

A comparative study of the adsorption efficiency of adsorption materials for wastewater containing strontium and cesium

RUI ZUO^{1,2*}, CAN DU^{1,2}, JINSHENG WANG^{1,2},

XUERU GUO³

¹College of Water Sciences, Beijing Normal University, Beijing 100875, China (*correspondence: zr@bnu.edu.cn)

²Engineering Research Center of Groundwater Pollution Control and Remediation, Ministry of Education, Beijing 100875, China

³School of Statistics, Beijing Normal University, Beijing 100875, China

In this paper, activated carbon and bentonite were used to investigate the effects of adsorption time, initial concentration, pH, and temperature on the adsorption of strontium (Sr) and cesium (Cs) contained in wastewater. The results showed that the adsorption efficiencies of bentonite on Sr and Cs were better than that of activated carbon. The removal effect of bentonite on Sr improved in neutral environment and low initial concentration, while activated carbon was suitable to adsorb Sr in alkaline environment and high initial concentration. For Cs, the two materials were both suitable in alkaline environment. The difference is that bentonite was suitable for high initial concentration, while activated carbon was suitable for low initial concentration. The optimal temperature for the two materials to adsorb Sr and Cs was 30 °C. Among the two adsorption materials, bentonite had good removal effect and could be used in practical application in which radioactive wastewater containing Sr and Cs needs to be disposed of.