UNEP/FAO/RC/CRC.20/CRP.14

17 September 2024

English only

United Nations Environment Programme

Food and Agriculture Organization of the United Nations

Chemical Review Committee
Twentieth meeting
Rome, 17–20 September 2024
Agenda item 4 (c) (v)

Technical work: review of notifications of final regulatory action: chlorpyrifos-methyl

Draft rationale for the conclusion by the Chemical Review Committee that the notification of final regulatory action submitted by the European Union in respect of chlorpyrifos-methyl in the pesticide category meets the criteria of Annex II to the Rotterdam Convention

Submission by the contact group on paraquat and paraquat dichloride, chlorpyrifos-methyl, dichlorvos and profenofos

The annex to the present note sets out the draft rationale for the conclusion by the Chemical Review Committee that the notification of final regulatory action submitted by the European Union in respect of chlorpyrifos-methyl in the pesticide category meets the criteria of Annex II to the Rotterdam Convention. The draft rationale is presented as submitted by the contact group, without formal editing.

Annex

Draft rationale for the conclusion by the Chemical Review Committee that the notification of final regulatory action submitted by the European Union in respect of chlorpyrifos-methyl in the pesticide category meets the criteria of Annex II to the Rotterdam Convention

1. The notification on chlorpyrifos-methyl from the European Union has been verified by the Secretariat as containing the information required by Annex I to the Rotterdam Convention. This notification underwent a preliminary review by the Secretariat and the Bureau, which evaluated whether the notification appeared to meet the requirements of the Convention.

2. The notification and supporting documentation were made available to the Chemical Review Committee for its consideration in documents UNEP/FAO/RC/CRC.20/9 and UNEP/FAO/RC/CRC.20/INF/15/Rev.1. Information on trade was made available in document UNEP/FAO/RC/CRC.20/INF/6.

Tabular summary of findings of the task group:

Criteria	***European Union***
(a)	*Met*
(b) as a whole	*Met*
(b)(i)	*Met*
(b)(ii)	*Met*
(b)(iii)	*Met*
(c)(i)	*Met*
(c)(ii)	*Met*
(c)(iii)	*Met*
(c)(iv)	*Met*
(d)	*Met*

A. Scope of the regulatory action notified by the European Union

3. The regulatory action notified by the European Union relates to chlorpyrifos-methyl (CAS No. 5598-13-0) in the pesticide category.

4. The regulatory action is notified as a ban. It is prohibited to place on the market or use plant production products containing chlorpyrifos-methyl by the Commission Implementing Regulation (EU) 2020/17 dated 10 January 2020 concerning the non-renewal of the approval of the active substance chlorpyrifos-methyl, in accordance with Regulation (EC) No. 1107/2009 of the European Parliament and of the Council concerning the placing of the plant products on the market, amending the Annex to Commission Implementing Regulation (EU) No. 540/2011 (Official Journal of the European Union L 7, 13.1.2020, p.11). EU member States had to withdraw authorisations for plant protection products containing chlorpyrifos-methyl as an active substance by 16 February 2020. Disposal, storage, placing on the market and use of existing stocks of plant protection products containing chlorpyrifos-methyl is prohibited as of 16 April 2020.

5. The ban on chlorpyrifos-methyl was based on the evaluation of the hazards and risks to human health (UNEP/FAO/RC/CRC.20/9, annex, sect. 2.4. of the European Union's notification).

6. The notification was found to meet the information requirements of Annex I.

B. Annex II paragraph (a) criterion

(a) Confirm that the final regulatory action has been taken in order to protect human health or the environment;

7. Before the final regulatory action, chlorpyrifos-methyl was used as an insecticide. The pesticide formulations in the European Union were EMBAIXADOR 200 CS, METYLFOS 200 CS, SENTOSAN MAX, SUNDEK SMART, JARKAL 200 CS, SAP200CHLORI, GF-1684 and Reldan 22. (UNEP/FAO/RC/CRC.20/9, annex, sec.1.3 of the European Union's notification).

8. The notification states in section 2.4.1 that the ban of all uses of chlorpyrifos-methyl formulations was based on a hazard and risk assessment related to human health. In the final regulatory action, the following concerns were identified as a result of the chlorpyrifos-methyl assessment:

(a) It cannot be excluded that chlorpyrifos-methyl has a genotoxic potential. Consequently, it is not possible to establish health-based reference values for chlorpyrifos-methyl and to conduct the relevant consumer and non-dietary risk assessments.

