

Interactive comment on “Mercury transformation and speciation in flue gases from anthropogenic emission sources: a critical review” by L. Zhang et al.

Anonymous Referee #3

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In this paper, authors have reviewed the literature on Hg speciation in flue gases from various anthropogenic sources. The topic covered is interesting, however, the analysis in some case is superficial and critical discussion is lacking. Following are specific comments:

- 1) “Environmental diplomatic affairs”?
- 2) “Annex D for Article 8 of the Minamata Convention”. Please provide Reference to this.
- 3) “Operationally defined chemical forms” Is this the right terminology?

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4) Authors present “The dust cake layer also facilitates oxidation of Hg₀” How does dust cake layer facilitate oxidation? It should capture Hg instead! Needs clarification. Please provide reference of your argument.

5) 2.3 Reference to Table 1 is missing. And in the discussion part of the Table there are too many generalizations without supporting data. What are these data for, which coal types? Anthracite? Bituminous? Lignite?? What was the chlorine content? Those will have significant implications in Hg speciation. Actually, there are bulky data available in literature from field tests and Review paper should include those.

6) 2.2.5 Mercury transformation during wet flue gas desulfurization (WFGD): In this section, authors have mixed up information of all the plants together, without taking care of the upstream APCDs configuration. As authors have presented in the earlier section that APCDs configuration has important effect on speciation, authors have missed to explain the effect of upstream APCDS e.g. ESP and SCR in Hg removal in FGD. Needs careful review of these.

7) Hg emission from MSW incinerators are one of the major sources, however, only little has been covered about it. No coverage on medical, hospital waste incineration? No discussion on hazardous waste incineration? This makes the review incomplete!

8) Conclusion: “Hg₀ is the predominant mercury species in exiting flue gases from coal-fired power plants due to the high Hg₀ removal efficiency of ESP or FF and the high Hg₂₊ removal efficiency of WS or WFGD.” The predominant Hg₀ is not only because Hg₀ removal in ESP or FF and the high Hg₂₊ removal in FGD, this is also because the emission of Hg₀ is dominant in boiler outlet.

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