



**Conference of the Parties to the
Minamata Convention on Mercury
Fifth meeting**

Geneva, 30 October–3 November 2023

Item 4 (b) of the provisional agenda*

**Matters for consideration or action by the Conference
of the Parties: mercury-added products and
manufacturing processes in which mercury or mercury
compounds are used: amendment to annexes A and B,
and consideration of the feasibility of mercury-free
alternatives for manufacturing processes listed in
annex B****Matters for consideration by the Conference of the Parties
pursuant to decision MC-4/3****Note by the secretariat****I. Background**

1. The Conference of the Parties, at its fourth meeting, considered the report of the work of the ad hoc group of technical experts pursuant to decision MC-3/1 on the review of annexes A and B to the Minamata Convention on Mercury,¹ which contained information on the availability and feasibility of non-mercury alternatives to mercury-added products and manufacturing processes in which mercury or mercury compounds are used. The Conference of the Parties also considered the three proposals for amendment to annexes A and B submitted by the European Union,² by Botswana, Burkina Faso and Madagascar on behalf of the Africa region³ and by Canada, Norway and Switzerland.⁴
2. The Conference of the Parties, in decision MC-4/3, decided to amend part I of annex A to the Convention by adding eight mercury-added products, and to amend part II of annex A by adding provisions to the measures to be taken on dental amalgam.
3. Further, the Conference of the Parties:
 - (a) Decided to consider the phase-out dates of the four mercury-added products as included in paragraph 5 of decision MC-4/3 at its fifth meeting;
 - (b) Decided to also consider adding the production of polyurethane using mercury-containing catalysts to part I of annex B to the Convention at its fifth meeting;

* UNEP/MC/COP.5/1.

¹ UNEP/MC/COP.4/4, annex I; UNEP/MC/COP.4/INF/3.

² UNEP/MC/COP.4/26/Add.1.

³ UNEP/MC/COP.4/26/Add.2.

⁴ UNEP/MC/COP.4/26/Add.3.

(c) Requested the secretariat to compile information on the availability and technical and economic feasibility of mercury-free alternatives in the production of polyurethane using mercury-containing catalysts;

(d) Requested the secretariat to prepare a short report on the technical and economic feasibility of mercury-free alternatives for the two processes (vinyl chloride monomer and sodium or potassium methylate or ethylate) listed in part II of annex B;

(e) Decided that, if necessary, the secretariat may request other parties and stakeholders to provide additional information.

4. The Conference of the Parties requested the secretariat, in preparing the short report referred to in subparagraph 3 (d) above, to first identify those parties that had reported the use of those two processes in their national reports under article 21 of the Convention, and then to request information from those parties regarding whether they continued to use those two processes, whether either was scheduled to be phased out nationally, and to what extent mercury-free alternatives were technically and economically feasible.

5. The secretariat invited parties and stakeholders to submit information on mercury-added products, mercury-using manufacturing processes and their alternatives that might support consideration by the Conference of the Parties pursuant to decision MC-4/3. Information was submitted by four parties and three stakeholders.⁵ Those submissions have been posted on the Convention website.⁶ The secretariat also collected information through communication with parties and stakeholders, including the parties that have reported the use of manufacturing processes using mercury and mercury compounds in their national reports under article 21.

6. The present document presents the following matters to be considered by the Conference of the Parties pursuant to decision MC-4/3, together with relevant information collected by the secretariat:

(a) Phase-out dates of the four mercury-added products as included in decision MC-4/3;

(b) Addition of polyurethane production in part II of annex B to the Convention;

(c) Technical and economic feasibility of mercury-free alternatives for the production of vinyl chloride monomer, and sodium or potassium methylate or ethylate.

7. Further technical information, including information on other products and processes, is compiled in document UNEP/MC/COP.5/INF/5.

II. Phase-out dates of mercury-added products

8. This section includes information on the mercury-added products to be added to part I of annex A to the Convention, as well as their proposed phase-out dates, which the Conference of the Parties, in decision MC-4/3, decided to consider at its fifth meeting.

