

## **ABSTRACT**

Currently, aromatic organic compounds such as phenol and certain of its derivatives are present in wastewater from chemical, petrochemical, textile and paper; since it is commonly used as solvents. Such pollutants are difficult to degrade and are highly injurious to health, have a high oral toxicity, dermal and subcutaneous. Hence the need to eliminate this type of compounds using a method that is effective as is the photocatalytic technology, which has many applications, most of them focused on processes related to the environment. This paper reports photocatalytic degradation of phenols and chlorophenols, using  $\text{TiO}_2\text{-SO}_4^-$  doped with copper, prepared by the sol-gel method as a catalyst for the photodegradation in aqueous medium.

The  $\text{TiO}_2$  was prepared by Sol-Gel method, and was used as a catalyst in photocatalytic degradation of phenol and chlorophenols in the presence of UV light. The materials were prepared at acid pH and neutral (3 and 7); these same catalysts are adding sulphate ( $\text{H}_2\text{SO}_4$ ) for the purpose of analyzing the effect of these parameters (pH and sulfate ion) on degradation, compared against  $\text{TiO}_2$  Degussa P25. The photodegradation tests were conducted in a reactor type Batch UV irradiated with 4 lamps, was used in all tests a solution of 50 ppm or phenol chlorophenols,  $90 \text{ cm}^3/\text{min}$ .  $\text{O}_2$  and 0.25 g of catalyst. The photocatalyst more active was prepared at acid pH, reaching a rate of phenol degradation of 85%, in the case of the materials sulphate acid pH was also the best degradation was obtained, although the percentage it was lower than normal reached 80% in activity, but have not gone beyond the activity of the titania Degussa P25, which reached almost 100% degradation.

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