

Toxins in Maui Wildfire Ash



Preliminary, unvalidated data from wildfire ash collected in Kula following the August wildfires shows very high levels of arsenic. While testing also indicated elevated levels of lead and cobalt, arsenic poses the greatest risk. These contaminants stick to pieces of ash and dust.

The ash samples were collected on September 21 from eight burned homes in Kula, which had been constructed from the 1930s to the 2000s. Because homes in the impacted area of Lāhainā were constructed during the same time period, the Hawai'i Department of Health (DOH) expects that the ash in Lāhainā will have a similar contaminant profile.



DOH staff collect ash samples in Kula

What contaminants were found in the Kula ash?

Arsenic is a heavy metal found in Hawai'i's volcanic soils and is also present due to its use as an herbicide in the early 1900s. It is also found in building materials made of sugar cane (Canec) and wood treated for termite control (CCA treated wood). Arsenic can also be found in food such as rice, meats, fish and seaweed and has also been found to be naturally occurring in well water around the world. Long-term, environmental exposure to arsenic can cause skin problems, heart problems and cancers of the skin, bladder and lungs. Levels of arsenic in the ash were very high and pose a potential health risk to people with exposure to the ash.

Lead is a heavy metal that is expected to be present in ash due its use in paint on houses built before 1978. Lead is particularly toxic for young children and babies in utero as it hinders the development of the brain. Babies and children exposed to lead have trouble with learning, school performance, attention, and other neurocognitive problems. Lead levels in the ash were high and pose a health risk to children and pregnant women who are exposed to ash and dust from the burned areas.

Cobalt is a naturally occurring element that is essential for certain functions of the body including the generation of red blood cells. People are exposed to small amounts of cobalt in food, industrial air pollution, and many cosmetics. However, when people are exposed to excessive amounts of cobalt, it can cause problems with the blood, lungs and skin. Cobalt may also cause cancer with extreme exposures.

For updates, visit health.hawaii.gov/mauiwildfires



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The largest risk is from ingesting ash.



Inhaling ash is also possible.



You can be exposed to ash through skin contact.

Avoid Contact with Wildfire Ash



Daily mopping and wet wiping can keep household surfaces free of dust or ash near impacted areas.



Children should not play outside near areas that contain ash.



Pregnant people, children, chronic kidney disease patients, and people who cannot wear PPE should not enter impacted areas.



Avoid sifting, digging, or other activities that could disturb ash.



When in impacted areas, wear PPE and remove it carefully to avoid exposure to ash and dust.



Do not eat in impacted areas. Cover the spout of water bottles.



Wash objects removed from the impacted area with soap and water. Shower and wash your hair after leaving the impacted area.



Monitor the air quality in your neighborhood. Green means good! If air quality changes, take precautions.

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What is DOH doing to protect public health?



Additional Monitoring & Sampling

- DOH will continue to install additional continuous air monitors around impacted areas and conduct air sampling for specific contaminants.
- DOH will conduct ash testing in Lāhainā in coordination with EPA.
- DOH continues to coordinate with the Hawai'i Department of Education to monitor and test impacted school campuses.



Image Credit: U.S. EPA

Preventing Ash from Becoming Airborne

- DOH requested that the EPA prioritize the application of Soiltac, a soil stabilizer, to impacted areas in Lāhainā closest to inhabited areas. Soiltac application was completed in Kula on September 25.
- DOH recommended that the County of Maui take additional protective measures, including stopping sifting and installing water misters to control dust and ash.

How can I monitor the air quality near my home?



Real-time air quality monitors continue to be installed in Lāhainā and Kula.

Monitor Online or by App:

- Website: fire.airnow.gov
- Apps: AirNow, IQ Air, Local Haze, Paku



DOH recommends people stay indoors and close windows when air quality indicator changes to any color other than green.

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How do I know if I was exposed to arsenic due to the wildfire?

There are blood and urine tests that can evaluate the amount of arsenic in your body, but it is important to remember that these tests have significant limitations.

This testing can determine if the level of arsenic in the body is higher or lower than the average person. Testing can also help find out how much of the arsenic is coming from eating foods like shrimp, fish, crabs, seaweed and other seafood. Remember, most food sources of arsenic (like seafood) are not considered harmful. If a person's arsenic is 2 times higher than most people, it is worth taking action to reduce the amount of arsenic that is entering their body.

This testing cannot tell where the other arsenic in a person's body came from. Some of the arsenic may be from exposure to ash. Some may be from food like shrimp, fish, crabs, seaweed, rice and other foods. Testing cannot tell if a person will get sick from the arsenic.

Do indoor air purifiers filter out arsenic?

HEPA air purifiers will help to improve indoor air quality by removing ash and dust from the air that may contain arsenic.

Are there groups that need to be extra careful to avoid ash exposure?

Children, pregnant people, and people living with chronic kidney disease including those on dialysis should be extra careful to avoid ash and should not enter impacted areas. Lead is particularly toxic for young children and fetuses as it hinders the development of the brain. People with chronic kidney disease or renal insufficiency are also at higher risk for toxicity from arsenic because arsenic is cleared from the body by the kidneys.

What should people do if the air monitors turn yellow, orange or red?

If real-time air monitors in Lāhainā or Kula are above green (yellow, orange, red, purple, maroon), residents should:

- Avoid outdoor activities to reduce exposure and minimize health risks. This is particularly important for children and pregnant people.
- Stay indoors and close all windows and doors. If an air conditioner is used, set it to the recirculate option.
- If you need to leave the affected area, turn on your vehicle's air conditioner and set it to the recirculate option.

Air quality can change for a variety of reasons, including particulate matter caused by dust and or other sources like car exhaust. Out of an abundance of caution, neighborhoods near the impacted area can begin to take action when air quality monitors turn yellow.

Are re-entry visits safe?

Re-entry visits pose significant risks, especially if the ash is disturbed. Wearing proper PPE and avoiding ash disturbance will decrease your risk of exposure to the contaminants and possible health effects but still carries risk. Re-entry visits are not safe for children, pregnant people, and people living with chronic kidney disease including those on dialysis.

N-95 masks provide good protection against these contaminants. Masks must be well-fitting.

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