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A systemic ecological risk assessment based on spatial distribution and source apportionment in the abandoned lead acid battery plant zone, China

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Highlights

- The first study on soil metal pollution in disused lead acid battery plant in China.
- Pb and Zn are still emitted from contaminated site soil.
- Agriculture prompts Cd and As to be enriched, which dominately bring ecological risk.
- Investigate vertical metal distribution, stable depths, and migration property.
- Multiply evaluate ecological and health risks, and proposal targeted measures.

Abstract

In China, potential heavy metal hazard around abandoned lead-acid battery plant (ALBP) area has been a great concern but without detailed report. The distribution and sources of heavy metals in soils and so by risk assessment associated with ALBP are conducted in this contribution, based on geographies and statistics. Pb and Zn are quantitatively identified to be still emitted from ALBP soil, and Cd as well As are from agricultural activity. We investigate vertical metal distribution, and fortunately find that metals migrate within limit of 40 cm below topsoil, which is higher than groundwater table. The visualized stable depths are Zn 40 cm, Pb, As 20 cm, and Cd 40 cm. The

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