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Hydrogenation of Citral over Pt and Pt-Sn Catalysts

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Abstract: Hydrogenation of citral on monometallic (Pt) and bimetallic (Pt-Sn) catalysts was investigated. It was found that the catalyst activities and product distributions were different over Na-Y and Clino supports. Among monometallic catalysts, Pt/Na-Y was more selective to citronellol (3.9%) and unsaturated alcohols, geraniol and nerol, (14.1%). Sn addition increased the catalyst activities. However, its effect on product distribution differed. Yield of geraniol+nerol changed from 5.1% to 19.7% over Clino. However, selectivity to unsaturated alcohols over Na-Y decreased when it was prepared as a bimetallic catalyst support. Unsaturated alcohol formation was favored when there was a metal support interaction over monometallic catalysts, and metal-promoter interaction over bimetallic catalyst.

Key Words: Citral, Pt-Sn, hydrogenation, unsaturated alcohols, citronellal, zeolite catalysts.

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