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# Preparation by co-precipitation of Ce–Mn based catalysts for combustion of n-hexane

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## Abstract

Catalysts for combustion of n-hexane, based on Ce-Mn mixed oxides with different Ce/Mn molar ratios ranging from 0.5 to 2, have been prepared by co-precipitation at constant pH with aging times of 4, 18 and 24 h. XRD patterns of the mixed oxides showed the dominant presence of fluorite-like phase. The surface area of mixed oxides was always higher than their single oxide counterparts and their adsorption isotherm corresponding to type IV depicted a mesoporous surface. TPR profiles of mixed oxides shifted to lower temperatures with increasing content of Ce, revealing a strong metal interaction in composites. Ce-Mn samples exhibited higher activities than the corresponding simple oxides regardless of the aging time. Sample Ce<sub>0.67</sub>Mn<sub>0.33</sub>O<sub>2</sub> with 24 h of aging time showed the highest performance probably due to the presence of defect sites promoted by the incorporation of MnO<sub>x</sub> species into CeO<sub>2</sub> structure, its highest surface area and best reducibility.

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