<i>Mercury-added products</i>	<i>Date after which the manufacture, import or export of the product shall not be allowed (phase-out date)</i>
Button zinc silver oxide batteries with a mercury content < 2% and button zinc air batteries with a mercury content < 2%	[2025] [2029]
Very high accuracy capacitance and loss measurement bridges and high frequency radio frequency switches and relays in monitoring and control instruments with a maximum mercury content of 20 mg per bridge switch or relay [except those used for research and development purposes]	[2025]
Linear fluorescent lamps (LFLs) for general lighting purposes:	[2025] [2027] [2030]
(a) Halophosphate phosphor ≤ 40 watts with a mercury content not exceeding 10 mg per lamp	
(b) Halophosphate phosphor > 40 watts	

⁵ The Dominican Republic, the European Union, Japan and Uganda; and battery associations in Japan, Europe, North America and Latin America, the Clean Lighting Coalition and the Japan Lighting Manufacturers Association.

⁶ <https://mercuryconvention.org/en/meetings/cop5#sec1562>.

<i>Mercury-added products</i>	<i>Date after which the manufacture, import or export of the product shall not be allowed (phase-out date)</i>
Linear fluorescent lamps (LFLs) for general lighting purposes:	[2027] [2030]
(a) Triband phosphor < 60 watts with a mercury content not exceeding 5 mg/lamp	

9. The following paragraphs include a summary of information on mercury-added products available from the report of the ad hoc group of experts⁷ and received from parties and stakeholders in this intersessional period.

10. For batteries, the report of the ad hoc group of experts to the fourth meeting of the Conference of the Parties noted that mercury-free alternatives were commercially available for all applications of the main types of button cell batteries. Submissions received during the intersessional period before the fifth meeting of the Conference of the Parties indicated that major manufacturers in Japan, the European Union, the United States of America and Latin American countries had already ceased the production of mercury-added button cells by 2020, and that there was no concern regarding the feasibility of mercury-free alternatives.

11. For switches and relays, the report of the ad hoc group of experts noted that one party could not confirm the domestic manufacturing of specific switches and relays currently exempted from annex A to the Convention, and that another party was considering the removal of current exemptions in its domestic regulation. No further information has been received.

12. For LFLs, the report of the ad hoc group of experts noted that the primary mercury-free alternatives are light-emitting diodes (LEDs), but also noted divergent views on the availability and feasibility of LED retrofit lamps for existing LFL luminaires. Some additional information was submitted and compiled in document UNEP/MC/COP.5/INF/5.

III. Polyurethane production

13. This section provides information obtained from parties on polyurethane production which the Conference of the Parties decided, in decision MC-4/3, to consider adding to part II of annex B to the Convention.

14. The report of the ad hoc group of experts noted that:

(a) Viable substitutes for mercury catalysts, such as bismuth and zinc carboxylates, tertiary amines and organotin compounds, were available, were already in use for more than 95 per cent of polyurethane elastomer systems, and had been in use for many years;

(b) The cost of mercury-free catalysts was comparable to the cost of mercury catalysts.

15. In national reporting under article 21 of the Convention, three parties reported the use of mercury in polyurethane production.⁸ One of the three parties reported that there were fewer than five facilities using mercury compounds in polyurethane production, and that such production would be prohibited by 2028. The other two parties reported on the use of mercury compounds in this process based on a default assumption for mercury inventory, and the actual use of mercury compounds in those parties was not confirmed. A regional economic integration organization, in its submission mentioned in paragraph 5 above, reported that the use of mercury in polyurethane production was prohibited from 1 January 2018.

16. A consultant to the secretariat conducted a literature search and contacted global and national industry associations, manufacturers and suppliers regarding the use of mercury compounds and alternatives in polyurethane production processes. The consultant only identified minor remaining use of mercury compounds in polyurethane production. Two manufacturers of polyurethane products in the territory of the party mentioned in paragraph 15 above as having reported the use of mercury compounds used mercury compounds catalyst in certain industrial coating and heavy-duty products. Another global supplier of polyurethane systems sold polyurethane raw material blends with mercury

⁷ UNEP/MC/COP.4/4, annex I; UNEP/MC/COP.4/INF/3.

