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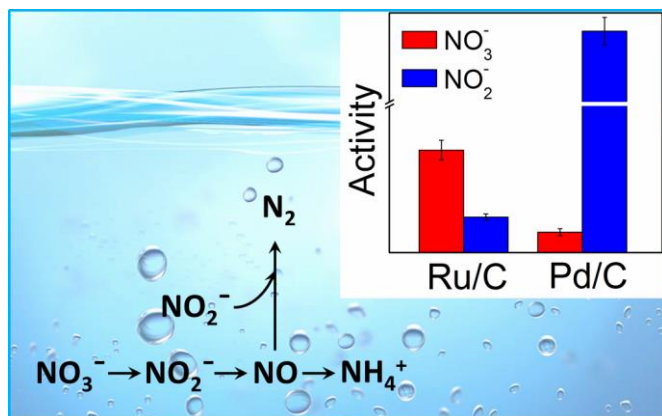
Hydrogenation of aqueous nitrate and nitrite with ruthenium catalysts

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Graphical abstract



Highlights

- Supported ruthenium materials catalyze reduction of aqueous nitrate and nitrite.
- Thermal pretreatment activates Ru by removing surface residues and exposing labile Ru oxides.
- Nitrate reduced selectively to ammonium, but nitrite reduced to a mixture of N_2 and ammonium.
- Density Functional Theory calculations support proposed surface reaction mechanism.

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