

After the Fire: Lead and Fire Contaminants in or around your Home

Booklet C

from the "*Understanding Health Impacts of Wildfires in Urban Areas*" series

Other booklets in this series:

A. Health Impacts of Wildfires in Urban Areas
B. During the Fire: Smoke, Air Quality, and Protecting Yourself
C. After the Fire: Lead and other Fire Contaminants in and around your Home
D. Mental Health and Wildfires
E. Further Reading

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Series Note: This series addresses some of the health concerns from wildfires that reach urban areas. These fires are also called Wildland-Urban Interface (WUI) fires. Since the general public may not use the term WUI, we use "wildfires that reach urban areas" or, more briefly, "fires" to refer to large, catastrophic fires that may also burn buildings, cars, and other non-natural sources.

Key point!

Look for these "Key points" throughout this handout for the most important summaries.

Quick Overview:

Post-Fire Lead Testing in Blood, Dust, and Soil

What you need to know to protect yourself!

Why is lead a common contaminant found after fires that reach urban areas?

- **Lead is a widespread contaminant released from fires burning homes, cars, appliances, and building materials**. It has often been found in wildfire smoke, ash, dust, and soil. However, because lead is already common in the environment due to past pollution, it can be hard to determine how much comes from fires.

How do you know if you've been exposed? Who is at risk?

- **A blood test measuring the lead levels in blood is the best measure of lead exposure.** Babies, children, and pregnant people are most at risk for health impacts from lead.
- **Lead (or other contaminants) in dust and soil only pose a risk**:
  - *If* they are present at high levels *AND*
  - *If* there is a chance of breathing in, accidentally swallowing, or eating a significant amount of soil or dust.

I'm concerned about lead and other contaminants in and around my home. What can I do?

Consider:

- Professional testing for interior dust or exterior soil after a fire if your home was affected by smoke, ash, soot, char, or dust.
- Professional remediation services for cleaning. If you do not have access to these services, consider PPE and best practices for cleaning.
- Getting a blood test for lead for you and your family.

Contaminants after the fire: Why the focus on lead?

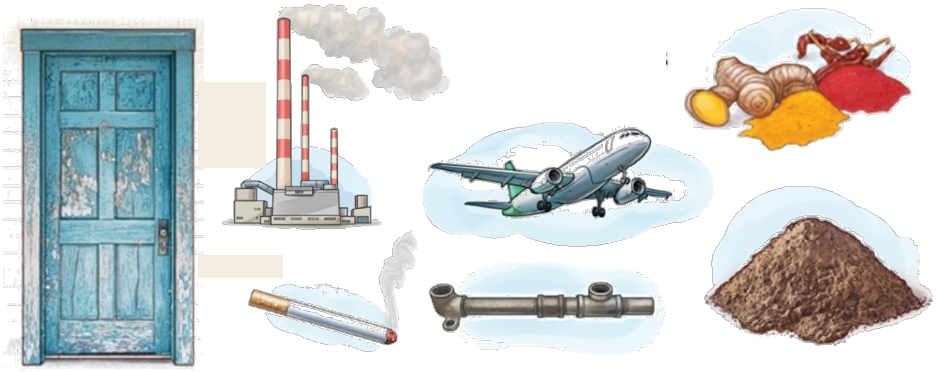
After the fire, we often focus on some contaminants, like lead, for a few reasons:

1. Lead has **known health impacts**:
   - Pregnant people and children: early birth (preterm birth), cognitive impacts (i.e., ADHD), and heart health.
   - Adults: Heart disease, high blood pressure, and kidney failure.

Good to know: Nutrients such as vitamin C, iron, and calcium can help reduce lead uptake in the body. Beneficial foods include green vegetables, sweet potatoes, fruits (like bananas), meat, and dairy products. A diet rich in fruits and vegetables can help lower the risk of lead absorption, especially for children and pregnant people.

2. **Lead is one of the most common contaminants found after urban fires**. Materials that can contain lead and burn during fires include paint from older homes, building materials, appliances, car batteries, pipe solder, and wiring. These sources have previously contributed to lead levels in indoor dust and outdoor soil. However, when fires consume cars and buildings, they typically release even more lead into the environment.

Common sources of lead include lead paint, battery recycling and smelting, aircraft emissions, cigarette smoking, lead plumbing and soldering, spices and foods, and soil. Historical sources of lead also include leaded gasoline and pesticides.



Key point:

Fire ash, soot, char, and dust likely contain many toxic contaminants. Lead is one of the *most common contaminants*. It is also often easy (and relatively inexpensive) to test for.

