Weathering of soil minerals during long-term electrochemical soil remediation was evaluated for two different soils: an industrially Pb contaminated soil with high carbonate content and an unpolluted soil with low carbonate content. A constant current of 5mA was applied for 842 days, and sampling was made 22 times during the treatment. The overall qualitative mineral composition was unaffected by electrodialysis, except for calcite removal which was complete. However, dissolution and removal of Al, Fe, Si, Mg, Ca and Pb from the soil during the treatment exceeded the fraction extractable by digestion in 7M HNO₃, and provided evidence of enhanced mineral dissolution induced by the current. Nevertheless, the total dissolved Si and Al only constituted 0.2-0.3% and 1.1-3.5% of the total content, while the Pb overall removal from the contaminated soil was only 8.1%. An observed reduction in the dry matter of 4.5% and 13.5% from the two soils, respectively was mainly due to dissolution of CaCO₃ and organic matter, but also included a minor dissolution of other soil minerals.

General information
Publication status: Published
Organisations: Department of Civil Engineering, Materials and Durability, ARTEK, Section for Arctic Engineering and Sustainable Solutions, Section for Building Design, Design and Processes, Concordia University
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Contributors: Skibsted, G., Ottosen, L. M., Elektorowicz, M., Jensen, P. E.
Number of pages: 8
Pages: 459-466
Publication date: 2018
Peer-reviewed: Yes

Publication information
Journal: Journal of Hazardous Materials
Volume: 358
ISSN (Print): 0304-3894
Ratings:
BFI (2018): BFI-level 1
Scopus rating (2018): CiteScore 7.91 SJR 1.958 SNIP 2.055
Web of Science (2018): Impact factor 7.65
Web of Science (2018): Indexed yes
Original language: English
Keywords: Electrokinetics, Minerals, Pb, Soil, Weathering
DOIs:
10.1016/j.jhazmat.2018.05.033
Source: FindIt
Source ID: 2434582011
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review