

عنوان مقاله:

Mineralogy and Pollution Status of Columbite-Tin Ore Contaminated Soil

محل انتشار:

نشریه پیشرفته شیمی، دوره 2، شماره 2 (سال: 1398)

تعداد صفحات اصل مقاله: 18

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خلاصه مقاله:

Mining activities are one of the numerous ways by which man impacts on his environment. In this study, two non-destructive analytical techniques (XRF and XRD) were employed in the mineralogical characterization of Columbite-Tin ore and their contaminated soils. This investigates associated unnoticed minerals as well as the impact of mining on vicinity farmland soils on the Yelwa-Mbar mining site, Nigeria. The chemical characterization of Columbite ore using electron dispersive XRF revealed that most of the Columbite mineral deposits in the Plateau mining sites contain Niobium mineral in various proportions and vary from deposit to deposit depending on the geochemical composition of the minerals that formed the parent rock. Tin content as determined by ED-XRF impart that the ore can be utilized directly in the furnace because of its high cassiterite content (85.43%). The percentage elemental composition of soil around the mining vicinity unveiled the presence of Radionuclides K-40, Rubidium and Thorium in the soil. This is of great concern. The XRD mineralogical investigation of Columbite shows the presence of associated braunite, cassiterite, ilmenite, quartz, and zircon while the phase pattern for Tin ore confirmed the availability of cassiterite, magnetite and litharge. Pollution status based on contamination factor and geo-accumulation indices gave .both radionuclides and heavy metal concentrations that depicts moderate to extreme contaminations

کلمات کلیدی:

Pollution Index, Geo-accumulation, Mineral, Soil, columbite, tin, Plateau

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