Synthesis and Transformation of 5- and 2-Methylbicyclo[2.2.1]hept-2-enes and 2-Methylenebicyclo[2.2.1]heptane with Retrospective δ-Migration of Hydrogen over Oxide Catalyst

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Abstract—5- and 2-Methylbicyclo[2.2.1]hept-2-enes and 2-methylenebicyclo[2.2.1]heptane were synthesized by a new procedure, and their transformations in a flow system over stationary layer of aluminosilicate catalyst were studied at various temperatures. At 150–400°C these compounds undergo isomerization which is accompanied by δ-migration of hydrogen. The isomerization mechanism is discussed in terms of formation of classical carbocations, not invoking nonclassical carbenium ion.