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Transformation of Hazardous Lead into Lead Ferrite Ceramics: Crystal Structures and Their Role in Lead Leaching

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Research Highlights (maximum 85 characters per bullet point including spaces)

- Hematite incorporated lead to lead ferrites (i.e. $\text{Pb}_2\text{Fe}_2\text{O}_5$, PbFe_4O_7 and $\text{PbFe}_{12}\text{O}_{19}$).
- QXRD was used to assess the incorporation efficacies of Pb.
- $\text{PbFe}_{12}\text{O}_{19}$ provides superior metal stabilization effect than $\text{Pb}_2\text{Fe}_2\text{O}_5$ and PbFe_4O_7 .
- Structural defects in lead ferrites influenced their intrinsic leachability.

ABSTRACT

This study quantitatively determined the transformation of lead into lead ferrite ceramics and examined the influence of structural defects in lead ferrites (i.e. $\text{Pb}_2\text{Fe}_2\text{O}_5$, PbFe_4O_7 and $\text{PbFe}_{12}\text{O}_{19}$) on lead leaching. Mechanisms of metal incorporation were examined from

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