opportunity of simultaneous definition elements with automation of process of the analysis and with expressness, necessary at the analysis of elements on short-living radionuclides.

In the given work comparative characteristics of the operative control of technological process of extraction of gold, uranium and some rare elements with the help of nuclear-physical methods of the analysis of powder samples, a continuous stream of a pulp and solutions are presented. They are: the control of process of sorption leaching of gold; qualities of ores, gravity and fleet-concentrates methods x-ray spectral, x-ray-energy-disperse, radiodisplay, gamma-absorption and neutron-activation analyses are related to them.

Concrete examples of use of the developed techniques for research of geochemical behaviour of the basic and accompanying elements, for the control of technological process of extraction of gold, uranium and some rare and rare-earth elements (V, Sc, Mo, Re) from ores and intermediate products of manufacture are presented; for the analysis of uranium protoxide-oxide, and also for an estimation of a condition of tailing mines of the industrial enterprises.

STUDYING OF ISOTOPE STRUCTURE OF URANIUM BY ALPHA – SPECTROMETRIC METHOD

Sattarov G.S., Muzafarov A.M., Petukhov O.F., Petrenko V.Z.
Navoi Mining & Metallurgical Complex, Navoi, Uzbekistan

The knowledge of isotope structure of uranium in waters, in minerals and in finished goods gives the helpful information on the radiation and nuclear-physical processes occurring in natural environments. Besides, customers put a question before uranium producing enterprises on the control of limiting concentration of an isotope ^{234}U in finished goods (uranium protoxide-oxide). For these reasons studying and development of techniques of definition of isotope structure of uranium is an actual task.

In this connection for researches alpha - spectrometers « PROGRESS-ALPHA » produced by R&D "DOZE" Russia and firms " Canberra " the USA were used. The isotope structure of uranium (^{234}U, ^{235}U, ^{238}U) was determined on a known ratio $^{234}U/^{238}U$, which is equal to 53,41micrograms/gram. Identification of isotopes carried out by 4198 keV (^{235}U), 4395 keV (^{234}U) and 4773 keV (^{238}U).

The technique of radiochemical preparation of samlpes to the analysis included: clearing of organic chemistry and preventing natural isotopes; drawing by a method electrolytical sedimentation on a metal substrate (d=24mm) an active stain, the area 4,5 cm^2, with isotrope distribution of ions ^{234}U, ^{235}U, ^{238}U.

As standards, the international and All-Russian standards with known contents ^{234}U were used. The isotope structure of uranium in uranium protoxide-oxide, chemical concentrates, technological solutions is determined. Infringements of isotope balance $^{234}U/^{238}U$ on separate sites of fulfilled uranium deposits and in technological products are found out.