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Interactive comment on “Mercury emission and speciation of coal-fired power plants in China” by S. Wang et al.

Anonymous Referee #1

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This is an excellent paper that fills a long-standing need to characterize mercury emissions by both magnitude and species in the largest coal-burning country in the world, China. For a long time we have only had test results from developed countries, and we know that Chinese coals are different from some types of western coals. Therefore, it was likely that applying emission factors developed from western experience to the China situation would lead to inaccuracy. The analytical methods seem sound and the results reasonable. I do have extensive comments on the manuscript, however, most intended to improve its readability.

P 24052 line 6 and 24055 line 17, the preferred name in English is Selective Catalytic Reduction. P 24053 line 20: physico-chemical. P24053 line 21: the subject of this sentence must be China, not Hg emissions in China. How about, As the largest coal

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Discussion Paper



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producer and consumer in the world, China releases amounts of Hg that have been... P 24053 line 22: attention not attentions. P 24053 line 24: at an annual.. P 24053 line 27: indicating an even... P 24053 line 29: stations are only... P 24054 lines 1-2: Are there no tests in western Europe? It's hard to believe. A citation is needed. P 24054 line 2: paucity of information on P 24054 line 5: Streets et al 2005 is not in the reference list. P 24054 line 13: removal efficiency of... P 24054 line 15: The tests also indicated that the share... P 24054 line 16: separate "boilersis" P 24055 line 6: mass balance was estimated from the gathered... P 24055 line 13: units, not unites. P 24055 line 20: power plants are shown... P 24057 line 8: plants are located in... P 24057 line 8: Is it possible to give the names of the provinces in which the plants are located so that they can be linked with the coal types and Hg contents? P 24057 line 9: coal not coals. P 24057 Sec 3.1: Because the range of Hg content is so wide, some broader discussion of the relevance of the results across coals of vastly different type is needed. Should emission factors be given as a function of Hg content, for example? P 24058 line 3: varies over a large range... P 24058 line 13: temperature decreases... P 24058 line 17: By contrast or In contrast... P 24058 line 28: oxidized form in the presence of halogens (Cl and Br). P 24059 lines 11-17: This discussion of elementary chemistry can be omitted. P 24059 line 17: to be more efficient. P 24060 line 5: For a certain amount of absorbent... P 24060 line 12: in the adsorption process. P 24060 lines 17-20: Again this description is too elementary and can be omitted. P 24062 Sec 3.3: Why isn't quantitative information given for the SCR process? References: Wu et al 2009 can cite complete ACPD reference.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 9, 24051, 2009.

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