NCON-PGR_2022_085

Mini-Review on CO_2 Reforming Methane in Aspect of Fibrous Zeolite's Properties

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Abstract

The threat of climate change resulting from the excessive emission of greenhouse gases remains intractable. CO_2 reforming of methane (DRM) has attracted considerable attention owing to its advantages in converting two primary greenhouse gases (CH_4 and CO_2) into synthesis gas (H_2 and CO). However, catalyst deactivation arose from sintering and carbon formation is the primary problems for DRM that must be urgently solved. In this regard, creating support materials with fibrous morphology and dendrimeric structures is becoming an intriguing approach demonstrating its advantages in improving catalyst's physicochemical properties thus promote an excellent catalytic activity, stability, and deactivation resistance during reaction. This mini-review focuses on the physicochemical features of fibrous zeolite-supported type catalysts and their significance in DRM catalytic performance, including the interaction between metal and support, metal dispersion, particle size, porosity, and surface area. This study also provide the understanding of catalytic properties and their correlation with catalytic performance needed for the design of catalysts and suitable for DRM.

Keywords: CO_2 reforming methane; Fibrous type.