



News Alert

The Effect of Wildfires and the Wildland Urban Interface (WUI) on Indoor Air Quality and Health in Residential Homes: Pilot Study Results

Chemical Insights Research Institute (CIRI) of UL Research Institutes [published the results](#) from a pilot study looking at the effects of wildfire smoke on indoor air quality in residential homes in an area of California prone to wildfires. CIRI is a leading nonprofit research institute committed to studying the impact wildfire smoke has on the wildland urban interface (WUI). This pilot study is a first step in understanding more about the impact these fires have on human health.

Each year, an estimated 70,000 wildfires burn around the world with more than 8 million acres destroyed. The wildfire smoke generated by these fires is a complex mixture of airborne particulate matter and organic and inorganic gases including volatile organic compounds (VOCs). Understanding the potential hazards associated with this smoke and the impact they may have on health is key to CIRI's current research.

CIRI conducted this pilot study consisting of 6 homes in July of 2022 to evaluate the baseline ambient indoor and outdoor air quality in Tulare County, California without any WUI fire/wildfire activity.

The study found that there was house-to-house variability among both the indoor and outdoor air samples. The statistical analysis of the air sampling duration variable will allow CIRI to design a sampling strategy for future phases of this project. This will add flexibility to the sampling plan for phase 2 of the study, which will involve conducting air and settled dust sampling in 50 homes in Tulare County, California.

During the next phase of the study CIRI scientists will be embedded with community partners and U.S. EPA scientists in the sample collection team at each household. CIRI will collect air samples with active sampling techniques for VOCs and will also conduct longer-term passive sampling in individual homes. This approach was designed based on the evaluation of the pilot data set.

In addition to air monitoring, CIRI scientists will collect settled dust samples from the indoor environment of the participants' homes. Phase 2 will also capture information related to the differences in chemical profiles of air and dust samples before and after a WUI fire/wildfire event and will allow for the assessment of the efficacy of [DIY personal air cleaners](#) as it relates to reduction of chemical hazards in the indoor environment.

[Chemical Insights Research Institute \(CIRI\)](#) of [UL Research Institutes](#) continues to do front line research on the impact of chemicals on human health.

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