

What can I do to reduce dioxins concentrations in my home?

Soil replacement has been completed, and soil concentrations outside the remediation area are approaching background levels. Therefore, the contamination from the Koppers Superfund Site is addressed.

Dioxins in house dust have been shown to decrease with routine cleaning. Some sources (e.g. from the use of a fireplace) may be associated with soot and oil materials that are not as easily removed by vacuuming and dusting and may require more aggressive cleaning such as wet wiping of walls, floors and other surfaces.

Most of the dioxins in our bodies come from our diet. Avoiding fatty foods decrease exposure to dioxins. Thanks to EPA regulations, dioxins in our food supply are rapidly diminishing. The greatest source of dioxins in our environment is from trash fires. Don't burn trash outdoors.

What about other indoor contaminants?

There are many chemicals that may be present in our home, and these are not always well characterized, studied or regulated. EPA's Indoor Environments Division (IED) conducts research on indoor air quality including health risks and how to reduce exposures to pollutants indoors that may contribute to a range of short and long term effects. Recommendations to improve indoor air quality will also help reduce exposure to dioxins and dioxin-like compounds.

The flame retardants that are sources of the brominated dioxins and furans have been phased out. Two homes with higher levels of these compounds in dust were re-sampled in 2014. Significant decreases in concentrations were observed. These are characteristic of localized sources within the home like foam furniture or electronics. As these are replaced, concentrations in house dust would be expected to decrease.

FACT SHEET: Dioxin and Dioxin-Like Compounds in Indoor Dust Gainesville, Florida

The full technical report is available on this website:

<http://www.alachuacounty.us/Depts/EPD/Pollution/Pages/CabotKoppersSuperfund.aspx>

The PGC study was funded by the Environmental Justice Small Grant Program (EJSG). We evaluated the concentrations and patterns of dioxins and dioxin-like compounds in dust samples collected by the U.S. Environmental Protection Agency (EPA) in 2012, compared to PGC samples collected after the soil remediation was complete.

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Protect  Gainesville's
Citizens

From Research by
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Protect Gainesville's Citizens

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The term "dioxins" used in this fact sheet refers to the chlorinated dioxin and furan compounds that are contaminants of concern at the Koppers Site.

Flyer prepared by Kate Ellison & Kim Popejoy, PGC

Dust Study

Protect Gainesville's Citizens (PGC) completed a research project focused on community health concerns regarding exposure to toxic chemicals in house dust. Residents' greatest concerns were from involuntary exposures to dioxins in their homes from the Koppers Superfund Site, a former wood treating site. As part of the Record of Decision (ROD), remediation of soils with concentrations above the state soil target cleanup level of 7 parts per trillion (ppt, a concentration near background) was required. The remediation of 100 properties was completed by November 2014.

Were all dioxins in house dust related to releases from Koppers?

No. The average background dust concentration was 25 parts per trillion (ppt) and dust from homes near the site were higher by approximately 14 ppt.

Most of the patterns were consistent with the dioxins measured in soil. Based on reviews of the literature and guidance documents, some of the increased dioxins in indoor dust were due to the tracking of contaminated soil into the home.

What did we learn from background dust samples and indoor sources?

The concentrations follow patterns and trends reported in the literature. Some of the lowest and highest concentrations were in homes that were nearly adjacent to each other – suggesting that the source of the contaminants is inside the homes. The overall patterns were similar to dust from home vacuums or laundry lint samples reported in the literature.

Examples of sources of dioxins include foods (primarily fatty foods), fireplaces (wood burning), flame retardants,

electronic equipment, cigarettes, dyes in clothing, and automobile exhaust. As industrial sources of dioxin continue to decrease, a primary contributor of dioxins at wastewater treatment plants are wastewater from domestic laundry and some contribution from shower water. These may be related in part to our diet (over 90% of exposure to dioxins) and eliminating dioxins in the oils in our skin.

What were the highest dioxin concentrations in dust?

Three homes had dust concentrations between 60 and 90 ppt. One of these homes was very far from Koppers, and the other two high level homes were distant from the site and had low levels in their soil. This suggests a source of dioxins in these people's homes that is not related to the Koppers site.

Very high dioxin concentrations in dust were previously reported as part of a lawsuit, with over 60% exceeding 100 ppt, and some exceeding 1000 ppt. These were bioassay results that measured total "dioxin-like" response in a dust sample. Many compounds within homes can show a high response in this assay. These include contaminants in brominated flame retardant materials (that have been phased out) and other unidentified compounds. These dioxins are in our homes but, they do not come from Koppers.

Did the soil replacement reduce the concentrations of dioxins in indoor dust?

Dust concentrations decreased in four of the five homes that were re-sampled after remediation was complete. These homes showed an average dust level comparable to background dioxin levels.

The samples were collected by normal vacuuming methods about a month after soil remediation. Residents did only routine dusting and vacuuming prior to sampling. In areas less accessible to cleaning, remaining dust from tracking in soils will gradually go away. The remediation worked. These homes are now clear of Koppers related dioxins.



The clean-up effort was disruptive, but needed for our community's health.

Concentrations in the fifth home did not decrease. The dust collected here showed a dioxin source in the home not related to the Koppers site.

What are the risks from exposure to these compounds?

PGC focused on patterns, sources and trends and did not estimate potential health effects. After review of the results of the 2012 EPA sampling, the Florida Department of Health (FDOH) concluded that dust in the area background houses and homes near the Koppers facility are not likely to cause non-cancer illness and estimated increased cancer risk was low.

The potential risks from "dioxin-like" compounds are not well-known and an area of ongoing research. This study unexpectedly found there were numerous sources of dioxin-like compounds in our homes, regardless of how close we are to a superfund site.

It appears that our lifestyles, as measured by the foods we consume, smoking, the surfaces we choose for our living spaces, the electronics we bring into our houses, all contribute to the level of our exposure to dioxin-like compounds. We need to become more aware of these potential sources of toxins so we can begin to limit our exposure to chemicals that could cause illness.