Mercury in fluorescent bulbs has unique isotope fingerprint

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(Phys.org)—Many consumers have started replacing traditional incandescent light bulbs with compact fluorescent light bulbs (CFLs) to reduce utility bills. CFLs are made of glass tubes filled with gas and a small amount of mercury.

In an online article posted on *Chemical & Engineering News* Feb. 22, writer Catherine M. Cooney reviews research recently published in the journal Environmental Science and Technology and highlights the importance of tracking mercury's movement in the environment.

As more people start using the newer lighting source, increasing numbers of fluorescent bulbs end up in landfills, where the toxic metal contained in the bulbs could leach into groundwater.

Research by Chris Mead, a graduate student in ASU's School of Earth and Space Exploration, published in the Feb. 4 issue of the journal *Environmental Science and Technology*, suggests that researchers could track the mercury from fluorescent bulbs by looking for its unique isotopic signature. This distinct isotope signal could help researchers track the toxic metal's movement in the environment.

As part of his graduate work, Mead developed an improved method for analyzing mercury isotopes.

"We were all very surprised by just how unusual the isotope fractionation – or signal – was in the CFLs. The mystery of how that

fractionation could occur turned out to be very interesting to solve," says Mead. The research was conducted in the lab of Ariel Anbar, Mead's advisor and a professor in ASU's Department of Chemistry and Biochemistry and the School of Earth and Space Exploration in the College of Liberal Arts and Sciences.

More information: cen.acs.org/articles/91/web/20 … -Unique-Isotope.html

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