Ceramic filters and their application for cadmium removal from pulp industry effluent

Subriyer Nasir, author

Abstrak

e purpose of this paper was to investigate the performance of ceramic filters made from a mixture of natural clay, rice bran, and iron powder in removing cadmium from pulp industry effluent. Some parameters were examined such as acidity, total dissolved solid (TDS), total suspended solid (TSS), electrical conductivity (EC), and cadmium concentration. Results showed that the composition percentage of the ceramic filter, which in this case amounted to 87.5% natural clay, 10% rice bran, and 2.5% iron powder, may decrease cadmium concentration in pulp industry effluent by up to 99.0%. Furthermore, the permeate flux decreased after 30 minutes of filtration time, and subsequently became constant at one hour of contact time. In addition, Scanning Electron Microscope (SEM) micrographs of the ceramic filter surfaces indicate that ceramic filters have a random pore structure and can be categorized as microfiltration filters.