Figures and reference: Lanphear B et al. N Engl J Med 2024;391:1621-1631
Agency for Toxic Substance and Disease Registry (ATSDR) Toxicological Profile for Lead. US Department of Health and Human Services; 2020.
Sample J. Lead exposure in children: failure to protect the most vulnerable. The Journal of Pediatric Pharmacology and Therapeutics. 2024 Jun 1;29(3):212-4

How do you know if lead got into your body?

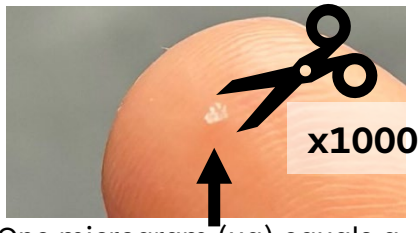
If you are concerned about fire contaminant exposure, a blood lead level (BLL) test is the most effective way to check if you have been exposed to lead.

- This test measures the amount of lead currently present in your blood, but it does not assess lead exposure over your lifetime. Lead levels in the blood typically decrease by half each month once exposure stops, so it is best to test soon after any potential exposure.
- Blood lead levels are measured in micrograms (µg) per deciliter (dL) of blood.
- You can get a blood lead test through your doctor or a lab without a prescription (for a fee).

Key point:

Testing blood lead levels is the best way to determine any recent lead exposure. A level higher than 3.5 µg/dL is considered a concern for children and pregnant people, or those who may become pregnant.

Visualizing micrograms (µg) of lead per deciliter (dL)



One microgram (µg) equals a single grain of sugar **cut into about 1,000 pieces**



One deciliter (dL) equals about a half cup

Lead Levels in LA Fire-affected communities

2025 LA Fires

The Los Angeles County Department of Public Health offered free blood lead level testing after the LA fires. Most (1,370) were completed by June 2025, or within 5 months after the fires. As of one year post-fires, none of the 218 children tested had elevated levels, and of the 1,862 adults tested, only 11 had elevated levels, ranging from 3.6 to 14 µg/dL. **Follow-up investigations found that the adult elevated levels were unlikely to be linked to fire-related exposure**. Overall, the results do not show widespread elevated blood lead levels among those tested. These results reflect only the people who were tested through the program and do not rule out possible exposure in individuals not tested or tested by their own medical provider.

Lead Levels Tested After the Fires

	Children	Adults
Total Tested	218	1,863
Total Elevated BLLs (more than 3.5 µg/dL)	0	11*

*All adults; all cases found likely not linked to the fires.

Key point:

Blood lead levels are the *best measure of lead exposure* and indicate no significant lead exposure in those tested following the LA 2025 fires.

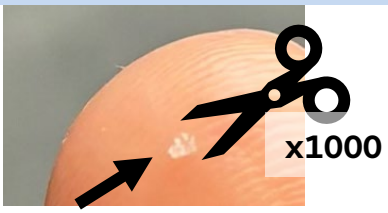
Binns, H.J., et al, 2007. Interpreting and managing blood lead levels of less than 10 µg/dL in children and reducing childhood exposure to lead: Recommendations of the CDC and Prevention Advisory Committee on Childhood Lead Poisoning Prevention. *Pediatrics*, *120*(5), pp.e1285-e1298.

Los Angeles County Department of Public Health Post-Fire Assessment, Blood Lead Level Testing: https://storymaps.arcgis.com/stories/28efe1b6956b4438a88b2849542bd816?cover=false

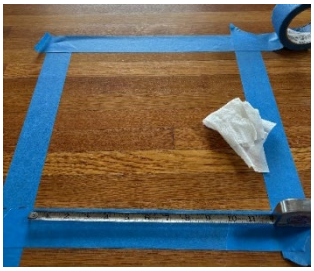
Lead in interiors after a fire: Is there lead in my house dust? What to do?

- **If your home has been impacted by fire, smoke, ash, soot, char, or dust, it may be important to test the dust for lead or other contaminants**. To test dust for lead, a professional will sample the amount of lead present on a surface area (e.g., a square foot of the floor). These methods and standards were developed to prevent lead poisoning from chipping lead-based paint, but are useful for assessing fire-related contamination.
- **Reducing dust that may have fire contaminants is most important** for young children, as they are more likely to put their hands in their mouths after touching windowsills or playing on the ground.
- **If your home was affected, hiring professional cleaning or remediation services may be the safest option**. If you clean yourself after a fire, wear proper PPE and follow best practices for protection (see pages 7 and 8).

