

Firing clay in unvented kilns may be a source of exposure to dioxins

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Firing clay in unvented kilns could be a significant source of dioxins in people exposed regularly and over long periods, a new study suggests.

The results came out of follow-up interviews with subjects who participated in the University of Michigan Dioxin Exposure Study, which measured dioxin levels in residents in Midland and the Tittabawassee River flood plain between Midland and Saginaw.

The two-year study, commissioned by Dow Chemical Co., was to determine if elevated dioxin levels in the soil caused elevated levels of dioxins in residents' bodies.

A 35-year ceramicist had by far the highest blood dioxin levels in the study. Though the woman lived on contaminated soil, the contamination fingerprint of her blood was a closer match to the clay rather than the soil, said Dr. Alfred Franzblau, professor in the U-M School of Public Health and co-principal investigator on the Dioxin Exposure Study. Franzblau said the woman worked with ball clay, which is used in ceramics.

Ceramics clay, sometimes referred to as ball clay, is known to be contaminated with dioxins, and Franzblau said the woman's clay displayed the same pattern of contamination shown previously to exist in ball clay tested in America and Europe. However, there are no previous reports suggesting that dioxins in clay can be a direct source of contamination for humans.

"We think they breathed it in from the volatilization when they fired the kiln," Franzblau said. The woman with the highest levels had three unvented kilns in her basement, so the fumes were released directly inside her home. Two other women who were ceramics enthusiasts also had elevated dioxin levels, though not nearly as high as the first woman. The two other women had kilns in their garages (not inside their homes), and did not use them as often.

Franzblau said it's important not to overreact to the findings, but that more study is needed to determine the impact. There may be thousands of unvented kilns being used in schools, pottery workshops and private homes.

"For most people this is not likely to result in any significant exposure," Franzblau said. "My case was somebody who did this regularly for 30 to 40 years. A child once a week in an art class is in a radically different realm. But there are other people like her and I think there needs to be more research to better characterize the danger."

The Dioxin Exposure Study did not measure health effects of dioxin on the 946 subjects who participated.

"Although we have been able to confirm that clay can be a dominant source of exposure to dioxins, you can't draw conclusions about health effects based on just three cases," said Franzblau, also an associate professor of emergency medicine.

Source: University of Michigan

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