Turning plastic waste to sutures

BY JAKE CHNG

WASTE plastic bottles and bags can be converted to biodegradable surgical threads, in two to three years’ time, using a process developed here.

This could potentially halve the amount of plastic waste here, said Nanyang Technological University (NTU) researchers who developed it.

They have found a way to convert waste plastic into gas, by heating the material in an enclosed oxygen-free chamber.

The gas is condensed into a carbon-rich oil mixture, which is used to feed bacteria that produce a biodegradable plastic called PHA – the basic building block of biodegradable plastic materials like surgical threads and contact lenses.

NTU’s Associate Professor Wang Jing-Yuan, who heads the team of seven researchers, said: “Currently, waste-contaminated plastic is sent to the incinerator, and the cleaner and more valuable ones, like wrapping bags, are re-manufactured into plastic products.

“We hope that, upon commercialisation, this process will reduce 50 per cent of the 600,000 tonnes of plastic waste produced per year in Singapore,” he said.

Home-grown recycling firm ecoWise Group has already expressed interest in commercialising the project.

This project is among five projects that were awarded a total of $4.8 million yesterday, under the $15 million Environment Technology Research Programme.

The programme was set up last year by the National Environment Agency and the Environment & Water Industry Development Council to support research and development on waste management.

Another project funded by the programme, also by NTU researchers, will reduce the time taken for waste in landfills to decompose, from 30 to 40 years, to 10 to 15 years.

It will strengthen the soil so that heavier buildings can be built on such landfills after they have stabilised.

Finally, it will also channel the gases produced by waste decomposition to good use. Methane will be used to generate electricity, and carbon dioxide will be used to make a substance to strengthen the soil.

The other projects funded by the programme include the development of a cheaper substance to remove air pollutants from waste incinerators; the creation of a more energy-efficient way of recycling precious metals; and the designing of a plant to convert solid waste into organic fuels.

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