

Electronic nose sniffs out landfill odor

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An electronic nose has been developed to keep tabs on bad odors and methane gases at waste landfill and water treatment sites.

Scientists at the University of Manchester have invented a new device which remotely monitors bad odours and methane gases at waste landfill and watertreatment sites.

The device, which works like an electronic nose, could be the solution many communities and waste management companies, who regularly encounter problems with bad odours and air pollution, are searching for.

20.9m tonnes (72%) of household of waste produced in Britain is disposed of in landfill sites. There are currently over 4000 licensed sites in the UK. Eighty per cent of the population live within 2km of a site. Methane gas and odours, which contribute to global warming, are produced by decomposing waste.

Currently there is no other instrumentation sensitive enough to monitor low concentrations of odours and gases on these sites. Gases and odours are analysed manually using handheld detectors and by panels of volunteers asked to smell samples of air.

The new device has four sensors which analyse the composition of gases in the air. Air is sucked into the device at regular intervals and then profiled. The chemical profile of the air is then sent in real-time via a built-in GPS modem to a remote computer. Based on the concentration of various chemicals, the system is able to determine whether the methane gases or odours have reached an unacceptable level. The air is

then filtered before being expelled back into the atmosphere.

Professor Krishna Persaud, who has developed the device, said: "Current methods mean odour and gas levels are only monitored on a weekly basis. In that time bad odours can build up. What this device offers is the ability to monitor these levels in real-time, enabling waste companies to act before levels reach an unacceptable level.

"Ultimately, this device has the potential to create a much healthier environment which will benefit both local communities and waste management companies by alerting them to the build up of bad odours and enabling them to ensure monitor methane emissions remain at a safe level."

Developed in collaboration with the Silsoe Research Institute, the device has already been successfully tested at the Brookhurst Wood Waste Land Fill Site, near Gatwick Airport. Five of the devices have been positioned around the perimeter of the site since May, 2005. Professor Persaud is also working with a major UK water company to monitor foreign chemicals and materials in water which is processed through water treatment plants.

Source: University of Manchester

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