Elemental compositions in waste woods used for fuel of bio-mass power plant

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Abstract

The elemental contents of waste woods used for fuel of bio-mass power plant were determined by PIXE analysis. Kinds of the waste wood were construction waste plywood, construction waste square wood, solid board, fancy plywood, hardboard, false acacia (trees attacked by strong winds), tree attacked by pinewood nematode, Japanese cedar bark and insulation fibreboard. PIXE analysis of the waste wood samples revealed 24 elements, of which Na, Mg, Al, Si, S, K, Ca and Fe were found to be the major components. For the major components, construction waste square wood, solid board and fancy plywood were the almost same concentration levels, except for K. However, in other waste woods, several times of differences was found to the major elements concentration. In the trace element, Hg was detected from the false acacia and the tree attacked by pinewood nematode. Zn and Pb concentrations of the construction waste plywood and the insulation fibreboard were somewhat higher than other the waste woods.