The aim of the publication is to study the mechanisms of the equilibrium state of aqueous-alcoholic mixtures at key stages of the creation of vodka using electrochemical activation of drinking water. We have experimentally established the dependence rate of achievement of thermodynamic equilibrium and its character of aqueous-alcoholic systems, through rational waveforms hydroxyl group protons of ethanol and water, to stabilize their positions. The study has proved that steady equilibrium is characterized by the presence of combined unitary signal EtOH+H₂O in hydroxyl group ($\Delta\delta=0$ ppm). Unsteady equilibrium is characterized by the presence of two separate signals of EtOH and H₂O in hydroxyl group.

Methods: $^1$H NMR-spectroscopy; methods of evaluation of physicochemical and organoleptic characteristics of water, ethanol, aqueous-alcoholic mixtures, vodkas.

Keywords: aqueous-alcoholic mixture, vodka, $^1$H NMR spectroscopy, hydroxyl protons, electrochemical activation.