

## Study of photocatalytic hydrogels & ozonation as combination method on water purification

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### Abstract

**Statement of the Problem:** Following the global water issues, advanced countries as China, the USA have different methods to solve this crisis. If the pollutant is crucially harmful and causes cancer among humans, this substance should be degraded by an advanced material. Meanwhile, innovation in the photocatalyst is significant by the advanced material. Photocatalytic polymeric networks are proposed since they are sustainable, reusable, and have degradation properties for water treatment and wastewater. Laboratory results are a discrepancy from industrial results because on a larger scale other factors such as scaling and increasing the volume of the treatment plant and unstable environmental conditions are involved in the industry. For instance, if the laboratory results indicate up to 90% removal of pollutants, is cut down to 80-50% in the industry. Therefore, finding a solution to improve water purification on a larger scale is essential. Water treatment methods include membrane filtration (reverse or forward osmosis), adsorption, flocculation, advanced oxidation, degradation, and ozonation. Due to the effectiveness of photocatalytic adsorbents and photocatalytic ozonation methods, they can be complementary methods considerably. It is appraised that this method will take a constructive step to reduce pollutants in the environment and industry. The approach has many factors, including optimization amounts of monomer, photocatalytic nanoparticles, cross-linker, and gum, likewise obtaining the lifespan of ozone under UV irradiation conditions and estimation the degradation substances. One of the questions is, which method of producing ozone should be more profitable? The reply is that with the advancement of technology, the response may modify, but now the electrical discharge method (Corona) is markedly affordable. It is anticipated that desirable results obtain by considering the interactions of all factors.

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### Biography

Seyyed Masud Naserzade has his expertise in evaluation and optimization in improving pigment removal. His contextual evaluation model based on previous scholars such as Hanes Woolf for improving water purification. He has used several models after years of experience in research, evaluation in his thesis.

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