

SUPPORTING INFORMATION FOR

In vitro gastrointestinal bioavailability of arsenic in soils collected near CCA-treated utility poles

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This appendix (3 pages) contains a QA/QC section and additional references relevant to the manuscript.

QA/QC results for arsenic speciation and total arsenic determinations:

The accuracy of the arsenic speciation method was assessed by extracting 20 standard arsenic solutions prepared on a daily basis: 100 µg/L As(V) (n = 8) prepared from arsenic pentaoxide trihydrated, 100 µg/L As(III) (n = 8) prepared from diarsenic trioxide, and 200 µg/L total As (100 µg/L As(III) + 100 µg/L As(V)) (n = 4). Accuracy of the solvent extraction method was confirmed by a quantitative average recovery of As(V) (99.5 %, ranging from 98 to 100 %) and As(III) (94 %, ranging from 89 to 97 %). It was also confirmed by an average recovery (calculated as (As(V) extracted + As(III) extracted in back-wash) / ((As(V) + As(III)) added) * 100) of 101 % (96–110 %).

During total arsenic determination in soils and in gastrointestinal extracts, duplicate and spiked samples were also analyzed. For total soil-bound arsenic, the average relative percent deviation between duplicates ($n = 3$) was 3 % (0–6 %). The average recovery for the spiked samples ($n = 3$) was 102 % (91–115 %). For total arsenic in gastrointestinal extracts, the average relative percent deviation between duplicates ($n = 6$) was 2 % (0–3 %) whereas the average recovery for the spiked samples ($n = 6$) was 105 % (99–111 %).

Additional references for As-exposure assessment from CCA-treated wood:

Dang, W.; Chen, J.; Mottl, N.; Phillips, L.; Wood, P.; McCarthy, S.; Lee, R.; Helmke, M.; Nelson, M.; Coon, K. *A probabilistic risk assessment for children who contact CCA-treated playsets and decks*; U.S. Environmental Protection Agency, Office of Pesticide Programs, U.S. Government Printing Office: Washington, DC, 2003.

Zartarian, V. G.; Xue, J.; Özkaynak, H.; Dang, W.; Glen, G.; Smith, L.; Stallings, C. *A probabilistic exposure assessment for children who contact CCA-treated playsets and decks*; U.S. Environmental Protection Agency, Office of Research and Development and Office of Pesticide Programs, U.S. Government Printing Office: Washington, DC, 2003.

References for studies on arsenic bioavailability in contaminated soils using various animal models:

Casteel, S. W.; Evans, T. J.; Dunsmore, M. E.; Weis, C. P.; Lavelle, B.; Brattin, W. J.; Hammon, T. L. Relative bioavailability of arsenic in soils from the VBI70 site; Final report prepared for USEPA Region VIII, January 2001.

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