INVESTIGATION OF CONVERSION OF CARBON MONOXIDE TO CARBON DIOXIDE ON THE SURFACE OF MIXED NANOCATALYST IN INITIAL TRIMMED OF MODIFICATION OF RADIATION

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The experiments presented in this paper have been performed in the fixed laboratory-built for experiments where the mixed nano-catalyst on the gas stream reactor was refined initially in the r-radiation. The kinetics of conversion of CO to CO_2 was researched in predefined surface temperature and in partial pressure of carbon-monooxide. Simultaneously, we determined the catalytic activity by analysis of the gas flow leaving the reactor using a quadruple mass spectrometer. During the survey, the surface temperature of catalyst increased steadily, while the conversion speed was rised accordingly. Thus, the share of conversion increases from 43% to 60% in various concentrations of carbon monoxide in the temperature range of T=80-250 oC when compared with the results of non modificiated radiation experiments on the same catalyst. İt is determined that the conversion speed is stable at the interval of partial pressure Δ PCO=1÷14 mmHg of carbon monoxide in 1 bar pressure of gas mixture on nano-catalyst surface. By carefully comparing the partial pressure during 15 oxidation reduction cycles, we came to the conclusion that at fixed O_2 pressure, the oxidation take place when the CO partial pressure is low than the O2 partial pressure. In this article, the processes of adsorption and desorption on the surface of the nanocatalyst have been researched. The anion and cation centers greating on the surface of nano-catalyst was studied. Surface effects were studied by EPR and HR spectroscopy. The research has shown that the mixed nano-particles of catalyst could implement on the car catalyst system and other industrial areas for decreasing the pollution level. The selectivity and affectivity of this catalysts are high and could use for a long time and economically is acceptable.

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