

TOPIC Nº 2

POSTER Nº

WASTE WATER CATALYTIC WET AIR OXIDATION USING CARBON SUPPORTED METAL CATALYSTS

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Wet air oxidation (WAO) is a very useful process in the treatment and elimination of pollutants from highly contaminated waste waters. It consists in the oxidation of the organic species to the final products, carbon dioxide and water, using an oxidizing source (oxygen or air) at high temperature and pressures (125-320 °C, 50-200 bar) [1]. In order to bring down the severe conditions used, very stable and active heterogeneous catalysts must be developed. Carbon supported noble metal catalysts have proved to fulfill these requirements [2].

Low molecular weight carboxylic acids (especially acetic acid) are very refractory compounds to WAO, being the end products of the oxidative degradation of most organic species. In this work carbon supported precious metal catalysts were developed in order to study the catalytic wet air oxidation of low molecular weight carboxylic acids as model compounds. The catalytic tests were performed in a 160 ml high pressure stainless steel reactor coated with a glass liner to prevent severe corrosion problems. The results showed that at around 200 °C and up to 6.9 bar of oxygen partial pressure, a very high catalytic activity is obtained, with selectivity near to 100 %. The catalytic system developed in this work seems to be very efficient, being a promising candidate to reduce the chemical oxygen demand of real waste waters.

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- [2] J. Barbier Jr, F. Delanoe, F. Jabouille, D. Duprez, G. Blanchard, P. Isnard, *Journal of Catalysis* 177 (1998) 378.