of risks, benefits, impact to Māori, costs, and any other effects of chlorpyrifos substances over their lifecycle. If not already provided in evidence for a previous question, please provide evidence to support your comments.

As above.

8. Do you have any comments on the proposed revocation timeframe? If yes, please explain.

☒ Yes

☐ No

The long feedback time of 3 months is unusual, and PSGR consider that the long 'go-slow' time to consult, then disseminate the information and come to a finding is designed to pacify the industry applicants. NZEPA lags behind OECD nations in revoking chlorpyrifos. By the time these processes have filtered through, and a transitional phase-out period of 6 months, we presume this could be end of 2025.
The tentativeness of the NZEPA, is in part due to a long-standing siloed culture that is enhanced by the absence of funding and resourcing for research into soil, plant and animal management using integrated pest management processes which reduce dependence on hazardous chemicals.
As there is no open crosstalk between the agency and independent research institutions, and restricted funding for long-term independent research institutions for agricultural research unless connected to IP-related development, the default for NZEPA is an unfortunate, and persistent dependence on chemical-industry facing and financed organisations and representative groups. This comes to the fore in consultation periods when NZEPA struggles to weigh non-industry information and evidence. This was evidence in the glyphosate Call, where the NZEPA could not disentangle itself from claims relating to herbicide resistance, even though herbicide resistance is resulting in increasingly toxic tank mixtures, which are applied into the environment, yet never assessed for formulation toxicity.
The status quo has produced a culture where NZEPA is increasingly recognised as a low-bar regulator. Although New Zealand attempts to represent itself as clean and green, the chemical industry identifies New Zealand as an early entry point for both higher, more concentrated formulations of hazardous chemicals and substances that would not be permitted, eg. in Europe, and a laggard in revoking products that are found in Europe to be persistent, bioaccumulative and toxic.

9. What are your comments on the additional controls proposed to be applied to the approval before the revocation is proposed to take effect? Please provide details, including suggestions on any controls that should be added or removed, the change in risk mitigation that these controls would have and any comments on potential barriers to compliance.

PSGR urge IMMEDIATE cessation in public areas where pregnant women and children may be exposed; and an immediate instruction for an added sticker on labels to workplaces (cropped areas, fumigation sheds etc) and areas where turf is publicly accessible, such as golf courses, to warn pregnant women from entering for two weeks after treatment.

10. If chlorpyrifos approvals were retained would your comments on the controls which should be applied to these approvals change. Please provide details including suggestions on any controls that should be added or removed, the change in risk

mitigation that these controls would have and any comments on potential barriers to compliance.

We ask that NZEPA do not capitulate and replicate Australian practices to permit chlorpyrifos on brassica and pasture including forage crops. Use on brassicas can be revoked, due to demonstrated use of O3 as a substitute product for over a decade in the Bay of Plenty. Authorisation for pasture use must be withdrawn and we urge New Zealand not to backslide from the initial proposal to revoke all uses, and not replicate Australia's pasture/forage permissions. NZEPA can also draw on common scientific knowledge that insect resistance to chemical insecticides is common. EPA can take steps to acknowledge that chemical substitution such as replacing chlorpyrifos with diazinon, harms farmers, sprayers, and farming families. Improving soil practice and using soil nutrition is key to the transition process. The NZEPA must also take steps to inquire into the impact of biologics to soil biology and insect populations, however, at this stage indications are that non-GMO biologics are less harmful to soil organisms over time.

General feedback

11. Do you have any general comments on the contents of the reassessment of chlorpyrifos including the regulation of the substance and the proposed revocation of its approvals.

Taking another year to withdraw due to months that would be required to produce the Decision Document and then a six-month phase out period is ethically questionable when cessation in public areas and the production of warning labels would still mean that NZEPA regulation lagged years behind best practice. Simply pivoting to imitate Australia, while ignoring European decisions and export market considerations will give people cause to doubt the NZEPAs regulatory and scientific independence.

Please note: Appendices attached.

[A] Report: The Erosion of Risk Assessment practice at the New Zealand Environmental Protection Authority, and the Australian Pesticides and Veterinary Medicines Authority. The case of chlorpyrifos and chlorpyrifos-methyl. December, 2024.

[B] PSGR: Three page information document Chlorpyrifos and risk

[C] Re: PSGR brassica discussion (above): Effects of Ozonated Water on Horticultural Products and Future Applications.

[D] Re: PSGR brassica discussion (above): Growlink testimony and customer information.

Send your completed form to us by 5.00 pm on 31 March 2025

Send your completed form to us:
by email: reassessments@epa.govt.nz
by post: Environmental Protection Authority, Private Bag 63002, Wellington 6140
in person: Stewart Dawson's Corner, Level 1, 366 Lambton Quay, Wellington 6011

If you need any help completing this form, you can call or email us on:

- Telephone: 0800 225 537 (from within New Zealand)
- Telephone: +64 04 916 2426 (from overseas)
- Email: reassessments@epa.govt.nz