

Chromatographic study of microwave discharge in liquid Nefras with CO₂ bubbling

T. S. Batukaev¹, I. V. Bilera¹, G. V. Krashevskaya^{1,2}, Yu. A. Lebedev¹, and N. A. Nazarov¹

¹ A. V. Topchiev Institute of Petrochemical Synthesis, Russian Academy of Sciences
29 Leninsky Ave., Moscow, 119991, Russia
E-mail: lebedev@ips.ac.ru

² National Research Nuclear University “MEPHI”
31 Kashirskoe shosse, Moscow, 115409, Russia

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The task of CO₂ decomposition is one of the components of the problems associated with global warming. One of the promising directions is the use of low-temperature plasma. For these purposes, different types of discharges are used. The microwave discharge in liquid hydrocarbons has not been studied in these problems. This paper presents the first results on the study of microwave discharge products in liquid Nefras C2 80/120 (petroleum solvent, a mixture of light hydrocarbons with a boiling point from 33 to 205 °C) when CO₂ is introduced into the discharge zone. The main products are H₂, C₂H₂, C₂H₄, CH₄, CO₂, CO. No oxygen was found in the products. This can be explained by its binding with hydrogen and methane, which are formed during the decomposition of Nefras. It is shown that the degree of CO₂ decomposition reaches 70 %.

Keywords: microwave discharge in liquid hydrocarbons, CO₂ decomposition, chromatography, hydrogen production.

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