PRELIMINARY STUDY ON KOREAN BENTONITE TO PROVIDE THE BASIS FOR USE OF NATURAL ANALOGUES IN SUPPORTING SAFETY CASES FOR RADWASTE DISPOSAL

by

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To validate the performance of buffer materials for the high-level radioactive waste disposal in Korea, understanding the properties of domestic bentonite is a prerequisite. We have investigated the status of domestic bentonite studies and fundamental properties of the bentonite around Gampo area in Kyungju, a southeast part of South Korea. The mineralogical and chemical compositions and the cation exchange capacities of the samples obtained from four different bentonite mines were analyzed and compared. The samples possess slightly different properties and their cation exchange capacity becomes larger with respect to the bentonite contents. We note that the interaction between bentonite and surrounding rocks is also observed. A potential natural analogue study site for Korean bentonite is determined to be newer bentonite mines around Gampo area with consideration of domestic bentonite mine development. The natural analogue study on domestic bentonite can be used as a supplementary safety indicator to support disposal safety.