

Influence of Fly Ash on Changes of Polycyclic Aromatic Hydrocarbons Content in Composted Sewage Sludge – Patryk Oleszczuk, Stanisław Baran

Summary

In the present paper changes of polycyclic aromatic hydrocarbons (PAHs) content were evaluated during composting of sewage sludge stabilized with coal fly ash. The content of PAHs in sewage sludge used for composting was 10385 µg/kg (± 830). In fly ash only three PAHs were determined (phenanthrene – 0.9 µg/kg, anthracene – 1.9 µg/kg and chrysene – 2.7 µg/kg). Addition of fly ash to composted sewage sludge had various – dependent on its share – effect on PAHs mineralization. Relatively best degradation (66.3%) was noted when sewage sludge was mixed with fly ash in amount 20% (w/w). In composted sewage sludge and sludge with 30% addition of fly ash a decrease of PAH content was also observed (38 and 32.4% respectively). Relatively “best” mineralization was noted for 3-ring PAHs. Estimated half-lives of all investigated compounds depended on individual PAHs properties and ranged from 59 to 1164 days.