

# Recovering lead, plastic, and sulphuric acid from used automobile batteries

April 9 2019, by David Bradley

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Lead is a poisonous metal and a significant environmental pollutant. An

important source of waste is the lead used in car batteries. Research published in *Progress in Industrial Ecology, An International Journal* shows how lead, scrap plastic, and sulfuric acid from used car batteries might be retrieved based on a mathematical reverse logistics network model.

Najme Roghani Langarudi of the Department of Industrial Engineering, at Amirkabir University of Technology-Tehran Polytechnic, in Tehran, Abdolhossein Sadrnia of the Department of Industrial Engineering at Quchan University of Technology, both in Iran, and Amirreza Payandeh Sani of the Department of Industrial Engineering, at the Islamic Azad University of Semnan Branch, United Arab Emirates, explain a five-layer framework that involves reverse logistics based on collection, remanufacturing, repair, recycling, and disposal. The approach has two objective functions – to minimise costs and avoid carbon dioxide emissions. "In order to show the practicability of the presented model, a numerical example using general algebraic modelling system (GAMS) software was applied," the team explains.

The team points out that traditional manufacturing is usually undertaken in a forward logistics management sense. With increasing environmental awareness, however, [life cycle](#) and cradle-to-grave assessment of a product and its end of life disposal or recycling are increasingly important. In this context the notion and benefits of reverse logistics become critical. A closed-loop supply chain offers a viable approach to automobile batteries, the team suggests.

**More information:** Najme Roghani Langarudi et al. Recovering lead, plastic, and sulphuric acid from automobile used batteries by mathematical reverse logistics network modelling, *Progress in Industrial Ecology, An International Journal* (2019). [DOI: 10.1504/PIE.2019.098786](https://doi.org/10.1504/PIE.2019.098786)

Provided by Inderscience

Citation: Recovering lead, plastic, and sulphuric acid from used automobile batteries (2019, April 9) retrieved 6 May 2024 from <https://phys.org/news/2019-04-recovering-plastic-sulphuric-acid-automobile.html>

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