The adsorption and photocatalytic degradation of Black Eriochrome (NET), a dye selected as a model organic pollutant, has been investigated in aqueous suspension of TiO_2 as photo catalyst under UV irradiation**.** The elimination of NET, an organic compound widely used in the textile industry, was realized by photo degradation. The advanced oxidation process (AOP) concerns the active species generated in the landfill, mainly the HO· radicals. These species induce highly oxidizing properties for the destruction of the organic waste. The adsorption and photo catalytic degradation of NET has been investigated in aqueous TiO_2suspension under UV irradiation. To determine the equilibrium time, fine TiO_2 powder was dispersed in NET solution under continuous stirring; the NET concentration gradually decreases and stabilizes after 20 min of contact. The modeling of this kinetic followsthe pseudo-first order kinetic model with a high determination coefficient (R^2 = 0.999) and a capacity $q_{e,cal}$ in good agreement with the experimental data. The photo degradation experiments were undertaken to evaluate the effect of the analytical parameters influencing the NET removal efficiency. It has been observed that under optimal conditions (pH 12, adsorbent

dosage 1 g/L, stirring speed 200 rpm and contact time 120 min), 92.9 % removal efficiency of NET was obtained for a concentration of 46 mg/L.The photocatalytic degradation rate was favored for high NET concentrations of solution in agreement with the Langmuir-Hinshelwood (L-H) model