(b) Furthermore, developmental neurotoxicity (DNT) effects were observed in rats and epidemiological evidence exists showing an association between exposure to chlorpyrifos and/or chlorpyrifos-methyl during development and adverse neurodevelopmental outcomes in children.

(c) It is appropriate to classify chlorpyrifos as toxic for reproduction, category 1B.

9. Therefore, the Committee concludes that the final regulatory action was taken in order to protect human health; accordingly, the criterion in paragraph (a) of Annex II is met.

C. Annex II paragraph (b) criteria

(b) Establish that the final regulatory action has been taken as a consequence of a risk evaluation. This evaluation shall be based on a review of scientific data in the context of the conditions prevailing in the Party in question. For this purpose, the documentation provided shall demonstrate that:

(i) Data have been generated according to scientifically recognized methods;

(ii) Data reviews have been performed and documented according to generally recognized scientific principles and procedures;

(iii) The final regulatory action was based on a risk evaluation involving prevailing conditions within the Party taking the action;

10. The overall conclusion of the assessment of chlorpyrifos-methyl in relation to impacts on human health, based on the information available and the proposed conditions of use and exposure conditions that prevail in the EU, is that the approval criteria are not satisfied as concerns were identified. The main areas of concern were the genotoxicity and the developmental neurotoxicity (DNT).

11. The genotoxic potential of chlorpyrifos-methyl could not be ruled out based on the information available. An in-vitro study produced positive findings of chromosome aberration in the presence of rat liver metabolic activation system (S9) in Chinese hamster ovary (CHO). It was noted that there was no public literature available for chlorpyrifos-methyl with regards to the genotoxic potential, while several publications were available for chlorpyrifos instead. The experts discussed the structural similarity between chlorpyrifos and chlorpyrifos-methyl and since concerns were raised for chlorpyrifos with regards to chromosome aberration and DNA damage (oxidative stress and topoisomerase II inhibition) a data gap was concluded to be present for chlorpyrifos-methyl. As a consequence, it could not be excluded that chlorpyrifos-methyl may have DNA damaging potential and therefore, no toxicological reference values can be set.

12. As for the DNT, a study in rats was submitted where a significant decrease in the height of cerebral hemisphere on post-natal day (PND) 72 was observed in males at the top dose. The experts also discussed the epidemiological evidence showing associations between chlorpyrifos and chlorpyrifos-methyl exposure during neurodevelopment and adverse health effects (attention deficit/ hyperactivity disorders, decrease in intelligent quotient and working memory, etc.). In particular, three main birth cohort studies were considered. Using different biomarkers of exposure, these studies showed that prenatal exposure to organophosphates (OPs) produces a consistent pattern of early cognitive and behavioural deficits. The experts discussed also other epidemiological evidence from the public literature. The majority of the experts considered that the results from some of these studies contribute to the evidence of DNT effects in humans due to the exposure to chlorpyrifos and chlorpyrifos-methyl and occurring at doses lower than that causing 20% inhibition of AChE.

13. Taking into consideration the DNT study outcome (reduction in cerebellum height for chlorpyrifos), the epidemiological evidence showing an association between chlorpyrifos/chlorpyrifos-methyl exposure during development and neurodevelopmental outcomes, and the overall analysis of the published literature (in vivo, in vitro and human data), the experts indicated that chlorpyrifos-methyl, based on the available toxicological data set, may be expected to meet the criteria for classification as toxic for the reproduction, REPRO 1B, H360D ‘May damage the unborn child’.

