

ABSTRACT

PROCESS FOR ISOMERIZING LINEAR OLEFINS TO ISOOLEFINS

This invention provides a process to convert linear alkenes such as butene-1 and butene-2 to methyl branched chain alkenes such as isobutylene using one dimensional, medium pore zeolite catalysts and similar type catalysts such as SAPO's and MeAPOS's. The pore size for the catalyst should be greater than 0.42 nm and less than 0.7 nm, preferably with a larger dimension of between 0.5 and 0.6 nm. This pore size allows the branched chain alkenes to form and diffuse out of the catalyst while reducing the formation of unwanted by-products, including dimers, trimers, aromatics and coke. This invention has been demonstrated with H-ferrierite, SAPO-11, and magnesium mordenite in a laboratory scale reactor. Selectivities ranging from about 50% to almost 100% were demonstrated for isobutylene formation using H-ferrierite, at temperatures ranging from about 340°C to about 440°C. (REFER TO FIG.7)