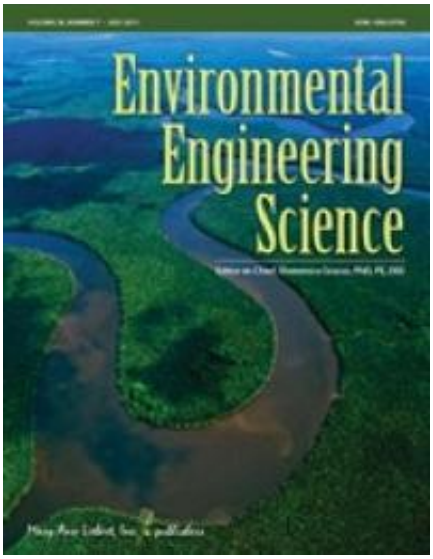
# Mercury vapor released from broken compact fluorescent light bulbs can exceed safe exposure levels

July 6 2011




*Environmental Engineering Science* is an authoritative interdisciplinary journal publishing state-of-the-art studies of innovative solutions to problems in air, water, and land contamination and waste disposal. For more information, please visit www.liebertpub.com/ees. Credit: © 2011, Mary Ann Liebert, Inc., publishers

Once broken, a compact fluorescent light bulb continuously releases mercury vapor into the air for weeks to months, and the total amount can exceed safe human exposure levels in a poorly ventilated room, according to study results reported in *Environmental Engineering Science*,

a peer-reviewed online only journal published monthly by Mary Ann Liebert, Inc.

The amount of liquid mercury (Hg) that leaches from a broken compact fluorescent lamp (CFL) is lower than the level allowed by the U.S. Environmental Protection Agency (EPA), so CFLs are not considered hazardous waste. However, Yadong Li and Li Jin, Jackson State University (Jackson, MS) report that the total amount of Hg vapor released from a broken CFL over time can be higher than the amount considered safe for human exposure. They document their findings in the article "Environmental Release of Mercury from Broken Compact Fluorescent Lamps."

As people can readily inhale vapor-phase mercury, the authors suggest rapid removal of broken CFLs and adequate ventilation, as well as suitable packaging to minimize the risk of breakage of CFLs and to retain Hg vapor if they do break, thereby limiting human exposure.

Tests of eight different brands of CFLs and four different wattages revealed that Hg content varies significantly from brand to brand. To determine the amount of Hg released by a broken CFL, Li and Jin used standard procedures developed by the EPA to measure leaching of mercury in liquids and used an emission monitoring system to detect Hg vapor.

"This paper is a very nice holistic analysis of potential risks associated with mercury release from broken CFLs and points to potential human health threats that have not always been considered," according to Domenico Grasso, PhD, Editor-in-Chief and Vice President for Research, Dean of the Graduate College, University of Vermont (Burlington).

**More information:** The article is available free online at

www.liebertpub.com/ees

Provided by Mary Ann Liebert, Inc.