



The Health Edition

Study Reveals Toxic Chemicals In Household Dust

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A study by an environmental group found widespread toxicity in household dust, providing fresh evidence of a potential pathway by which certain chemicals end up in people.

Clean Production Action, which conducted the study, said it found trace amounts of six classes of chemicals in dust samples from 70 homes in seven states -- California, New York, Massachusetts, Maine, Michigan, Oregon and Washington. The chemicals were found in every sample evaluated, the group said, and included phthalates, alkylphenols, organotins, perfluorinated compounds and polybrominated diphenyl ethers (PDBE). All the substances have been linked to adverse effects in animal studies, including damage to sexual development and impairment of the hormone system.

Clean Production Action, based in Spring Brook, N.Y., advocates cleaning up industrial processes around the world. Its study, while geographically widespread, tested baseball-size amounts of dust from vacuum bags taken from a relatively small sample of homes. And the study didn't prove that the minute amounts of each chemical could harm people. Effects on laboratory animals, moreover, don't necessarily translate into dangers for people, whose bodies are far more complex, many researchers believe.

The study's authors speculated the chemicals came largely from consumer products such as pesticides, nonstick frying pans, plastic shower curtains and electronic appliances. For example, PDBEs are used as flame retardants in foam for

furniture, among other things, and are thought to leach into the air as the foam breaks down.

"We did this study as a wake-up call that this is a new and novel source of exposure which is probably coming from the products in your home," said Beverley Thorpe, international director of Clean Production Action and a study co-author.

Studies in Europe and South America in recent years also have found a wide range of chemicals in household dust, as did a 2003 study in Cape Cod, Mass. While the researchers for this latest study say they didn't test occupants of the homes themselves, separate studies have found a large number of potentially harmful chemicals in humans.

Last year, for example, the Centers for Disease Control and Prevention released a survey that tested the blood and urine of 2,500 anonymous volunteers for 116 chemicals. Positive results were found for 89 substances, including the phthalates and pesticides found in this dust study. Although the full health effects of all these chemicals remains unknown for humans, the Clean Production Action report calls for the U.S. government and industries to follow other efforts around the world to phase out their use where substitute, nontoxic materials are available.

Some chemical-industry officials expressed skepticism. They noted that the presence of chemicals in dust has been found before, adding that the study failed to show that such low concentrations are a threat to public health.

"A study that finds a substance in dust or even measures low levels in our bodies by itself doesn't tell us if there is cause for concern," said Jennifer Killinger, spokeswoman for the American Chemistry Council, an industry trade group based in Arlington, Va.

The European Union last year banned PDBEs after studies of Swedish breast milk showed levels of the chemical doubling every two to five years. In the U.S., Oregon, Hawaii and Washington are among several states that have banned PDBEs or are considering doing so. Some companies are also instituting voluntary phaseouts. Dell Inc., of Round Rock, Texas, for example, has eliminated PDBEs from its products.

Some of the homeowners involved in the dust study, meanwhile, have taken some action of their own. Isabel

Winchester of San Jose, Calif., for instance, says she has begun mixing vinegar, baking soda and salt to replace her use of commercial cleaners, which often contain alkylphenols, a chemical class that has been linked to sexual deformities in trout. "My kids had always complained of headaches," says Ms. Winchester, a 39-year-old mother of three young children living in a two-bedroom home. "Since I switched cleaners, they've stopped complaining."

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