

Structured catalytic reactor for soot abatement in a reducing atmosphere

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Description

Nanostructured Li-delafoosite based catalysts were prepared via solution combustion synthesis (SCS) method and investigated under realistic conditions as catalysts for the carbon gasification in a reducing environment. LiFeO_2 catalyst was selected as the most promising candidate for the soot gasification catalyst on a soot trap application close coupled to a biogas autothermal reforming (ATR) reactor for syngas post-treatment process. LiFeO_2 was coated on a wall-flow monolith filter (15/20 μm mean pore size and 46% porosity) via solution combustion deposition (SCD) method and the coated filters' performance was evaluated during the soot particles loading. The pressure drop across the filters was very low (< 8 mbar), showing that the method of coating on the filters was successfully applied.