

## Treatment-Bed of Coal Fly Ash for Dyes and Pigments Industry

**Authors :** Mir Shahnawaz Jagirani, Aziza Aftab, Noorullah Soomro, Syed Farman Ali Shah, Kambiz Vafai

**Abstract :** Utilization of indigenous adsorbent bed of power plant waste ash briquettes, a porous medium was used first time in Pakistan for low cost treatment facility for the toxic effluent of a dyes manufacturing plant effectively and economically. This could replace costly treatment facilities, such as reverse osmosis (RO) and the beds, containing imported and commercial grade expensive Granulated Activated Carbon (GAC). This bed was coupled with coagulants (Ferrous Sulphate and Lime) and found more effective. The coal fired ash (CFA) was collected from coal fired boilers of Lakhra Power Generation Company, Jamshoro, Pakistan. The use of this bed resolved the disposal and environmental issues and treated waste water of chemicals, dyes and pigment manufacturing plant. The bed reduced COD, color, turbidity and TSS remarkably. An adsorptive capacity and chemical behavior of fly ash bed was also studied. In coagulation treatment alone, elimination of COD by 32%, color by 48%, and turbidity by 50% and TSS by 51% respectively. When the bed was coupled with coagulants, it resulted an excessive removal of Color 88%, TSS 92%, COD 67% and Turbidity 89%. Its regeneration was also inexpensive and simple.

**Keywords :** coal fly ash, spheres, dyes, wastewater

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