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Title: Tailoring the physical and catalytic properties of lanthanum oxycarbonate nanoparticles

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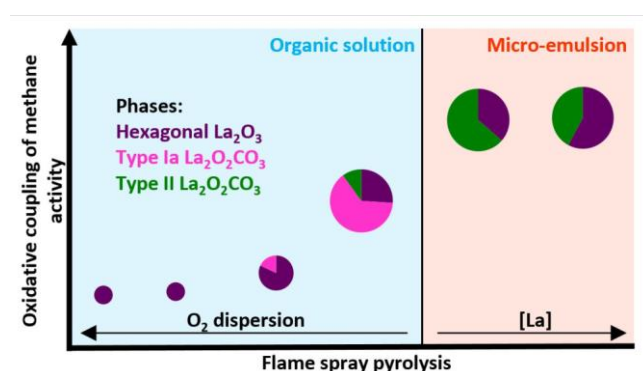
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Graphical abstract



Highlights

Flame spray pyrolysis allows tuning of the properties of La based nanoparticles which may lead to improved catalysts for oxidative coupling of methane (OCM).

Changes in the synthesis parameters not only affected the particle size but also basicity and phase.

Higher C₂ yields were obtained with materials of higher basicity.

A mixture of La₂O₂CO₃ and La₂O₃ exhibited better OCM performance than La₂O₃ only.

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