

Preliminary Study on the Removal of Solid Uranium Compound in Nuclear Fuel Production System

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Abstract : By sealing constraint, the system of nuclear fuel production penetrates a trace of air in during its service. The vapor in the air can react with material in the system and generate solid uranium compounds. These solid uranium compounds continue to accumulate and attached to the production equipment and pipeline of system, which not only affects the operation reliability of production equipment and give off radiation hazard as well after system retired. Therefore, it is necessary to select a reasonable method to remove it. Through the analysis of physicochemical properties of solid uranium compounds, halogenated fluoride compounds are selected as a cleaning agent, which can remove solid uranium compounds effectively. This paper studied the related chemical reaction under the condition of static test and results show that the selection of high fluoride halogen compounds can be removed solid uranium compounds completely. The study on the influence of reaction pressure with the reaction rate discovered a phenomenon that the higher the pressure, the faster the reaction rate.

Keywords : fluoride halogen compound, remove, radiation, solid uranium compound

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