

## Selective oxidation of tetralin using in-situ generated acylperoxy radicals over CrAPO-5

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1-Tetralone, a useful synthetic intermediate in the manufacture of agrochemicals and pharmaceuticals [1], can be prepared by liquid phase catalytic oxidation of tetralin. Transition metal-containing molecular sieves have been developed as selective catalyst for the oxidation of benzylic and allylic alkanes, but leaching of active metal from their matrix remains as a serious problem [2]. Here, we describe the selective oxidation of tetralin over CrAPO-5 catalyst using a combination of trimethylacetaldehyde and molecular oxygen at atmospheric pressure as oxidant. This novel catalytic system was highly selective toward the formation of 1-tetralone; at room temperature, tetralin was converted into 1-tetralone with 92% selectivity at 55% conversion after 24 h reaction. At higher temperature (70 °C), the conversion was increased from 55 to 94% (8 h), but the selectivity remains virtually the same. The effect of temperature, time and the type of aldehydes are discussed. The conversion and selectivity were found to be strongly dependent on the reaction temperature, time and the types of aldehydes. A reaction mechanism is proposed based on the observed results.