

Magnesium oxide microspheres for fluoride removal from aqueous solution

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Porous magnesium oxide microspheres were obtained by calcination of the $Mg_5(CO_3)_2 \cdot 4H_2O$ microsphere precursor. $Mg_5(CO_3)_2 \cdot 4H_2O$ was synthesized using magnesium chloride hexahydrate and sodium carbonate. MgO and $Mg_5(CO_3)_2 \cdot 4H_2O$ were characterized by SEM, XRD, EDS, and XPS. The fluoride removal properties of magnesium oxides were investigated, including adsorption kinetics, adsorption isotherms, and influences of coexisting anions and pH. The MgO microspheres showed a higher capacity for fluorine removal.