

عنوان مقاله:

Effect of Preparation Method on Activity and Physico-Chemical Properties of Zinc Chromite Nano Spinels in VOC Oxidation

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

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نویسندگان:

s.a hosseini - Corresponding Author Address: Department of Applied chemistry and chemical Engineering, Faculty of Chemistry, University of Tabriz, Tabriz, Iran

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خلاصه مقاله:

Nanostructure zinc chromite spinels were synthesized by sol gel combustion and pechini methods and their activities were tested in catalytic combustion of toluene in a synthetic polluted air. The physico-chemical properties of catalysts were characterized by XRD, FTIR, SEM, XPS and the conversion of toluene during catalytic reaction was measured through GC analysis data. The formation of spinel phase was approved by XRD and FTIR analysis. However the particles of samples synthesized by pechini method were smaller than that of obtained from sol gel method. The ZnCr₂O₄ (pechini) exhibited higher activity than ZnCr₂O₄ (sol gel) in combustion of toluene which is ascribed to higher surface oxygen on ZnCr₂O₄ (pechini) rather than ZnCr₂O₄ (sol gel), approved by XPS. The study revealed the pechini method is more promising than sol gel for synthesis of environmental catalysis.

کلمات کلیدی:

spinel, zinc chromite, catalytic combustion, VOC

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