

The Effects of Wood Ash on Ignition Point of Wood

Authors : K. A. Ibe, J. I. Mbonu, G. K. Umukoro

Abstract : The effects of wood ash on the ignition point of five common tropical woods in Nigeria were investigated. The ash and moisture contents of the wood saw dust from Mahogany (*Khaya ivorensis*), Opepe (*Sarcocephalus latifolius*), Abura (*Hallealedermannii verdc*), Rubber (*Heavea brasiliensis*) and Poroporo (*Sorghum bicolour*) were determined using a furnace (Vecstar furnaces, model ECF2, serial no. f3077) and oven (Genlab laboratory oven, model MINO/040) respectively. The metal contents of the five wood sawdust ash samples were determined using a Perkin Elmer optima 3000 dv atomic absorption spectrometer while the ignition points were determined using Vecstar furnaces model ECF2. Poroporo had the highest ash content, 2.263 g while rubber had the least, 0.710 g. The results for the moisture content range from 2.971 g to 0.903 g. Magnesium metal had the highest concentration of all the metals, in all the wood ash samples; with mahogany ash having the highest concentration, 9.196 ppm while rubber ash had the least concentration of magnesium metal, 2.196 ppm. The ignition point results showed that the wood ashes from mahogany and opepe increased the ignition points of the test wood samples when coated on them while the ashes from poroporo, rubber and abura decreased the ignition points of the test wood samples when coated on them. However, Opepe saw dust ash decreased the ignition point in one of the test wood samples, suggesting that the metal content of the test wood sample was more than that of the Opepe saw dust ash. Therefore, Mahogany and Opepe saw dust ashes could be used in the surface treatment of wood to enhance their fire resistance or retardancy. However, the caution to be exercised in this application is that the metal content of the test wood samples should be evaluated as well.

Keywords : ash, fire, ignition point, retardant, wood saw dust

Conference Title : ICCCE 2015 : International Conference on Chemistry and Chemical Engineering

Conference Location : Amsterdam, Netherlands

Conference Dates : May 14-15, 2015