

REE Abundance in Weathered Granitic Rocks in the Bangka Island, Indonesia

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The recent demand for REE especially HREE has been increasing with the progress of modern high-technology industries. Meanwhile, REE production is controlled by China and ion adsorption deposits in southern China dominantly provide HREE resources. Thus it is important to investigate new REE mineralization with enrichment of HREE in the world. In this study, we report the REE abundance in fresh and weathered granitic rocks in the Bangka Island, Indonesia.

Granite plutons associated with Sn deposits are widely distributed in the Bangka Island. Most of these plutons are highly differentiated S-type ilmenite-series granites, which generally tend to be enriched in REE. From the results of chemical analyses, higher REE concentration is identified in the Tanjung Raya Pluton. This pluton shows the average REE concentration of 169 ppm and REE contents of the weathered crusts range from 172-317 ppm. The ratio of REE enrichment (REE concentration of weathered crust / REE concentration of granite) ranges from 1.0-1.9. The weathered crusts have LREE/HREE ratio ranging from 3.5 to 5.2, indicating that they are relatively enriched in HREE. In contrast, REE contents of all the samples of granites and weathered crusts are 250 ppm with the range of 150-350 ppm and 190 ppm with the range of 30-450 ppm, respectively. The results show that most of the other weathered crusts do not show the enrichment of REE by weathering. Generally, weathered crusts are poorly-developed and fresh granites crop out by erosion. Reworked sediments are commonly recognized. The granites and weathered crusts in the Bangka probably have a low potential of REE resources because of absence of well-developed weathered crusts and depletion of REE by weathering in most of the weathered crust.