

Comments by referees are in blue.

Our replies are in black.

Changes to the manuscript are highlighted in red both here and in the revised manuscript.

Reply to referee #3

Li et al. used several ultrapure water batch leaching protocols to examine the effects of agitation methods, contact time, and filter pore size on the solubility of trace elements. This is good work and is recommended to be published in AMT after concerning the following weaknesses.

Reply: We would like to recommend ref #3 for reviewing our manuscript and recommending it for publication. We have addressed his/her comments which greatly help us improve our manuscript, and revised the manuscript accordingly, as detailed below.

Major comments: 1. Why is it needed to “formulate a standard operating procedure for ultrapure water batch leaching” when agitation methods, contact time, and filter pore size led to small or even insignificant differences in the solubility of trace elements?

Reply: There are two major reasons, and in the revised manuscript (page 19) we have added a few sentences to explain it clearly: “We note that large difference in solubility determined using the four common leaching protocol we examined was also observed for Fe and Al (Table 1); moreover, the experimental parameters examined in this work do not cover the whole ranges of these used by various ultrapure water batch leaching protocols used in previous studies. As a result, before a standard operating procedure can be formulated for ultrapure water batch leaching, the community will need to reach consensus on...”

2. In lines 246-253, the authors mentioned that longer contact time (2 and 4h) would cause an increase in solubility by 1.3 times for Zn and ~3.1 for As. However, why does this study only consider the contact time of 0.5-2h?

Reply: This is because the contact time is 2 h for the protocol used by GIG, and 0.5-1 h for these used by NIO, OUC and ZJU. In the revise manuscript (page 13) we have added one sentence to provide necessary explanation: “We examined the effects of these two contact time, as the contact time was 2 h for the GIG protocol, and 0.5-1 h for ZJU, OUC and NIO protocols (Table 1).”

3. More comparative experiments should be added to avoid uncertainties in each group for testing the distribution of aerosol particles and the effects of agitation methods, contact time, and filter pore size.

Reply: For each protocols listed in Table 1, 26 subsamples were examined, and the number for samples is quite large. In the revised manuscript (page 7), we have added one sentence in the caption of Table 1 to make this clear: “For each protocol, 26 subsamples were examined.”

Minor suggestion. 1. Add the representation of the circles within each figure or in the first figure.

Reply: Each symbol (most circles in our manuscript) in these figures represent a data point. The x - and y -axes are clearly labelled for all the figures, and symbols are widely used in our community to represent data points; therefore, we feel it not necessary to state in figure captions what these symbols represent.