

The invention relates to cryogenics, in particular to the methods of cleaning and separation by rectification of the concentrate of heavy target components with producing of target components, for example, krypton and xenon, and isotopes of light gases, such as deuterium, tritium, and helium-3. Method of cleaning and separation by rectification of the concentrate of heavy target components with producing target components of concentrate and isotopes of light gases provides for additional thermostating of the flow of concentrate of heavy components and/or flow of the fraction of low-boiling component and/or flow of the fraction of high-boiling component, irradiation of said flows by ionizing emission with obtaining in the flows of the isotopes of light gases, additional cleaning of flows, concentration of the isotopes of light gases in the flows with their subsequent isolation, additional removal of nuclides from production flows, moreover as high-boiling component is used xenon, as low-boiling component is used krypton, and concentrate itself can contain one heavy target component. A device for realization of said method is proposed. The invention provides increase of cleanliness and safety of production of target components, and also to increase the efficiency of the method and device.