

26 December 2024

Singapore Scientists Pioneer Safer Recycling Method for E-Waste Plastic

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SEATTLE (Scrap Monster): Electronics are among the leading contributors to global plastic waste, with discarded e-waste posing significant environmental risks. When improperly disposed of, the plastics in electronic devices can release toxic chemicals, which may linger in the environment.

A prime example of such a contaminant is brominated flame retardants (BFRs), chemicals added to plastics to make them fire-resistant. Unfortunately, these substances can leach into the environment when e-waste plastics are discarded, or when they are subjected to high temperatures during recycling.

A team of scientists from Nanyang Technological University (NTU), led by Associate Professor Lee Jong-Min from the School of Chemistry, Chemical Engineering, and Biotechnology, has developed a solution to make the recycling of e-waste plastics both safer and more efficient.

Their innovative approach involves using a mixture of 1-propanol and heptane to dissolve and remove the harmful BFRs from acrylonitrile butadiene styrene (ABS), a common plastic used in the casings of devices like keyboards and laptops.

The solvents effectively target and remove the BFRs without affecting the integrity of the plastic itself. As a result, the researchers were able to recover over 80% of the plastic, ensuring that its original properties remained unchanged.

This breakthrough holds promise for the future of e-waste recycling by enabling the recovery of cleaner plastic, which could significantly reduce the environmental impact of e-waste disposal.

With this new method, NTU's team hopes to facilitate more sustainable recycling practices and increase the rate at which e-waste plastic is processed. The development marks an important step towards addressing the growing concern of electronic waste and its long-term environmental consequences.

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