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# Foresight

## Sharing CIRI's 2023 Research Agenda



The Chemical Insights Research Institute (CIRI) of UL Research Institutes is dedicated to rigorous and objective scientific research, publication, education, and communication on environmental exposures resulting from technologies and practices, their impact on human health and processes for reducing risks. This month, we would like to share information on the hazards of settled dust that can infiltrate the built environment following a large-scale fire such as a regional chemical fire or a wildfire.

## Why Settled Building Dust is a Health Hazard



Dust is a complex mixture of particles originating from various sources. It is also a repository for volatile and semivolatile organic chemicals, and it can reflect accumulated contamination of the surroundings from long ago.

Numerous studies have demonstrated the presence of hazardous chemicals in indoor dust samples such as flame retardants, plasticizers, polycyclic aromatic hydrocarbons (PAHs), dioxins and pesticides. Recent reports have shown the presence of per- and polyfluoroalkyl substances (PFAS) chemicals in indoor dust, likely resulting from treatments on indoor furnishings.

A large body of studies have indicated that dust can be an important route of toxicant exposure, especially for children who have frequent hand-to-mouth activity. The presence of contaminated dust increases the potential for long-term chronic exposure.

Our Technical Brief, "[Health Hazards of Building Dust](#)," details examples of chemical exposure from dust and the human health implications.

## Health Risks from Fire Smoke Plumes



### The Unique Hazard

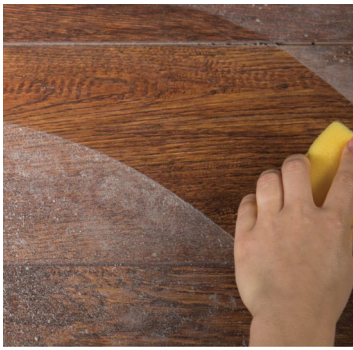
Large-scale urban fires, like wildfires or chemical fires as recently experienced in East Palestine, Ohio, may pose unique hazards to nearby communities not just during the fire, but in its aftermath. While the initial focus is often on the atmospheric smoke plume associated with inhalation and acute reactions, the often-overlooked hazard is contaminated dust that can easily migrate into our soil and waterways and infiltrate our buildings. This dust can be difficult to clean and can present longer term chronic health risks.

### Exposure Pathways

A large-scale fire generates a smoke or fire plume with airborne chemicals and particles. As the plume cools and moves, particles fall out in the form of ash and dust. People can be exposed to toxic chemicals from the fire by inhalation of the polluted air, inhalation of dust and ash, ingestion of dust and contaminated water, and even skin contact with the dust or contaminated bathing water.

Our Technical Brief, "[When the Dust Settles: Reducing Chemical and Particle Health Risks Following a Large-Scale Urban Fire](#)," details the impact of urban fuels and atmospheric transformation on the emissions from large-scale urban fires and their human health impacts.

## Strategies for Air Cleaning and Removal of Hazardous Dust



After a large-scale urban fire event, contaminated smoke and hazardous dust can infiltrate homes and buildings. Review our Application Notes, "[Strategies for Cleaning Hazardous Settled Dust after a Smoke Event](#)," and "[Strategies to Protect Air Quality During Wildfires](#)" that present key steps for cleaning the air and removing contaminated dust. Taking these important steps will help reduce exposure to PM<sub>2.5</sub> and dust contaminated with combustion chemicals, thus leading to a reduction in human health risks.

## Continuing with PFAS



Our last edition of Foresight shared information on our research to examine human exposure pathways and the health impact of PFAS. Check out the latest educational videos and news coverage on our PFAS research.

### Educational Videos

- [PFAS Research](#)
- [What are PFAS?](#)

### News Coverage

- Bloomberg Law, "[PFAS Lurking in Textiles, Effects on Health Subject of New Study](#)"
- Ecotextile News, "[New Research into PFAS Impact of Textiles](#)"

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## Publications and Events

### Recent Publications



- 3DPrint.com Article, "[Chemical Insights Research Institute Introduces a New Interactive Data Portal for 3D Printing Emissions Information](#)"
- SOT TV Interviews, "[Wildfires and Human Health YouTube Playlist](#)"
- Center for Green Schools Conference Presentation Summary, "[Emerging Indoor Air Quality Challenges and Solutions in Our Schools](#)"

### Upcoming Events



- [IEEE Product Safety Engineering Society](#), Chicago Chapter, April 26, 2023, "Exposure to 3D Printing Emissions and Potential Health Concerns: New Findings from Laboratory and Field Studies"
- [The Center for Green Schools, the National Association of School Nurses, and CIRI Webinar](#), April 27, 2023, "Identifying and Addressing Emerging Indoor Air Pollutants: School Health and Facilities Staff Collaborations"
- [AIHce EXP 2023](#), May 22 - 24, 2023
  - "Secondhand Vape Emissions from Electronic Nicotine Delivery Systems"
  - "Engineering Control to Reduce 3D Printing Exposure"
- [AIA Conference on Architecture 2023](#), June 7 - 10, 2023, "Research Scientists' Perspectives on Climate Impacts for Building Environment & Materials"



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