Mini-review on fibrous zeolite catalysts for CO2 reforming of methane

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ABSTRACT

The persistent threat of climate change is brought on by extreme emissions of greenhouse gases (GHGs). Due to its advantages in converting two principal GHGs (CH_4 and CO_2) into a synthesis gas (H_2 and CO), carbon dioxide reforming of methane has received a lot of interest. However, the main issue with a dry reforming of methane (DRM) that needs to be rapidly tackled is catalyst deactivation caused by sintering and coke formation. In this context, the development of fibrous morphological support materials has emerged as an exciting technique that has shown promise in enhancing the physicochemical characteristics of the catalyst and enabling superior catalytic activity and deactivation resistance during the reaction. The physicochemical characteristics of fibrous zeolite-supported type catalysts, including metal-support interaction, metal dispersion, particle size, surface area, and porous nature, were the main emphasis of this mini-review. Designing suitable catalysts for DRM requires a thorough examination of catalytic properties and their relationship to catalytic performance.

KEYWORDS

Dry reforming of methane; Dendrimeric structures; Fibrous zeolite; Fibrous morphology

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