

Abstract

A catalytic conversion process for producing light olefins with a high yield from petroleum hydrocarbons, which comprises the steps of contacting a pre-heated petroleum hydrocarbons feedstock with a catalyst which comprises phosphorus and transition metal modified silica rich zeolite having a structure of pentasil in a riser or a fluidized bed reactor, and converting under the catalytic conversion conditions to produce reaction effluent and a spent catalyst, separating the resulted reaction effluent and spent catalyst, further separating said reaction effluent into liquid products and gaseous products comprising ethylene and propylene; stripping the spent catalyst by steam; regenerating the stripped catalyst by contacting the spent catalyst with oxygen- containing gas and burning off coke; and recycling the regenerated catalyst to reactor for reuse.