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Characterisation of a high pH cement backfill for the geological disposal of nuclear waste: The Nirex Reference Vault Backfill

Rita G.W. Vasconcelos, Nicolas Beaudoin, Andrea Hamilton, Neil C. Hyatt, John L. Provis, Claire L. Corkhill

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Graphical abstract

We describe a detailed characterisation of Nirex Reference Vault Backfill (NRVB), a high-pH cement considered for use as a backfill material in a conceptual UK geological disposal facility (GDF) for nuclear waste. We show that the choice of raw materials influences both the mineralogy and microstructure, which are key properties for ensuring the long-term (>100,000 year) behaviour of this material in a GDF.