ICP-MS ANALYSES AT CNRTC

Volkan ÜNSAL Elvan BAŞÇETİN Ecem ALTINOK Ahmet YAYLI

Mass spectrometry is the most commonly used Destructive Analysis (DA) technique in nuclear safeguards for measuring the isotopic composition and isotopic amount content (concentration) of uranium, plutonium and other actinides in a sample. ICP-MS (Inductively Coupled Plasma – Mass Spectrometer) is high-tech analysis technique that is used for analyzing solid and liquid specimens of numerous elements sensitively, quickly, accurately and in quantitative, qualitative and semi-quantitative modes. In CNRTC, ICP-MS has been used for over ten years to analyze isotopes of nuclear and non-nuclear elements. Especially in uranium compounds $^{235}\text{U}/^{238}\text{U}$ isotopic ratio analysis is the most worked and applied analysis at Reactor Materials Department of CNRTC for nuclear fuels, the others being $^{10}\text{B}/^{11}\text{B}$, $^{234}\text{U}/^{238}\text{U}$ and $^{6}\text{Li}/^{7}\text{Li}$ isotopic analysis. In near future, we are planning isotopic ratio determination in thorium, rare earths and environmental pollution investigations by ICP-MS.