Visualizing micrograms (µg) of lead per square foot (ft^2)



One microgram (µg) = a single grain of sugar *cut into 1,000 pieces*



One square foot (ft^2) = 12 x 12 inches for each dust wipe sample

Regulated levels of Lead (Pb) in dust[1]	
Agency	**Action Level** (If at this level or above, it is recommended to clean or take other measures to prevent future lead dust, such as from chipping paint)
U.S. Environmental Protection Agency (EPA)	• 5 µg/ft^2 for floors (micrograms lead/Pb per square foot) • 40 µg/ft^2 for windowsills • 100 µg/ft^2 for window trough
California Department of Public Health	• 10 µg/ft^2 for floors (micrograms lead/Pb per square foot)* • 100 µg/ft^2 for horizontal surfaces* *Effective until July 2027

Was lead found in homes after the 2025 LA fires?

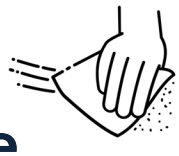
Yes. After the 2025 LA Fires:

- Lead was found in house dust even miles away following the fires.[2-3]
- Soap-and-water cleaning and wet wiping often reduced lead levels. However, appropriate PPE and careful work practices (see pages 7 and 8) are recommended for any post-fire cleaning if professional remediation is unavailable to you.



1. California Department of Public Health Definition of "Lead-Contaminated Dust" https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/CLPPB/Pages/lead_contaminated_dust.aspx
2. CalTech Science Exchange: How Much Lead and Other Toxic Metals are Present after the Eaton Fire? https://scienceexchange.caltech.edu/topics/sustainability/ask-expert-sustainability/ask-expert-fires/francois-tissot-lead-water-soil-ash-eaton-fire
3. Eaton Fire Residents United Indoor Dust Post-Fire Lead Testing https://www.efru.la/

In-Home Cleaning Tips to Reduce Dust Exposure After a Fire



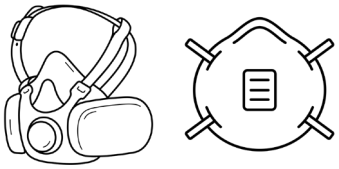
If your home was affected by ash, soot, char, or dust from the fire, it is best to have professionals conduct post-fire cleaning, but if you are not getting professional remediation, follow these practices for safety:

- ✓ **When cleaning, wear personal protective equipment (PPE).** See page 11.
- ✓ **If you have central A/C or heat, or an HVAC, wait to turn it on, as it can stir up settled dust/ash.**
  - Consider turning on your HVAC system and running it for a period while the house is unoccupied, then cleaning the filters, and finally replacing them.
- ✓ **When cleaning, use wet wiping and mopping with soap and water to reduce dust disturbance.**
  - Avoid dry sweeping (using a broom) and regular vacuuming, as they can release contaminated dust back into the air.
  - Regularly clean entry points where dust can enter, such as floors near doors and chimneys and windowsills.
- ✓ **Carpets, rugs, and soft materials are harder to clean.**
  - Use or rent a HEPA-filtered vacuum. Carpet shampooing and upholstery cleaning may be helpful.
  - Alternatively, layer washable rugs or blankets for babies close to the ground until the carpets can be properly cleaned.
  - Wash soft materials (bedding, curtains) when possible.
- ✓ **Reduce dust tracked into the home.**
  - Remove shoes and dirty clothes when entering after gardening.
  - Wipe pets' paws before they come inside and limit pet access to contaminated areas.
- ✓ **Clean spaces for children/babies frequently.**
  - Lay down clean, washable blankets or create clean areas.
  - Focus on where babies may engage in hand-to-mouth activities (where they can reach).
- ✓ **If smoke odors persist**, you may want to consider an air purifier with a charcoal (activated carbon) filter. Note that these filters become saturated quickly (with dust and particulate matter) and are expensive to replace.

After the wildfire: Indoor smoke residues and cleaning considerations By Ryan D. Huff. National Collaborating Centre for Environmental Health https://ncceh.ca/sites/default/files/2026-06/NCCEH%20-%20RHuff%20-%20Wildfire%20Smoke%20Cleaning%20Review%2020260623.pdf
More reading: https://dtsc.ca.gov/emergency-guidance-on-wildfires-1/ and https://dtsc.ca.gov/emergency-guidance-on-wildfires-2-2/
https://scienceexchange.caltech.edu/topics/sustainability/ask-expert-sustainability/wildfire-california-hazards-of-smoke-paul-wennberg
https://cires.colorado.edu/news/how-mitigate-post-fire-smoke-impacts-your-home

