



Optimizing the Expanded Polystyrene (Al-Fillen) with Low Density Polyethylene on The Performance Of Floating Media Filter

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Abstract: A Floating media filter has been studying with contact-flocculation filtration operating in the upflow mode due to its higher retention capacities and lower headloss development, cost savings gained by less area requirements and less water and energy required for backwashing. The aim of this study is to evaluate two media: Expanded Polystyrene (EPS) picking up from municipal solid wastes (Al-Fillen) comparing with Low Density Polyethylene (LDPE) as standard media commercially available as floating media. Optimization of the filter removal efficiency, headloss development and the energy required for backwashing, under different design parameters (different flow rates, and different depths). With use alum as coagulant at an optimum dose for each different influent turbidity. EPS present very acceptable performance considerably to turbidity removal and headloss development compare with that of LDPE, that matches with Iraq standard less than 5 NTU. The optimal removal efficiencies achieved for LDPE and EPS after 3 hours under 40cm medium depth, 80 L/h flow rate and 60 NTU influent turbidity, were (90.12%) and (98.70%) respectively.

Keywords: Floating media filter, Expanded polystyrene (EPS), Low Density Polyethylene (LDPE), Contact-flocculation, Upflow, Water treatment.