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TREATMENT OF FORGING INDUSTRY WASTEWATER USING NON-HYBRID AND HYBRID PROCESSES

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Abstract

In this study, five distinctive separation processes namely sand filtration (SF), adsorption, microfiltration (MF), ultrafiltration (UF) and nanofiltration (NF) were examined in two ways for treatment of forging industry wastewater. At first, each process was examined separately, and then they were applied in association with each other as hybrid processes including pretreatment, main treatment, and post-treatment. The results related to non-hybrid experiments show that none of the mentioned methods are able to treat the forging wastewater satisfactorily while the results obtained from some of hybrid processes such as SF + MF + NF and combination of four or more processes indicate that they are able to reduce the pollution indices of chemical oxygen demand (COD), total dissolved solids (TDS), total suspended solids (TSS), oil and grease, and three heavy metals to more than 77.9 %.

Key words: adsorption, forging industry, hybrid processes, membrane processes, wastewater treatment

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