Choosing the right PPE for post-fire debris or clean-up activities

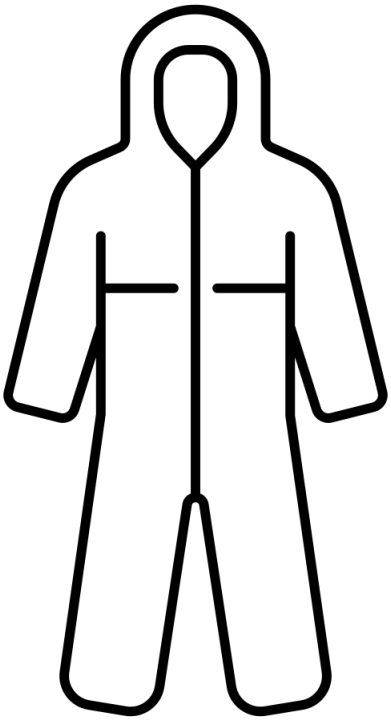
If you need to clean around your home after a fire and professional remediation is not possible, wear protective gear, including the following. If you hire others to clean up your property after a fire, make sure they are provided with proper PPE to protect their health too.



Wear a respirator mask. P100 or N95: look for a NIOSH-approved respirator with two straps. *(See Handout B, page 5 for a mask guide).*



Safety goggles. Safety goggles keep dust out of your eyes, but safety glasses do not.



Wear a disposable coverall suit. Tyvek suits are available at local hardware stores. Remove before getting in your car, entering your home, or entering clean spaces.



Gloves. For indoor clean-up, use disposable latex and nitrile gloves. For outdoor debris clean up involving sharp or broken materials, consider wearing disposable gloves under leather or heavy-duty work gloves.



Boots (outdoor) or booties (indoor). Boots you can wash and remove before entering your home. Use disposable booties for indoor cleaning.

http://publichealth.lacounty.gov/eh/docs/safety/returning-home-after-fire.pdf
http://publichealth.lacounty.gov/media/wildfire/docs/workershealthsafety/Workers'_Health_and_Safety_Rights_During_Fire_Tip_Sheet-English.pdf

Lead in soil after a fire:
Is there lead in my soil? What to do?

Soil near our homes can be tested to understand if there is any risk to our health. Soil screening levels help us assess if the amount of lead in soil is a health risk. Lead and other contaminants are common in soil in many areas before fires, but fires may add more lead to nearby soils.

- **Lead poisoning from soil is not likely, but reducing contact with contaminated soil is still a good idea**. Exposure to lead in soil may occur while gardening, when children play outside, or when dirt gets carried indoors.

Agency	Lead in Soil Screening Level* *If at this level or above, it can help decide if further investigation or cleanup is needed
CalEPA California Environmental Protection Agency DTSC Department of Toxic Substances Control	• 80 µg/kg or parts per million (ppm) residential • 320 ppm commercial
U.S. EPA	• 200 ppm residential • 800 ppm commercial

If you have high lead levels in your soil, remediation may include:

- Covering contaminated soil: This can be done by placing clean soil on top, planting vegetation (such as grass) to create a natural barrier, or using other barriers like pavers, decks, or sod.
- Professional soil clean-up: Professionals remove the top layer(s) of soil (about 6 inches). After removal, retest the remaining soil until it meets background or health screening levels before adding clean soil on top.
- If you are concerned about lead levels in soil, or if your household may be more vulnerable to lead exposure (including pregnant people and young children), consider also getting a blood lead test.

Was lead found in soils after the 2025 LA fires?

Yes. After the 2025 LA fires:



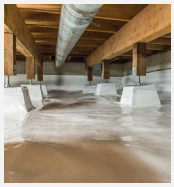
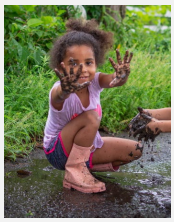
- Higher levels of lead in soil were found near the Eaton fire than the Palisades fire, likely due to more older homes with lead paint, or more cars being burned.[1, 2]
- Most soil lead levels were below the CalEPA screening level; however, some homes and areas had higher lead levels. Overall, very few tests were at the "hazardous waste" level which is over 1,000 ppm for residential areas.[1,2]
- A larger study of over 6,000 soil tests was unable to find a link between fire-related contamination and increased lead levels in soils, likely due to the amount of historical lead in soil.[2]

Soil screening levels and wildfire sampling guidance: https://dtsc.ca.gov/emergency-wildfire-guidance/

1. LAC DPH Post-Fire Lead Soil Testing Results (data dashboard of many soil studies) https://storymaps.arcgis.com/stories/667412ef37ee4392bddb5c90da3480f1?cover=false
2. The USC CLEAN Project: Findings from One Year of Sampling and Analysis. August 2026. https://public-exchange.org/usc/project/soil-testing/clean-issue-brief-aug-26/

Soil lead results: When to worry, what to do?

