

CRC-12/4: Carbofuran (suspension concentrate (SC) at or above 330 g active ingredient/L)

The Chemical Review Committee,

Recalling Article 6 of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade,

1. *Concludes* that the proposal for listing carbofuran suspension concentrate (SC) 330 g/L as a severely hazardous pesticide formulation in Annex III to the Convention submitted by Colombia¹ meets the criteria set out in part 3 of Annex IV to the Convention;

2. *Adopts* the rationale for the Committee's conclusion set out in the annex to the present decision;

3. *Recommends*, in accordance with paragraph 5 of Article 6 of the Convention, that the Conference of the Parties should list carbofuran (suspension concentrate (SC) at or above 330 g active ingredient/L) (CAS No. 1563-66-2) in Annex III to the Convention as a severely hazardous pesticide formulation;

4. *Decides*, in accordance with paragraph 1 of Article 7 of the Convention, to prepare a draft decision guidance document for carbofuran (suspension concentrate (SC) at or above 330 g active ingredient/L);

5. *Decides*, in accordance with the process for drafting decision guidance documents set out in decision RC-2/2, that the workplan of the intersessional drafting group to prepare a draft decision guidance document shall be as set out in annex III to the report of the Committee's twelfth meeting.

Annex to decision CRC-12/4

Rationale for the conclusion by the Chemical Review Committee that the proposal submitted by Colombia for listing carbofuran suspension concentrate (SC) 330 g/L in Annex III to the Rotterdam Convention as a severely hazardous pesticide formulation meets the criteria of part 3 of Annex IV to the Convention

(a) Scope of the proposal

1. The proposal submitted by Colombia referred to carbofuran suspension concentrate (SC) 330 g/L.

2. The proposal and supporting documentation were made available to the Chemical Review Committee for its consideration in documents UNEP/FAO/RC/CRC.12/8, UNEP/FAO/RC/CRC.12/8/Add.1 and UNEP/FAO/RC/CRC.12/INF/9.

3. In Colombia, carbofuran suspension concentrate (SC) 330g/L is reported to have been used in the field in a wide range of crops and against a wide range of pests (mainly banana and coffee, but also plantain, bean, tomato, lulo, yucca, etc.). Carbofuran is an insecticide of the carbamates family with a broad spectrum of action. It is a suspension concentrate with systemic action when applied to the soil and absorbed by the roots, and it also acts

¹ UNEP/FAO/RC/CRC.12/8.

by contact and ingestion when applied to foliage. It is effective against a wide range of sucking and chewing insects, with prolonged effect.

4. Recommended doses in Colombia range from 1 to 3.5 litres per hectare, depending on the pest, status and number of individuals per square metre. Applications are directed to the soil at planting, thus pervading the seeds. In addition, foliar applications are used in the case of adult plants.

5. As a broad-spectrum insecticide with good agronomic efficiency, it is used by farmers in a wide range of crops, and in some cases in uses not authorized by the Colombian Agricultural Institute. For cultural reasons, small farmers do not take the necessary measures to prevent incidents with such substances, are unaware of the content of the labels (where the needed precautions to handle the product are noted), grace and re-entry periods and do not perform optimal spraying equipment maintenance, which leads to poisoning events.

6. A targeted assessment of pesticide formulations containing carbofuran was carried out in Colombia based on notifications of pesticide poisoning submitted through the national monitoring system. As a result, carbofuran -based pesticides were found to be involved in more cases of occupational poisonings than other pesticides in the period 2011–2013. In particular, 699 cases of acute pesticide poisoning by occupational exposure were reported to Sivigila (National System for Public Health Surveillance) in 2011 (inhalation and dermal), where the active ingredients mainly involved were carbofuran (408 cases), glyphosate (69) and methomyl (36); most of the cases came from the departments of Valle (53 cases), Meta (47 cases), Huila (44 cases) and Quindio (40 cases).

7. Given this background, an evaluation of poisoning by occupational exposure to pesticide formulations with the active ingredient carbofuran has taken place in the departments of Meta, Valle, Norte de Santander, Tolima, Antioquia, Quindio, Huila, Caldas, Risaralda and Cundinamarca in Colombia, during the epidemiological period 1 January–2 November 2013, through the use of the Rotterdam Convention severely hazardous pesticide formulation human health incident report form in 2014. It was found that 95 per cent of human poisonings by carbofuran involved pesticide liquid formulations containing carbofuran at a concentration of 330 g/L.

