

Russian Journal of General Chemistry 2005 vol.75 N5, pages 734-738

Addition of tetrachloromethane to alkenes, catalyzed by Pt(II) complexes

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Abstract

Platinum(II) complexes [dichlorobis(triphenylphosphine)platinum(II), dichlorobis(tri-*p*-tolylphosphine)platinum(II), dichloro(2,9-dimethyl-1,10-N, N'-phenanthroline)platinum(II), etc.] showed catalytic activity in addition of tetrachloromethane across the double bond in 1-hexene, 1-heptene, 1-octene, 1-decene, and cyclohexene. The stability of the platinum catalysts was evaluated by GLC, gas chromatography-mass spectrometry, and ³¹P NMR and IR spectroscopy; the kinetic relationships of the addition reactions were determined. A reaction mechanism involving formation of trichloromethyl radical was suggested. A correlation was revealed for the first time between the catalytic activity of platinum, palladium, and rhodium complexes and the capability of these complexes to generate hexachloroethane. ©2005 Pleiades Publishing, Inc.

<http://dx.doi.org/10.1007/s11176-005-0309-8>