⁸ Document UNEP/MC/COP.5/INF/20 provides an analysis of the national reports, and document UNEP/MC/COP.5/INF/21 includes a summary table of national reports. Reports submitted by parties are available at <https://mercuryconvention.org/en/parties/reporting/2021>.

compound catalyst for casting of large moulds and for manufacturing of clear polyurethane products. Further technical information is presented in document UNEP/MC/COP.5/INF/5.

IV. Short report on the technical and economic feasibility of mercury-free alternatives for the production of vinyl chloride monomer and sodium or potassium methylete or ethylate

17. This section provides a short report on the technical and economic feasibility of mercury-free alternatives for the two processes (vinyl chloride monomer and sodium or potassium methylete or ethylate) listed in part II of annex B to the Convention, as requested by the Conference of the Parties in decision MC-4/3, for consideration by the Conference of the Parties at its fifth meeting.

18. Part II of annex B provides that parties are not to allow the use of mercury in vinyl chloride monomer production five years after the Conference of the Parties has established that mercury-free catalysts based on existing processes have become economically and technically feasible. Two types of processes are used to manufacture vinyl chloride monomer: the acetylene process, based on coal feedstock or natural gas, uses mercuric chloride on carbon pellets as a catalyst. The other process used is based on the oxychlorination of ethylene without mercury use. The latter uses oil derivatives as feedstock and is the dominant process except in a small number of countries.

19. In national reporting pursuant to article 21 of the Convention, two parties reported the use of mercury in the production of vinyl chloride monomer. In one of those two parties, a project entitled “Demonstration of mercury reduction and minimization in the production of vinyl chloride monomer in China”, funded by the Global Environment Facility, is underway. The project, originally planned to be completed in 2022, was extended until the end of 2025. According to the project implementation report for 2021–2022,⁹ the verification of low-mercury technologies was completed, whereas the verification of mercury-free technology was challenging owing to its unsatisfactory technical stability, its limited cost efficiency and difficulties in meeting the requirements of national environmental policies.

20. The secretariat requested further information from those two parties regarding whether they continued to use that process, whether it was scheduled to be phased out nationally, and to what extent mercury-free alternatives were technically and economically feasible, but no information had been received at the time of preparing the present document. If any information is submitted, it will be presented in an addendum to document UNEP/MC/COP.5/INF/5.

21. In addition, a regional economic integration organization, in its submission mentioned in paragraph 5 above, reported that the use of mercury in vinyl chloride monomer production was prohibited from 1 January 2022.

22. Part II of annex B to the Convention provides that parties are not to allow the use of mercury in sodium or potassium methylete or ethylate production five years after the Conference of the Parties has established that mercury-free processes have become technically and economically feasible.

23. For the production of sodium or potassium methylete and ethylate, one State party and a regional economic integration organization of which the aforementioned State party is a member reported the use of mercury in that process in their national reports under article 21 of the Convention. The regional economic integration organization submitted information indicating that that process using mercury would be prohibited from 1 January 2028. Non-mercury alternative processes using alkali metals and alcohol have been in use in other countries.

V. Suggested action by the Conference of the Parties

24. The Conference of the Parties may wish to consider a decision on this matter, which may include the following:

(a) An agreement on the phase-out dates for the four mercury-added products listed in paragraph 5 of decision MC-4/3;

(b) A decision element based on its further consideration to add, with a phase-out date, the production of polyurethane using mercury-containing catalysts to part I of annex B to the Convention;

⁹ Available at www.thegef.org/projects-operations/projects/6921.

(c) A decision element based on its consideration of whether mercury-free alternatives for two processes listed in part II of annex B to the Convention (vinyl chloride monomer and sodium or potassium methylate or ethylate) have become technically and economically feasible.
