

# Indoor air in schools could add to children's exposure to PCBs

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The U.S. banned PCBs nearly four decades ago, but they persist in the

environment and have been found in animals and humans since then. Now researchers report in ACS' journal *Environmental Science & Technology* that concentrations of airborne PCBs inside schools could result in some students inhaling the compounds at higher levels than they would consume through their diets. Exposure through both are lower than set limits, but cumulative amounts, researchers caution, could be concerning.

PCBs, or polychlorinated biphenyls, are a group of synthetic chemicals that were used for 50 years in hundreds of products, including paint and [building materials](#). Before PCBs were banned, industries dumped waste containing the compounds into rivers and streams, later resulting in some of the costliest environmental clean-ups in U.S. history. They continue to pose a problem, however, because they remain in soil and water and accumulate in animals. Additionally, although they are not made in the U.S. anymore, PCBs can appear in new paints and other materials as a byproduct of pigment manufacturing or in old buildings in construction materials that were made with the compounds. Studies have linked exposure—either through diet, inhalation or skin contact—with a range of health problems, including developmental issues and cancer. Children are at greater risk for potential health effects from the compounds than adults because they're still developing. So, University of Iowa researchers wanted to see how much PCBs children were being exposed to in schools.

The researchers tested the air inside and outside of six schools. Four were within 1.5 miles of the Indiana Harbor and Ship Canal, a waterway serving major industries in the area. Keri Hornbuckle and colleagues had previously shown that the canal is a known source of airborne PCBs. Despite this source of PCBs to outdoor air for some schools, the analysis found that the concentration ranges of PCBs were higher inside all the schools (up to 194 nanograms per cubic meter) than outside, but below the current U.S. Environmental Protection Agency's recommended

action level of  $500 \text{ ng/m}^3$ . The PCB "fingerprints" showed that the sources of the [compounds](#) varied across schools, suggesting a combination of historical contamination and new paint as contributors. The schools were part of a study of human exposure to PCBs led by Peter Thorne. The study also estimated that in some cases, inhaling air inside these schools could lead to higher exposure to PCBs than a child's diet. And combined, the two sources are cause for concern, the researchers say.

**More information:** "Airborne PCBs and OH-PCBs Inside and Outside Urban and Rural U.S. Schools" *Environmental Science & Technology* (2017). [pubs.acs.org/doi/abs/10.1021/acs.est.7b01910](https://pubs.acs.org/doi/abs/10.1021/acs.est.7b01910)

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