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Title: Boosting catalytic propane oxidation over PGM-free Co_3O_4 nanocrystal aggregates through chemical leaching: A comparative study with Pt and Pd based catalysts

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Boosting catalytic propane oxidation over PGM-free Co_3O_4 nanocrystal aggregates through chemical leaching: A comparative study with Pt and Pd based catalysts

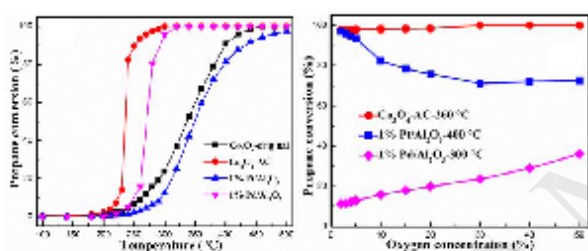
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Graphical abstract



Acid leached Co_3O_4 nanocatalysts exhibit excellent low temperature activity toward propane oxidation independent of propane and oxygen concentrations.

Highlights

- Chemical leaching strategy was firstly used for boosting the activity of Co_3O_4 nanocatalyst.
- It is much more active than commercial Pt/ Al_2O_3 and Pd/ Al_2O_3 in propane oxidation.
- It shows an excellent and stable C_3H_8 oxidation independent of O_2 and C_3H_8 concentrations.
- The chemical leaching helped derive much more active sites on Co_3O_4 nanocatalyst surface.

Abstract:

Rational modification of interfacial structure and chemistry can help effectively tailor the reactivity and stability of heterogeneous catalysts regardless of their elemental or compound natures. Herein, a diluted acidic treatment was designed and utilized to modify the surface structure and chemistry of

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