

Improvement of technology dehydrogenation of light paraffins on the catalyst prepared in an electromagnetic field

© Rustem R. Daminev,* Oleg Kh. Karimov,⁺ Lilia Z. Kasyanova, and Eduard Kh. Karimov

Division of General Chemical Technology. Ufa State Petroleum Technological University, Branch of USPTU in Sterlitamak. Pr. Oktyabrya, 2. Sterlitamak, 453118. Bashkortostan Republic. Russia.

Phone: +7 (3473) 24-25-12. E-mail: karimov.oleg@gmail.com

*Supervising author; ⁺Corresponding author

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Abstract

The results of the improvement of industrial technology dehydrogenation of light paraffins to alumina-chromium catalysts synthesized in a new way – by impregnation using an electromagnetic microwave radiation were presented. The technology of synthesis of the chromia-alumina catalysts under influence of the microwave field at various stages of its preparation allows to obtain a catalyst with a high catalytic properties, the olefin yield is increased by 4.3%, the selectivity increased by 3.8%. The advanced technological scheme of the process of dehydrogenation of light paraffin hydrocarbons in the prepared catalyst were proposed. The most significant advantages of catalysts, allowing to improve the existing technology for the dehydrogenation of hydrocarbons are: high mechanical strength, low rate of coke formation of the catalyst and high thermal stability. As a result of improvement of technological scheme of the site wet cleaning of dusty hydrocarbon stream from the reactor was replaced with dry cleaning that allows the use of spent catalyst recycled. Low coking of the catalyst will reduce the amount of coke formation of lumps in the reactor, deforming the internal structure of the reactor and in violation of the hydrodynamic regime. The business case for improvement were presented.