

REMOVAL OF LEAD FROM USED CAR ENGINE OIL EMPLOYING COCONUT COIR

A.M.P.S.T.M. Bandara

Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka.
Department of Chemistry, University of Peradeniya, Peradeniya, Sri Lanka.

After using, engine oil is mostly discarded to the environment without any treatment. This used engine oil usually contains heavy metal ion such as Pb^{2+} . When released to the environment, this oil could degrade quickly and release heavy metal ions like Pb^{2+} to soil, waterways making them harmful to animals and humans. This also become a significant problem when used engine oil used as a fuel for furnace where Pb^{2+} is release to the atmosphere. This study aimed removal of Pb^{2+} ion from the used engine oil employing coconut coir .

Engine oil drained from car in 3000 km intervals was used for this purpose. Initially, used engine oil was dissolved in toluene and filtered though coconut coir columns. Four consecutive filtration was done and Pb^{2+} ions in final filtration was measured. In addition to the coconut coir filtration, extraction method was done to remove Pb^{2+} ions from used engine oil. Used engine oil was dissolved in toluene and extracted with deionised water. Six consecutive extractions were done and at each extraction amount of Pb^{2+} ion was measured using UV- Visible spectroscopy and atomic absorption spectroscopy.

Results in both coconut coir filtration and deionised water extraction showed removal of Pb^{2+} significantly compared to initial Pb^{2+} concentration.

The coconut coir filtration method is much suitable to remove Pb^{2+} ions from used engine oil as this method generates less waste.

Key words: Engine oil, heavy metal ions, solvent extraction, UV-Visible spectroscopy, atomic absorption spectroscopy

