

”IMMOBILIZATION OF PILLARED CLAY CONTAINING RAFINAT WASTE FROM MOLIBDENUM-99 PRODUCTION BY USING POLYMER”

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ABSTRACT

Commonly available methods for the removal uranium from an aqueous solution include sorption using pillared clay as adsorbent. This research about sorption of uranium from aqueous solution with pillared clay and choosing best waste loading for immobilization pillared clay containing uranium by using epoxy resin polymer. Uranium used is simulation waste made from uranyl nitrate hexahydrate with 50 ppm in concentration. Pillared clay was made by reacting between Na-bentonite and zirconyl chloride ($ZrOCl_2 \cdot 8H_2O$). The research was carried out by varying influent factors to the adsorption process, variable of Zr as pillar material, contact time, and pH. Chosen variable would be used to make pillared clay containing uranium which would be immobilized by using epoxy resin polymer and varying waste loading. Optimum condition of uranium adsorption was obtained at Zr concentration of 0,01M, pH 7, contact time 16 in minutes with removal uranium 42.6%. Based on density, compressive strength, and leaching rate the best block polymer-waste was waste loading 20%. On this condition, the density of polymer-waste block was 0,9938gram/cm³, compressive strength was 20, 179kN/cm and was no detection for leaching rate.

Key word : pillared clay, immobilization using epoxy resin polymer, waste loading, adsorption