Potential actions to consider based on your soil lead test results:

		Lowest risk	Lower risk	Moderate to higher risk	Hazardous waste
Where was the soil tested? **Likelihood of human and soil contact:**		**≤80 ppm** **Cal EPA/DTSC screening level**	**≤200 ppm** **U.S. EPA screening Level**	**<1,000 ppm**	**1,000+ ppm** **Cal EPA/DTSC: Treat as hazardous waste**
	**Infrequent soil contact:** *Rarely* reached, like behind garages or crawlspaces.	Wash hands or body after touching soil.	*Exposure is still unlikely.* Wash hands or body after touching soil.	*Exposure is still unlikely.* Wash hands or body after touching soil.	*Exposure is still unlikely.* Consider the options below if concerned. Wash your hands or body after touching soil.
	**Limited soil contact:** Under grass, pavers, or has limited access.	Wash your hands or body after touching soil.	Consider further testing, remediation options, or check blood lead levels. Wash your hands or body after touching soil.	Consider further testing, remediation options, or check blood lead levels. Wash your hands or body after touching soil.	Confirm with additional testing. Consider remediation options; check blood lead levels. Wash your hands or body after touching soil.
	**Frequent soil contact:** Walkway, child play area, vegetable garden.	Wash hands or body after touching soil.	Consider further testing, remediation options, or check blood lead levels. Wash your hands or body after touching soil.	Consider further testing; remediation is recommended; check blood lead levels. Wash your hands or body after touching soil.	Remediation is recommended; check blood lead levels. Wash your hands or body after touching soil.

***Note**: If a single sample exceeds a screening level, it doesn't necessarily require remediation, as typical practice is to collect multiple samples and average them. If you have concerns, consider where the samples were taken in the yard, consider remediation, or consult an expert.*

Remediation for soil with higher lead levels may include:

- Covering contaminated soil: This can be done by placing clean soil on top, vegetation (such as grass or sod), or using other barriers like pavers or decks.
- Professional soil clean-up: Professionals remove the top layer(s) of soil (about 6 inches). After removal, they may retest the remaining soil until it meets health screening levels before adding clean soil on top.

Images: Getty, Posh in progress

Created in collaboration with the LAC DPH post-fire soils working group and the USC CLEAN project http://publichealth.lacounty.gov/media/eaton-soil-testing/

Learning Activity:

Consider each case study. Where might fire contaminants be present? How might each person be exposed? What could reduce exposure?

SCENARIO #1: KIDS AND BABIES



Grace is 10 years old, has asthma, lives directly across from the fire zone, and walks to school.

- She rents a small apartment in an older building built in the 1920s.
- Her building has no direct fire damage, but she lives near the burn zone and experienced significant smoke exposure.
- Her 1-year-old sister loves looking out the window and always has her hands in her mouth.
- Outside is bare soil with plants, but concrete sidewalks lead to and from the house.

What might the family consider to reduce exposures? What areas might be priorities for keeping clean?



SCENARIO #2: CLEANING AND WORKER HEALTH



Clara is 60 years old, has high blood pressure, and works in housekeeping in the fire zones. It's hard for her to do housekeeping while wearing a mask, and she doesn't think you need to wear one indoors. Plus, she doesn't want your clients to believe she is sick.

- She cleans homes 8 hours a day using what is available: vacuuming, wiping surfaces, dry sweeping with a broom, etc.
- She has young kids at home

What might Clara and her family consider to reduce exposures?



Los Angeles Times

CLIMATE & ENVIRONMENT

Only a fraction of fire cleanup workers are protecting themselves against toxic debris. One community center is fighting to change that

https://www.latimes.com/environment/story/2025-05-22/fire-cleanup-workers-not-protecting-themselves-against-toxic-debris

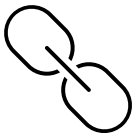
Tips for gardening if concerned about lead in soil:



Remember that:

- It is always ideal to **get your soil tested** to know if you have issues!
- Replacing soil in raised beds can help reduce risk, but remember that soil from hardware stores is also not tested for metals such as lead.
- **Wash produce!**
- **Wash your hands and your body** after gardening activities!

Great **links to guides and information** for gardeners with potential soil contaminants:



- https://ucanr.edu/site/urban-agriculture/soil-contaminants-and-soil-testing
- http://publichealth.lacounty.gov/eh/docs/ab1990_soilwatertestingguidelines.pdf
- https://extension.oregonstate.edu/catalog/pub/em-9397-5-steps-healthy-produce-during-wildfire-smoke