14. The supporting documentation (UNEP/FAO/RC/CRC.20/INF/15/Rev.1) contains the main results of the risk assessment. As a first step, the risk evaluation of the active substance chlorpyrifos-methyl was done by a rapporteur member State, taking into account proposed uses and exposure conditions that prevail in the EU. The rapporteur member State then submitted its renewal assessment report (RAR) to the European Food Safety Authority (EFSA). EFSA organised an intensive consultation of technical experts from member States, to review the RAR and the comments received thereon (peer review). EFSA also launched a public consultation on the RAR. After the commenting period for member States, the applicants and the public, in April 2019, the EFSA convened an expert discussion related to impacts on mammalian toxicology and human health. As a result, EFSA was mandated by the European Commission to prepare a statement on the outcome of the risk assessment for human health for chlorpyrifos-methyl, which was issued on 31 July 2019. In September 2019, EFSA convened a second expert meeting to further discuss the read-across approach between chlorpyrifos and chlorpyrifos-methyl that it indicated required further discussion in its statement of 31 July 2019. On 11 November 2019, EFSA sent to the Commission an updated statement on the outcomes of the risk assessment for human health for chlorpyrifos-methyl taking into account the outcome of the expert meeting held in September 2019. The DNT effects observed at the lowest dose tested in the DNT study with chlorpyrifos (decrease in cerebellum height corrected by brain weight), indicate a health concern. This outcome would be conservatively applied also to chlorpyrifos-methyl. Furthermore, the epidemiological evidence supports the developmental neurological outcomes in children for both chlorpyrifos and chlorpyrifos-methyl. The concerns raised for chlorpyrifos with regards to chromosome aberration and DNA damage (oxidative stress and topoisomerase II inhibition) may apply to chlorpyrifos-methyl, resulting in an unclear genotoxicity potential. Consequently, the experts determined that it was not possible to establish health-based reference values for chlorpyrifos-methyl or to conduct relevant consumer and non-dietary risk assessments. Therefore, the experts also determined that it cannot be excluded that there is a probability of adverse effects to human health at any level of exposure.

15. Summarizing the above, the final regulatory action was based on a hazard and risk evaluation to human health and the prevailing conditions of the use of chlorpyrifos-methyl pesticides in the European Union.

16. Based on the above, the Committee confirms that the criteria in paragraph (b) (i), (ii) and (iii) of Annex II are met.

17. Therefore, the Committee concludes that the criteria in paragraph (b) of Annex II as a whole are met**.**

D. Annex II paragraph (c) criteria

(c) Consider whether the final regulatory action provides a sufficiently broad basis to merit listing of the chemical in Annex III, by taking into account:

(i) Whether the final regulatory action led, or would be expected to lead, to a significant decrease in the quantity of the chemical used or the number of its uses;

18. The final regulatory action is a total ban of all uses of chlorpyrifos-methyl in plant protection products in the EU. Consequently, it is expected that the regulatory action will lead to a reduction of risk for human health from use of plants protection products containing chlorpyrifos-methyl in the EU.

19. Hence, the Committee concludes that the criterion in paragraph (c) (i) is met.

(ii) Whether the final regulatory action led to an actual reduction of risk or would be expected to result in a significant reduction of risk for human health or the environment of the Party that submitted the notification;

20. Since the final regulatory action cancelled the registration and banned all applications of chlorpyrifos-methyl as a plant protection product, it can be expected that it led to a significant reduction of the health risk.

21. Hence, the Committee concludes that the criterion in paragraph (c) (ii) is met.

(iii) Whether the considerations that led to the final regulatory action being taken are applicable only in a limited geographical area or in other limited circumstances;

22. The notification stated that the similar human health problems are likely to be encountered in other regions where chlorpyrifos-methyl is used, particularly in developing countries. In addition, there is no indication that the considerations that led to the final regulatory action are of limited applicability.

23. Therefore, the Committee concludes that the criterion in paragraph (c) (iii) is met.

(iv) Whether there is evidence of ongoing international trade in the chemical;

24. The European Union reported one notified export of chlorpyrifos-methyl to one country in 2023 (UNEP/FAO/RC/CRC.20/9, annex, sect. 2.5.1 of the European Union´s notification). Australia also reported ongoing international trade in chlorpyrifos-methyl (UNEP/FAO/RC/CRC.20/INF/6).

25. Therefore, the Committee concludes that the criterion in paragraph (c) (iv) is met.

E. Annex II paragraph (d) criterion

(d) Take into account that intentional misuse is not in itself an adequate reason to list a chemical in Annex III.

26. The notification and the supporting documentation does not contain any indication on intentional misuse of chlorpyrifos-methyl in the European Union.

27. Therefore, the Committee concludes that the criterion in paragraph (d) is met.

F. Conclusion

28. The Committee concludes that the notification of final regulatory action by the European Union meets the criteria set out in Annex II to the Convention.