8. The study, using a convenience sample, was conducted in Colombia with 100 people who had previously suffered intoxication by commercial formulations of carbofuran active ingredient. Subjects of the analysis were those that agreed to fill out the questionnaire; taking into account the type of sampling it is not necessary to define the representativeness of the data.

9. According to the information provided by the Colombian Technical Department of Agricultural Inputs Safety of the Colombian Agricultural Institute (ICA), which is the national authority responsible for the registration and control of chemical pesticides for agricultural use in Colombia, products with the active ingredient carbofuran, at the moment of initiating the proposal to list the formulations in Annex III to the Convention, were registered for import, export, distribution and marketing of this molecule. By means of ICA resolution 002915, of 26 August 2006, a process for the re-evaluation of agricultural chemical pesticides was carried out in accordance with Decision 684 of 2008 of the Andean Community Commission.

10. The carbofuran molecule was in the first group of substances called for re-evaluation, and after the process it did not achieve the environmental technical decision required for registering a product. ICA therefore began the process for removing the active ingredient carbofuran from the sales register.

11. At present, carbofuran is not registered for trade in Colombia, but there is a possibility that a company could launch the registration process again in compliance with the provisions of the Andean Regulation (Norma Andina), which could result in the granting of a national registration for the marketing and use of the molecule.

(b) Annex IV, part 3, paragraph (a) criterion

In reviewing the proposals forwarded by the Secretariat pursuant to paragraph 5 of Article 6, the Chemical Review Committee shall take into account:

(a) The reliability of the evidence indicating that use of the formulation, in accordance with common or recognized practices within the proposing Party, resulted in the reported incidents;

12. In Colombia, carbofuran suspension concentrate ((SC) 330 g/L) is reported to have been used in the field on a wide range of crops and against a wide range of pests (mainly banana and coffee, but also plantain, bean, tomato, lulo, yucca, etc.). The retrospective questionnaire study identified that the main risk factor associated with occupational poisoning by carbofuran was the non-use of required personal protective equipment in all working processes (mixing, loading and application) in the handling of the pesticide.

13. The use of carbofuran suspension concentrate (SC) 330 g/L in Colombia had been authorized by order of the Colombian Technical Department of Agricultural Inputs Safety of the Colombian Agricultural Institute (ICA). Its use therefore clearly represents a “recognized practice”.

14. All reported symptoms in 95 per cent of the reported carbofuran poisoning incidents can clearly be linked to intoxication with these formulations as the symptoms occurred within a very short time after their use.

15. It is therefore considered that the evidence indicates that the use of carbofuran suspension concentrate (SC) 330 g/L, in accordance with the common and recognized practices within Colombia, resulted in the reported incidents and is reliable.

16. Therefore, the Committee concluded that this criterion was met.

(c) Annex IV, part 3, paragraph (b) criterion

(b) The relevance of such incidents to other States with similar climate, conditions and patterns of use of the formulation;

17. Documentation was available to the Committee (UNEP/FAO/RC/CRC.12/8/Add.1) indicating that the above-listed conditions for Colombia are similar to the conditions prevailing in other Latin American States.

18. It is reported from Colombia that in the period from 1 January to 2 November 2013, 100 poisoning incidents due to occupational exposure to pesticide formulations containing the active ingredient carbofuran occurred in the departments of Meta, Valle, Norte de Santander, Tolima, Antioquia, Quindio, Huila, Caldas, Risaralda and Cundinamarca in Colombia (UNEP/FAO/RC/CRC.12/8). The subsequent questionnaire

identified that 95 per cent of people had been poisoned by pesticide liquid formulations containing carbofuran at a concentration of 330 g/L.

19. Some countries in which carbofuran formulations are used have climatic conditions similar to those of Colombia and apply the formulations with the same technology to the same crops as did Colombia.

