POSSIBLE ROUTS TO USE PRODUCTS OF ELECTROCRACKING FOR THE SYNTHESIS OF CARBON NANOSTRUCTURES

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Abstract

The paper gives a brief overview of studies on the decomposition of hydrocarbons in electrical discharges. The author suggests using this process for the possible utilization of liquid organic waste of chemical and petrochemical industries, which gives a wide range of valuable products. This paper relates to chemical installations and apparatus, and more specifically it relates to reactors for the decomposition of liquid hydrocarbons by the electric discharge process.

The electrocracking for the decomposition of liquid organic waste of chemical and petrochemical industries produces a gas containing 27-29% acetylene, an acetylene concentration unattainable by other processes for the production of acetylene from hydrocarbons feedstock, and more environmentally friendly than the "carbide" method. Electrocracking gas seems very perspective raw materials for synthesis carbon nanofibers (CNFs), and its use for these purposes creates real preconditions for the establishment of an integrated technology for utilization of liquid organic waste. And we have already been synthesized of carbon nanofibers from electrocracking gas containing acetylene, and this process is based on the use reactor grain type.

This process also yields substantial quantities of lower olefins, paraffine and hydrogen. The electric discharge process has a marked advantage in the consumption of electric power is low (15.5-16.0 Kw. hr per 1 m³ of C₂H₂) another notable feature being that use can be made of diverse feedstocks ranging from low-boiling low-grade gaslines to heavy petroleum products and tars.

Keywords: electrocracking, decomposition, liquid organic waste, carbon nanofibers

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