

## **Abstract**

The present work is an evaluation of 1 wt.% Pd/sulfated zirconium pillared montmorillonite catalyst in the hydroisomerization reaction of two fractions of light naphtha composed mainly of C5 and C6 paraffins (feeds 1 and 2). Catalyst activity test was carried out in a fixed-bed flow reactor at reaction temperature of 300 °C, under atmospheric hydrogen pressure and weight hourly space velocity of 0.825 h<sup>-1</sup>. The reaction products showed high isomer and cyclane selectivity. Monobranched and multibranched isomers were formed as well as C5 and C6 cyclane products. After the catalytic reaction, the total amount of benzene and cyclohexane decreased by 30% for the “feed 1” and by 40% for the “feed 2” leading to methylcyclopentane formation in the products. A long-term performance test catalyst for the two light naphtha fractions was also performed and we observed an improving of the research octane number (RON) by 15–17 for, respectively, feeds 1 and 2.