20. Pesticide formulations containing carbofuran are used in Brazil in agriculture as an insecticide, termiticide, acaricide or nematocide for soil application on cotton, peanuts, rice, bananas, potatoes, coffee, sugar cane, carrots, beans, tobacco, corn, cabbage, tomatoes and wheat and for the treatment of cotton seeds, rice, beans, corn and wheat. In Brazil, the suspension concentrates of 310g/L (one product) and 350g/L (three products) are registered, among others. An extensive review of the toxicological aspects of carbofuran was undertaken for the re-evaluation process, pursuant to which a ban on the active ingredient is proposed (UNEP/FAO/RC/CRC.12/8/Add.1). Other countries also report the use of pesticide formulations containing carbofuran (e.g., Honduras, Malaysia, Russian Federation).

21. In the European Union, Canada and Norway final regulatory actions to ban the use of carbofuran were adopted to protect human health and the environment.

22. Therefore, the incidents reported from Colombia are considered relevant to other States and regions.

23. Taking into account the information available, the Committee concluded that this criterion was met.

(d) Annex IV, part 3, paragraph (c) criterion

(c) The existence of handling or applicator restrictions involving technology or techniques that may not be reasonably or widely applied in States lacking the necessary infrastructure;

24. Safe handling of pesticides requires the proper use of appropriate personal protective equipment by operators. The study carried out in Colombia shows that farmers do not follow that basic requirement for a number of reasons, including the climatic conditions and a lack of financial resources. In addition, many farmers were not able to read label instructions. Due to those reasons, farmers were exposed to high quantities of these formulations, which resulted in the reported poisoning incidents.

25. General handling or applicator restrictions for the use of products containing carbofuran have been provided by different Parties, namely, Brazil, Canada, the European Union and Germany. They include, for example, requirements for the application of the pesticide formulation by entities registered and accredited by the national competent authorities and the use of appropriate equipment, e.g., specific land machines and personal protective equipment.

26. No specific handling or applicator restrictions have been introduced in Colombia for the application of carbofuran suspension concentrate (SC) 330 g/L in the country.

27. Therefore this criterion is considered to be met.

(e) Annex IV, part 3, paragraph (d) criterion

(d) The significance of reported effects in relation to the quantity of the formulation used;

28. In Colombia, carbofuran suspension concentrate (SC) 330 g/L is reported to have been used in the field on a broad range of crops and against a wide range of pests and in some cases for uses not authorized by the Colombian Agricultural Institute. Recommended doses range from 1 to 3.5 L/ha, depending on the pest, status and number of individuals per square metre. Applications are directed to the soil at planting, thus pervading the seeds. In addition, foliar application takes place on adult plants.

29. The evaluation of occupational poisoning due to exposure to carbofuran-based pesticide formulations was carried out in the departments of Meta, Valle, Norte de Santander, Tolima, Antioquia, Quindio, Huila, Caldas, Risaralda and Cundinamarca in Colombia, during the epidemiological period 1 January–2 November 2013. It was found by the retrospective study performed in 2014 that 95 per cent of people had been poisoned by pesticide liquid formulations containing carbofuran at a concentration of 330 g/L (100 operators/farmers).

30. The study also shows that small farmers are unaware of the content of hazard labels, of safety precautions and of grace and re-entry periods. Farmers do not take the necessary measures to prevent incidents with such substances and do not perform the prescribed optimal spraying equipment maintenance, which resulted in the reported poisoning incidents.

31. Based on the information provided, it can be concluded that farmers used the formulation containing carbofuran according to normal and common use patterns, in particular within the commonly applied range of dosage. In relation to the small quantity of the formulation used, the occupational poisoning incidents as a consequence of handling and treatment appear significant.

32. Taking into account the information available, the Committee concluded that this criterion was met.

(f) Annex IV, part 3, paragraph (e) criterion

(e) That intentional misuse is not in itself an adequate reason to list a formulation in Annex III.

33. Intentional misuse was not reported as a reason for the proposal.

34. Taking into account the information available, the Committee concluded that this criterion was met.

(g) Conclusion

35. The Committee concluded at its twelfth session that the proposal from Colombia to list carbofuran suspension concentrate (SC) 330 g/L in Annex III to the Convention as a severely hazardous pesticide formulation met the documentation requirements of Annex IV part 1 and the criteria set out in Annex IV part 3 of the Convention. Information according to the criteria of Annex IV part 2 has been collected by the Secretariat.

36. The Committee therefore recommends that carbofuran (suspension concentrate (SC) at or above 330 g active ingredient/L) be included in Annex III to the Rotterdam Convention as a severely hazardous pesticide formulation.