

Fe-Pillared Montmorillonites as Catalysts in Reaction of α -Pinene Allylic Oxidation

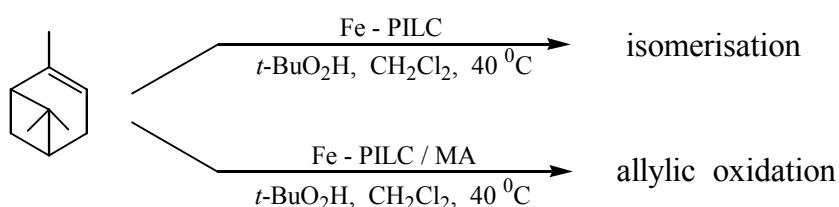
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Catalytic behaviour of montmorillonite modified by Fe^{3+} polynuclear hydroxycomplexes – Fe-pillared montmorillonite – in reaction of α -pinene allylic oxidation by *tert*-butyl hydroperoxide was investigated. The dependence of catalytic ability on nature of used montmorillonite was shown.

For process realizing in presence of Fe-pillared montmorillonite (Fe-PILC) high degree of α -pinene conversion is observed, but products of its allylic oxidation in reaction mixture are absent. Main products in this instance are products of α -pinene isomerisation.

If for preparing of catalyst mechanically activated montmorillonite is used (Fe-PILC / MA), comparatively low degree of α -pinene conversion and high selectivity of oxidation process are characteristic. The increase of *t*-BuO₂H amount has allowed to obtain verbenone with 80% yield.



The difference in catalytic behaviour of Fe-PILC and Fe-PILC / MA probably is a result of delamination of montmorillonite layers and change of interlayer distance in process of mechanical activation of clay.

Control experiments with the use of Fe_2O_3 , $\text{Fe}_2\text{O}_3/\text{Al}_2\text{O}_3$ or $\text{Fe}_2\text{O}_3/\text{SiO}_2$ shown the similarity in behaviour of these catalysts and Fe-PILC / MA.