

Assess the efficiency of green and red soils as a catalyst in ozonation of Humic Acid

Back ground: chlorination of natural organic matter contained waters lead to formation of trihalomethans and haloaceticacids, and there are health potential adventures. So the removal of Humic acid as the most significant natural organic matter in water is necessary. The aim of this study was to evaluate the efficiency of catalytic ozonation of Humic acid in the presence of the local green montmorillonite.

Methods: Soils collected from Ardabil Sarcham area ' and after preparation was used as a catalyst. The variables in this study consisted of an initial pH of the solution(2, 4, 6, 8, 11), catalyst dosage(0.25-1 gr/l), reaction time(5-10-15-20-25-30 min) and initial concentration(5,10,25,50,100 mg/l) of pollutants were examined. Ozone generators with a capacity of 5gr/h and a power supply oxygen for simple and catalytic ozonation were used.

Finding: The results showed that with increasing contact time , pH and doses of catalysts and also by reducing the initial concentration of Humic acid to be significantly increases the efficiency of catalytic ozonation process, so that, As the COP process performance analysis of Humic acid in natural pH of treatment with 10mg/l in presence of Green and Red soils, respectively, in times of 15 and 20min was 100%, results demonstrated that radical scavengers such as nitrate, chloride, sulphate and carbonate in high concentrations has very low effect in reducing the efficiency of catalytic ozonation process in compared with conventional ozonation.

Conclusion: The results of this study showed that green and red local soil to the very high efficiency of catalytic ozonation increases. Considering the cost and availability of green and red sand can be used as catalysts for the removal of Humic acid in catalytic ozonation process or other similar process be used.

Key words: catalytic ozonation, Humic acid, green soil, Red soil, advanced oxidation process