Military Technical College
Kobry El-Kobbah,
Cairo, Egypt

5th International Conference
on
Chemical & Environmental
Engineering
25 - 27 May, 2010.

ENV-1
Climate Changes & Environmental Issues

WASTEWATER TREATMENT BY ADVANCED OXIDATION TECHNIQUES.

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ABSTRACT

Water is a pre-request for life, and key source for humanity and it is abundant on earth. The whole amount of water existing on earth (Ocean, Lakes, Polar Regions, glaciers, underground water and water of bio-sphere and atmosphere) is around 1.4 x109 km. However 97.5 % is saltwater. Of the remaining 2.5 %that is fresh water, 70 % is frozen in polar icecaps; the rest is mainly present as soil moisture or in inaccessible subter ranean aquifers. Only less than 1 % of the world fresh water resource is readily available for human use; and even this resource is very unevenly distributed. One of the characteristics that best defines today,s society is the production of waste products. Approximately 23 % of the world's population live in developed countries consume 78% of the resources and produce 82 % of the waste products. In addition, it has to be pointed out that the volume of residual waste increases in an exponential way with regards to a country's level industrialization. Removal of organic pollutants from wastewater could be achieved via a number techniques such as chemical oxidation, air desorption, liquid d-liquid extraction, adsorption, inverse osmosis, ultra-filtration and biological treatment. These processes may transfer pollutants certain phase to anther without destroying them. They could be selective with slow to moderate in destruction rate, or rapid but not selective, and generally belonging to the cost effective ones. Recently a new set of treatment technologies, called advanced oxidation technologies (AOTs), has emerged. These technologies are based on the generation of highly reactive intermediates (principally the hyroxyle radical), which are capable of attacking the organic pollutants and initiating their rapid oxidation and eventual mineralization.

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