

Study of Nanoparticle Distribution in Water Treated with Combined Filtration-Inductively Coupled Plasma System

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Abstract. Nanoparticles represent a specific type of organic or inorganic matter with at least one dimension less than 100 nm and possess unique physical and chemical properties. The presence of nanoparticles in drinking water may pose a direct human health threat or an indirect risk through ingestion. Thus, the removal of nanoparticles from drinking water is needed. This research was carried out to study the distribution of nanoparticles in water treated with a combined filtration-inductively coupled plasma system by continuous processing. The flow rate was set at 100 and 200 mL/minute. The results showed that after 180 minutes of treatment, the amount and volume of nanoparticles in the treated water produced were different from those contained in raw water. The nanoparticles were within the diameter ranges from 2.70 to 6.50 nm and 0.62 to 712 nm for flow rate at 100 and 150 mL/minute, respectively. The particles within these diameter ranges belong to the group of proteins, small molecules and atoms. The measured zeta potential of the treated water had also decreased, indicating that the stability of the

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Study of Nanoparticle Distribution in Water Treated with Combined Filtration-Inductively Coupled Plasma System

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Abstract. Nanoparticles represent a specific type of organic or inorganic matter with at least one dimension less than 100 nm and possess unique physical and chemical properties. The presence of nanoparticles in drinking water may pose a direct human health threat or an indirect risk through ingestion. Thus, the removal of nanoparticles from drinking water is needed. This research was carried out to study the distribution of nanoparticles in water treated with a combined filtration-inductively coupled plasma system by continuous processing. The flow rate was 100 and 200 L/min. It was showed that after 180 minutes of treatment, the **total organic carbon** of nanoparticles in treated and untreated water produced were different from those contained in raw water. The nanoparticles were within the diameter ranges from

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