

Long way to go to do our bit for Recycling

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The recycling of metals is not a new practice. For almost a century now, children have been collecting empty cans and passing it to scrap metal hawkers in exchange for biscuits or sweets.

Such retrieval of useful components not only reduces manufacturing costs but also helps reduce the pressure on waste-disposal facilities, predominantly landfills. It also obviates the need to dump toxic material in landfills, polluting farmlands and dwellings.

The Environmental Protection Department here has set up an EcoPark in Tuen Mun to promote recycling.

A wide range of recycling possibilities is covered at the park, including the recovery of metals, the conversion of cooking oil to biodiesel, the breaking up wood pallets into sawdust, and the recycling of paper, tires, electronic and computer equipment and batteries.

However, its relatively small size does not enable complete recycling, so many of its activities are aimed only at reducing volumes to manageable sizes for further processing at other countries.

Large-scale processing involving manual sorting of waste and extensive chemical activities are not practical given the limited land space available.

I had an opportunity to visit a battery recycling plant in EcoPark.

I expected it to be noisy and smelly with waste scattered everywhere but was amazed to see it operating at a low noise level with no perceivable odor and with a tidy plant layout.

At present the plant is focused on the recycling of lead acid car batteries.

These are first collected in plastic containers, then picked up by forklift and dropped in a hopper, where a conveyor transfers them to a giant shredder.

The electrolyte, an acid solution, is neutralized before being stowed in containers for disposal, while the plastic casing housing the batteries are shredded into small pallets and removed.

Lead, the main metal in batteries, has a lower melting point than other metals, and so it can be easily separated and sold off in the form of lead ingots

The other rare metals - lithium, nickel and cobalt - are in relatively small quantities and as such, have little commercial value.

Most of the recycling are processes that do not involve chemical reactions. The plant also operates at negative pressure to minimize air-leakage risks.

A wet scrubber plant ensures no toxic gases escape, and a bag house filter traps dust to ensure no pollution.

At present, the plant collects batteries from car repairers, but the quantity is far below its operating capacity, threatening commercial feasibility.

Hopefully, with more promotional efforts, more garages can arrange bulk delivery of batteries to EcoPark.

With a surge in electric vehicles, lithium-ion batteries will be discarded in large numbers in the next decade, when cars reach the end of their useful lives.

Newer recycling facilities, using different processes and plants, will be required, as the quantity of rare metals involved will be significantly larger and more valuable.

We should continue to promote effective recycling to ensure we do not overload landfills and minimize pollution. The technical processes are available but we need more land and a more effective separation and collection system.

With the resolve of our current administration to achieve results, I am hopeful that this goal can be achieved.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye over features of modern life