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Photocatalytic degradation of n- Hexacosane Using coupled ZnO-Sb_2O_3 and tungsten lamp

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ABSTRACT

The photo degradation of n-hexacosane (n- C26H54) by coupled ZnO -Sb_2O_3 was investigated. The coupled ZnO-Sb_2O_3 was prepared by using pure solid materials of ZnO -Sb_2O_3(1: 1) then calcend in suitable furnace for five hours The photodegradation of n-hexacosane using coupled ZnO-Sb_2O_3, which is achieved by the irradiation of suspended solution consists of $1x10^{-4}$Mn-hexacosane dissolved in 100 cm^3 of n-nonane with 0.1 g of coupled ZnO-Sb_2O_3 by using tungsten lamp from external source of a Pyrex photo reaction cell of 100 cm^3 at 298.15 K.. Several experiments were carried out at various conditions to reach the best degradation of n-hexacosane using coupled ZnO-Sb_2O_3. These experiments include the amount of n- hexacosane on fixed mass of ZnO-Sb_2O_3, the amount of coupled ZnO-Sb_2O_3, and the temperature effects .The main photolytic products of n-hexacosane photo degradation processes were heptane, octane, nonane, dodecane and tetradecane. Gas chromatographic using FID and IR, UV-Visible spectrophotometric techniques were used to identify the photocalalytic degradation products. Also the coupled ZnO - Sb_2O_3 studied by using X-Ray Diffraction spectrometric technique.

Keywords: Hexacosane, photocatalytic, Degradation, Hydrocarbons, Cracking.
