Carbon Dioxide Dry Reforming Over Novel Pt Catalyst Created Using Unconventional Fabrication Method

Gan, Michelle

Gupta, Sahil

Global warming has become an increasingly prevalent and exigent global issue as the amount of greenhouse gases in the atmosphere continues to increase. As a result, dry reformation of methane (DRM) has become an appealing research topic among scientists. This is primarily due to DRM's ability to transform a harmful and low-quality biogas (CO_2 and CH_4) into syngas (H_2 and CO), an invaluable and more energetically efficient replacement for liquid fuel in many technological processes. Typical methods used to create metal catalysts for DRM and similar reactions require expensive and complex precursors of which there are limited options. In this research, we present a novel platinum catalyst created using an entirely new method that avoids the costs, inflexibilities, and constraints associated with standard fabrication techniques. We investigated the catalyst's performance over an industrial-use temperature range and compared the results to the activity of other commercial and prominent metal catalysts. The catalyst endured several days of testing without undergoing deactivation. Our results display a substantial increase in activity at lower temperatures; these results are desired for industrial catalysis, as the catalyst is energetically more efficient at lower temperatures and able to forego activity-inhibiting coke deposition and sintering.

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