The Use of Micellar Water to Aid Filtration of Oil-Based Contaminants in Pools

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Oil-based substances in pools combine with chlorine to create disinfectant byproducts that are respiratory irritants. These are difficult to filter because they only partially dissolve. The current treatment of oily substances relies on harmful chemicals. Micellar water contains micelles, liquid colloids that hold oils in their hydrophobic center. The purpose of this experiment was to prove its efficiency for use in pool water treatment. The experimenter conducted tests for turbidity and transmittance of treated and untreated water on the premise that lower turbidity and higher transmittance, indicating higher clarity, would indicate a coagulated oil-based substance that is easier to filter. A turbidity column, spectrophotometer, and colorimeter (visible spectrum wavelengths) were used. The experiment resulted in the control (untreated) sample having an average transmittance and turbidity of 0.775% and 0.92, respectively. The micellar (treated) sample had an average transmittance and turbidity of 38% and 0.7, respectively. Each t-test had T-values of 25.973 and 19.493, so there was a highly significant difference between these two groups. This demonstrates the high efficiency of micellar water in measures of clarity. All averages are that of all oily substances because they behaved generally similar in response to the treatment. The efficiency was similar to Pool Perfect, a potential industrial competitor. The cost analysis suggests micellar water treatments may be approximately the same price as current treatments as prices decrease due to increased applications.

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