investigated. As the research object a metallic of aluminum plates by mark AD-00, was exposed oxidation under γ-radiation at 373 K temperature. Previous samples were vacuumized at T=300 K temperature and $P=10^{-4}$Pa pressure. For RTL analysis of samples radiated till doze 25 kGy by γ-rays ^{60}Co of at 1.03 Gys^{-1} doze rate and 77 K.

Curves RTL were got in TLG-69 thermoluminograph at $5Kmin^{-1}$ warming velocity of samples. Surface condition and oxidation degree were controlled by IRRAS and XPS methods.

Al plates vacuumized, radiation-thermal (RT) oxidated at room temperature were irradiated by γ-quanta at 77K, it leads to the appearance of peaks RTL got at low temperature –170, 230 and 320 K. The most intensive peak at T=170K with activation energy E_a=0.38eV, and also weak peak at T = 230K, it may connect with the generation of unstable O_3^- complex. The generation of O_3^- complex is due to low-temperature adsorption of molecules O_2 - radiation-heterogeneous decomposition product of H_2O surface localized O^- hole center or V^- type one (O^- ion lattice being near cation vacancy).

We think the wide diffusion of RTL peak at 320K with $E_a \approx 0.8$-1.0eV links with the adsorption complexes of H (hydroxyl or ion hydride) being close to anion vacancy with V (V_{OH}, V^-, V_{Al}, and others) type hole center.

While increasing contact time between Al and water radiation-thermal oxidated and the thickness of oxide layers, intensity of peak gets low at 300K, that's proper to the results of the IR- spectroscopic researches.

By increasing the thickness of oxide layer RTL peaks intensity gets high at 170 K, this links with increasing of surface hole center density and formation possibility of oxygen adsorption complexes.

Intensity of the peak given depends on the doze of γ -rays and in the region $2 \leq D \leq 20$ kGy linear correlation is observed between them, in the region $D > 20$ kGy saturation is done. Vacuumization of the samples at 673K makes RTL entirely depress. Thus during studying the contact of RT oxidation of metals with water RTL method can be applied. While the formation of oxide layer the leading role of oxygen was determined.

INFRARED REFLECTION ABSORPTION SPECTROSCOPY STUDY OF RADIATION-HETEROGENEOUS PROCESSES IN THE SYSTEM OF ALUMINUM-HEXANE

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Infrared reflection absorption spectroscopy (IRRAS) was applied to study the regularities of radiation conversion of hexane on the surface of aluminum. The research object was the

thin polished aluminum plate by mark of AD-00 with reflection coefficient R=0.8÷0.85 in infrared range λ=2.2÷15 μ. As adsorbate unsaturated vapors of spectroscopy clear hexane were used. The absorption of hexane (C_2H_{14}) was being studied manometric at pressures P=(0.1÷1.0)×10^2 Pa , what corresponded to monolayer value of 1-10.

The samples were irradiated with γ-quanta of ^{60}Co with D=1.03 Gy·s^{-1} doze rate. Infrared reflection spectrum when linear-polarized radiation fall on the sample under angle φ=10° was measured by spectrophotometer "Specord 71 JR" in diapason of 4000-650cm^{-1} at the temperature by mean of special reflecting arrangements.

Formation of molecular hydrogen (H_2) and other gaseous products of decomposition were controlled by chromotographical and infrared spectroscopical methods.

The analysis of hexane infrared absorption spectra after radiation-stimulated adsorption on the surface of aluminum, points out the formation of H-bonded hydrocarbon complex (ν~2680cm^{-1}) with much loosening of C-H bond (the molecular form of absorption) and the possibility of proceeding dissociative absorption with formation of metal-alkyls (ν~2880, 2920, 2970 cm^{-1}). Probability of the last mentioned process, which proceeds in the most defective centers, increases with increasing of γ-radiation doze.

It was established that the radiation processes in heterosystem Al-ads.C_6H_{14} accelerate the radiolysis of hexane. At all these the radiation decomposition of hexane in heterosystem Al-ads.C_6H_{14} is accompanied by formation the surface hydrids (ν~1700-2000 cm^{-1}), acetylene (ν~3200-3300 cm^{-1}), ethylene (ν~980 cm^{-1}), and also gaseous products of molecular hydrogen decomposition (H_2) and hydrocarbons C_1–C_5 (bands with maxima 770, 790, 825, 900 and 950 cm^{-1} concern to pendulum oscillations of $(CH_2)_n$, where n<6). It was shown that, with increasing of γ-radiation doze, the rates of surface processes of decomposition and accumulation of H_2 increase, and the decomposition of hexane on the aluminum surface is going to happen at D=20kGy.

The possible mechanisms of processes were proposed. It shown possibility in using of results got in radiation cleaning of water, polluted with oil products, which offers a special importance in radioecology.

RADIATION STIMULATED PROCESSES IN LAYERED SILICON p^+-n-n^+ STRUCTURES

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Radiation technology is rather new and one of prospective means of modifying the parameters and properties of semiconductor devices. Easy control of both conditions and operating characteristics of ionizing radiation makes it possible to produce semiconductor devices with preset properties. In practice, however, in order to apply radiation technology methods it