

Assessment of Different Industrial Wastewater Quality in the Most Common Industries in Kuwait

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Abstract : Industrial wastewater has been increased rapidly in the last decades, however, the generated wastewater is not treated properly on site before transfer it to the treatment plant. In this study, the most common industries (dairy, soft drinks, detergent, and petrochemical) has been studied in term of wastewater quality. The main aim of this study is to characterize and evaluate the quality of the most common industrial wastewater in Kuwait. Industrial wastewater samples were collected from detergents, dairy, beverage, and petrochemical factories. The collected wastewater samples were analyzed for temperature, EC, pH, DO, BOD, COD, TOC, TS, TSS, volatile suspended solids (VSS), total volatile solids (TVS), NO₂, NO₃, NH₃, N, P, K, CaCO₃, heavy metals, Total coliform, Fecal coliform, and E.coli bacteria. The results showed that petrochemical industry has the highest concentration of organic and nutrients, followed by detergents wastewater, then dairy, and finally, soft drink wastewater. Regarding the heavy metals, the results showed that dairy wastewater had the highest concentration, specifically in Zinc, Arsenic, and Cadmium. In term of biological analysis, the dairy industry had the highest concentration of total coliform, followed by soft drinks industry, then shampoo industry, and finally petrochemical industry.

Keywords : industrial wastewater, characterization, heavy metals, wastewater quality

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