Manufacturing microorganism carrier for treating odorous compounds using recycled carbon and its performance evaluation

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Biofilters decompose pollutants present in gas phase to water, carbon dioxide and mineral salts using metabolism of microorganisms. This process is economical and environment-friendly because it needs less operational costs compared with other treating facilities and it minimizes the pollution resulting from treatment with chemicals. Microorganism carrier should meet specific requirements including enough rigidity for maintaining its shape, sufficient adsorptivity, favorable pore size and surface area for incorporating microorganisms, safe raw material, suitable carrier size. In this study autoclaved organic and inorganic compound support for microorganisms were manufactured using recycled carbon fly ash and its performance in a biofilter operation evaluated. The study showed microorganisms grew stably on the carrier and hydrogen sulfide and ammonia odorous compounds were decomposed effectively in a biofilter operation.