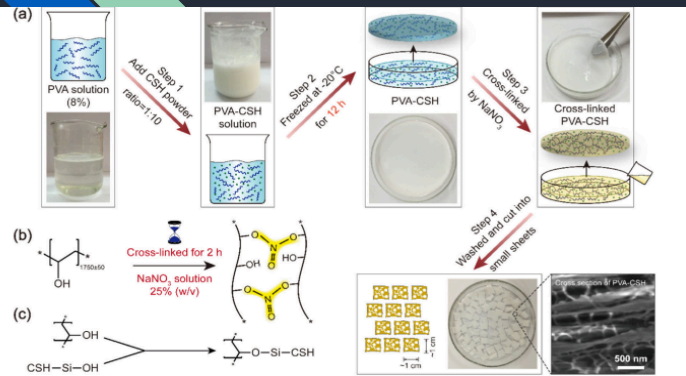


Immobilization of powdery calcium silicate hydrate via PVA covalent cross-linking process for phosphorus removal

Sample Preparation



(a) Synthetic pathway of the formation of PVA-CSH sheets and micrograph of the porous net structure formed, (b) the proposed PVA cross-linking reaction using NaNO₃ and (c) the reaction process between PVA and CSH.

Ding, S et al.(2018), *Immobilization of powdery calcium silicate hydrate via PVA covalent cross-linking process for phosphorus removal*, Science of the Total Environment 645, 937-945

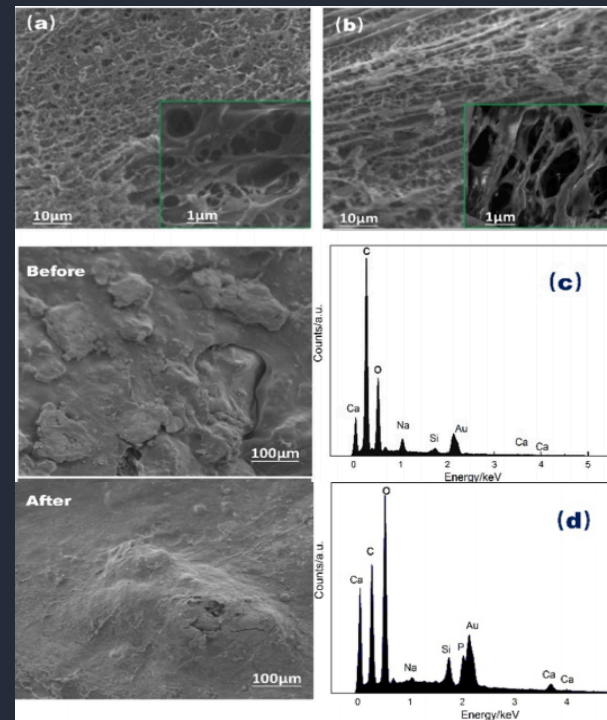
Analytical Results

SEM: Porus structure of CSH powder was not destroyed by the PVA immobilization. The abundant and larger diameter pores might provide more Ca²⁺ reactive binding sites for adsorbing phosphate.

The sheet structure of PVA-CSH could provide increased free access to ions because of comparatively shorter distances between molecules.

EDS: Compared with fresh PVA-CSH, it can be clearly seen that the folded structure of PVA-CSH became smoother, revealing that the porous structure disappeared after reacting with phosphate.

These results indicated phosphate could be removed from wastewater by PVA-CSH.



Changes in surface microstructure and elemental composition of PVA-CSH: (a) SEM image of surface, (b) SEM image of cross-section, SEM images and EDS analysis results before (c) and after (d) reaction with phosphate.