

# Leaching behavior of uranium and thorium(II): approach for pegmatite deposits

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In order to understand the leaching behavior of uranium and thorium from Japanese plutonic rocks, some pegmatite deposits were carefully been investigated. The main study was made for the Suisho-yama pegmatite deposits, Abukuma district, in granitic rocks of Cretaceous in age.

From the mineralogical and structural viewpoint, the pegmatite deposits are divided into four zones, marginal zone, graphic zone, mega-crystal zone, and quartz zone, from the outside to inside. Radioactive minerals such as yttrianite(Y), zircon, allanite(Ce), uraninite, fergusonite(Y), thorogummite, tengerite, autunite and torbernite are found in the mega-crystal zone. Zircon and allanite(Ce) are not altered, whereas yttrianite(Y) and fergusonite(Y) are altered and replaced by thorogummite. Tengerite, autunite and torbernite are recognized in microfractures mainly in alkali-feldspar. The mode of distribution of alteration minerals in pegmatite deposits can well be analogized to that of uranium migration in the granitic rocks under oxic hydrogeological environment.