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## Anthracite as a Filter Media in the Filtration Process

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### Abstract

This research was carried out to see the performance of anthracite as filter media in filtration process. The study also aimed to compare two filter media in terms of turbidity it removed, head loss development with time and filter run with increase in influent turbidity. Two rapid gravity filter (RGF) columns were prepared having internal dimensions of 11 x 11 x 290 cm<sup>3</sup>, one with anthracite and another with sand as filter media. The uniformity coefficient of sand and anthracite of 1.54 and 1.4 were maintained from sieve analysis. Constant Filtration rate of 3m/h was set and other ancillary activities were made same for both filter models. The experiments were repeated seven times with different influent turbidity ranges of 0-25, 25-50, 50-100, 100-150, 150-200, 200-250, 250-300 NTU. Both the Filters were backwashed with backwashing velocity of 24 m/h, when the terminal head loss of 165.4 cm was obtained. The effluent quality of anthracite obtained was better for all the filter run. The head loss development with time was more for sand filter in all filter runs. The filter run time for sand vary from 150 to 8 hours and for anthracite, it varies from 172 to 13 hours from first to seventh filter run.

**Keywords:** *efficiency, head loss, over burnt bricks, rapid gravity filter, sand, turbidity*