Catalytic Wet Oxidation of Textile Wastewater Using LaFeCu/SBA-15 Catalyst Coated on Ceramic Honeycomb

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Ceramic honeycombs have been widely used as a support for gas phase heterogeneous catalysis including SCR(Selective Catalytic Reduction) or automobile exhaust gas treatments. Honeycombs provide high surface area and mechanical strength due to their distinctive structures. It showed many advantages such as high activities, stabilities in severe reaction conditions, or low pressure drops. Remarkable progresses have been achieved in gas phase reactions using honeycomb supported catalysts however, limited studies have been conducted in liquid phase reactions. In this study, honeycomb was used as a secondary support for the development of continuous CWO (Catalytic Wet Oxidation) process. SBA-15 type mesoporous silica was used as a primary support and perovskite-type crystalline structured LaFeCu mixed oxides were used as active components. LaFeCu/SBA-HC catalysts prepared in this study showed high efficiencies in the treatment of textile wastewater with over 73% of TOC (Total Organic Carbon) and 80% of COD (Chemical Oxygen Demand) removal.