

Do laser printers emit harmful particles?

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In a test chamber, researchers investigate what kind of particles laser printers release into the ambient air. Image credit: Fraunhofer WKI.

(PhysOrg.com) -- Researchers have investigated the possibility that laser printers emit pathogenic toner particles into the air, which has been a subject of public controversy. Some reports have suggested that laser printers release tiny particles that could have negative health effects.

The researchers, from the Fraunhofer Wilhelm Klauditz Institute (WKI) in Braunschweig, Germany, and Queensland University of Technology (QUT) in Brisbane, Australia, have found that laser printers release hardly any toner particles into the air. However, they also found that some printers do emit small amounts of ultra-fine particles made of volatile organic chemical substances.

Because these particles are volatile, they couldn't be coming from toner

dust. Even printers that print without toner or even paper also produce these ultra-fine particles. The cause, explained WKI scientist Michael Wensing, is the fixing unit - the component that heats up during the printing process in order to fix the toner particles on the paper. The fixing unit can reach temperatures of 220°C (428°F).

At this temperature, volatile substances in the printer, such as paraffins and silicon oils, can evaporate and accumulate as ultra-fine particles, which can be emitted into the air. The researchers explained that similar particles are formed during typical household activities that involve heating, such as cooking, baking, and making toast.

To test the quantity, size, and chemical composition of the particles emitted from various printers, the researchers housed the printers in a test chamber, and used particle analyzers to count the particles and measure their size distribution.

Although filters are available on the market to reduce printer emissions, the researchers explained that such external filters can only have a limited effect, since the particles are not emitted from a specific part of the printer.

via: [Fraunhofer WKI](#)

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