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STRATEGIC MANAGEMENT FOR A SUSTAINABLE ENVIRONMENT REGARDING HEAVY METALS POLLUTION

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Abstract

Environmental pollution of heavy metals is a significant global issue. The manufacturing of petroleum products is among the most significant industrial endeavors of the 21st century. Proper processing of crude oil helps the environment by reducing the amount of metals and unwanted compounds to be found in the finished products. This article provides a comprehensive analysis of the sources of heavy metal contamination, their effects on the environment and human health and gives strategic solutions for a sustainable environment with a focus on cost-effectiveness, and minimal environmental disruption, like green technologies, holistic approach to pollution prevention and public awareness. Experimentally, the aim was to analyze the content of Pb and Mn in different types of gasoline and diesel fuels, the content of alkaline and alkaline earth metals in biodiesel through AAS and ICP-OES. The values obtained were below the maximum allowed limits. Another goal was to validate the methods for determining Pb and Mn in gasoline. The results obtained show that the methods were satisfactory: the correlation coefficient, $R^2 \geq 0.995$, the dispersions were homogeneous, the domain was linear, and the recovery values were included in the range: $85\% \leq R \leq 115\%$.

Key words: biodiesel, heavy metals, ICP-OES, management, pollution, sustainability

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