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Scientific bases and principles of obtaining carbon-metallic material by catalytic pyrolysis of ethanol

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Abstract

© Published under licence by IOP Publishing Ltd. The method of producing of carbon-metal material in the form of mixture of carbon fibers and encapsulated in unstructured carbon particles of nickel in diameter from 10 to 150 nanometers catalytic pyrolysis of ethanol comprising the catalyst in the form of nickel oxide and magnesium applied on the surface of inert substrate and placed in theclosed sealed volume maintained at constant temperature is fed through the inlet manifoldethanol vapor andis removed through outlet manifold gaseous pyrolysis products, wherein ethanol vapor diluted with inert gas in a ratio ethanol: inert gas of 1:4 ⋯5. The inert gas dilution use ethanol vapor argon. The catalyst is used in the form of alloy of nickel oxide (II) and magnesium in a weight ratio of NiO: MgO 4:1. The temperature is maintained constantly during synthesis of the form in the range of 600 to 750 °C. Synthesis was carried out under atmospheric pressure. The catalyst applied on the surface of inert substrate in the form of graphite foil is used in pulverized or granular state.

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