The critical value of temperature and mixture ratio of components, under which the break of chain process of normal n-heptane occurs are defined.

The mechanisms of proceeding radiation thermal processes in hydrocarbons-water system are discussed.

At the temperatures higher than 300°C the radiation-thermal decompositions of hydrocarbon micro-impurities in water into gas products occurs according a chain mechanism and the radiation-chemical yield of the decomposition exceeds 100 molec/100eV. This method can be used for purification of sewages from oil contaminations.

ECOLOGICAL APPLICATIONS OF THE IRRADIATED ADSORBENTS

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In our previous works it was shown that after irradiation some adsorbents gain new interesting properties such as increasing (or decreasing) of their adsorption capacity, selectivity in relation to some gases, change of chemical bounds of gas molecules with adsorbent surface as well as other properties. We investigated a lot of adsorbents with semiconducting and dielectric properties.

A high temperature superconductor was investigated also.

Adsorbents were irradiated by ultraviolet (UV) and gamma - radiation, reactor (n.γ) - radiation, α-particles (E=40-50 Mev), protons (E=30 Mev), and also He-3 ions (E-29-60 Mev).

The following techniques were used: volumetric (manometrical), mass-spectrometer and IR spectroscopic methods, and also method of electronic - paramagnetic resonance (spin paramagnetic resonance)

The obtained results allow to speak about creation of new adsorbents for gas purification (clearing) from harmful impurities, gas selection into components, an increasing of adsorbing surface Thus one more advantage of the irradiated adsorbents is that they have "memory effect", i.e. they can be used enough long time after irradiation.

In laboratory conditions we built the small-sized adsorptive pump on the basis of the irradiated zeolites which are capable to work in autonomous conditions.

It was found, that some of adsorbents after irradiation gain (or lose) selectivity in relation to definite gases. So, silica gel, which one in initial state does not adsorb hydrogen, after gamma irradiation it becomes active in relation to hydrogen. Some of rare earths oxides also show selectivity in relation to hydrogen and oxygen depending on a type of irradiation.

Thus, it is possible to create different absorbents, depending on a solved problem, using a way or selection of adsorbents, either of radiation type and energy, as a result obtained adsorbents can be used for various ecological purposes.