Additional information from
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September 13, 2025 webinar

After the Fires: Soil Safety After the L.A. Wildfires, Debris Removal, and More: What have we learned so far?

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How do 2025 DTSC Palisades Fire and Eaton Fire Residential Soil Cleanup Goals Compare to Prior Fires?

Of the 16 metals DTSC listed, 8 have less stringent cleanup goals, 1 is more stringent, and mercury was omitted

Chemical Name	Comparison of New DTSC Limit to Prior Fires
Barium	Exceeds hazardous waste limit by 0.5x
Chromium	Exceeds hazardous waste limit by 50x
Copper	Exceeds hazardous waste limit by 0.2x
Lithium	16x less stringent than Ventura County/CalRecycle
Mercury	Limit not provided (Limit used for prior fires)
Nickel	1.6x less stringent than prior fires
Selenium	Exceeds hazardous waste limit by 3.9x
Thallium	6.4x more stringent than prior fires
Zinc	Exceeds hazardous waste limit by 4.6x

Hazardous waste limits are defined by DTSC and located in 22 California Code of Regulation (CCR) Section 66261.126, Appendix II

What Cleanup Goals Should I use for My Palisades Fire or Eaton Fire Residential Soil?

First, you'd want a background soil study for the area done by the County. This takes about 1 week to do, costs $60,000 or so and consulting firms can do this. CalRecycle has the details. If you don't have that, you could (but not quite advisable) look for historical fire background soil studies for the area. Based on prior California fires, cleanup goals are shown on the right.

** indicates a DTSC and California Code of Regulations *Section 66261.126* defined hazardous waste limit

Metals of Concern	Cleanup Goal, mg/kg
Antimony	31
Arsenic	0.11
Barium	9,999**
Beryllium	0.5
Cadmium	71
Chromium**	2,499
Cobalt	23
Copper	2,499**
Lead	80
Mercury	1
Molybdenum	390
Nickel	820
Selenium	100**
Silver	390
Thallium	5
Vanadium	390
Zinc	4,999**
If you consider … Lithium	*16*
If you consider …Chromium-6	*0.95*

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Table 1. Summary of past wildfires, debris removal, and soil testing metal contaminant results after wildfires

Year/ Fire	Declared a Fed. Disaster ?	Structures [1,2] Destroyed per CalFire or the State of Hawaii	Responsible Agency for Cleanup	Parcels in Gov. Cleanup Program (Not private debris removal)	Parcels Passed Testing w/o Rescraping	Parcels Failing 1st Soil Testing	Percent Parcel Fail Sampling Rate	Typical 1st Soil Scrape Depth (in.)	Metals Causing Failure (Primary metals in bold)	Parcels Failing 2nd Soil Testing	Percent Fail Rate	Contaminants Causing Failure
2017 Detwiler Fire	No	134	CalRecycle	133	66	35	26%	3/10 or 3.6	**As, Pb, Co,** Cd, Hg	11	8%	unclear
2017 Wind Complex Fire	Yes	317	CalRecycle	254	170	51	20%	3/10 or 3.6	**As, Pb, Co,** Hg	26	10%	unclear
2017 Tubbs (North Bay) Fire	Yes	5,636	U.S. ACOE	4,563	unclear	unclear	unclear	6 in.	unclear	unclear	unclear	unclear
2017 Thomas Fire	Yes	1,063	CalRecycle	670	519	109	16%	3/10 or 3.6	**As, Pb, Hg,** Cd, V, Co, Cu, Sb	14	2%	unclear
2018 Woolsey Fire	Yes	1,643	CalRecycle	1,666	1,252	414	25%	3/10 or 3.6	**Cd, Co, As, Pb,** Hg, Cr, Sb, Zn	98	6%	unclear
2018 Camp Fire	Yes	18,804	CalRecycle	10,907	8,192	3,496	32%	3/10 or 3.6	**Pb, As, Co,** Hg, Ni, Cu, Cd, Sb, Zn	655	6%	unclear
2023 Lahaina Fire	Yes	2,207	U.S. ACOE	1,549	unclear	unclear	unclear	6	unclear	unclear	unclear	unclear
2023 Kula Fire	Yes	23	U.S. ACOE	23	unclear	unclear	unclear	6	unclear	unclear	unclear	unclear
2024 Mtn View Fire	No	243	County of Ventura	133	98	35	26%	3/10 or 3.6	unclear	9	7%	N/A

U.S. ACOE = U.S. Army Corps of Engineers; CalRecycle = State of California government agency; Unclear = Could not find evidence to support these results; [1] Number of structures destroyed, and parcels remediated are not equal. The preliminary destroyed structural numbers gathered just after the fire have an error rate of ± 5 to 15%, whereas remediated parcels have a right to enter (ROE) form signed by an owner; [2] "Structures" include homes, outbuildings (barns, garages, sheds, chicken coops, etc.), and commercial properties destroyed; The number of parcels that declined participation in the government cleanup program and their soil testing results were not found.

Frequently Asked Questions (FAQ)

1. Is lead in soil an indicator chemical for the other metal contaminants?

No. Typically, 17 different metals are tested for at wildfire impacted residential soils. This is often called a CAM-17 test. The acronym CAM stands for California Administrative Manual (CAM). Each metal my exist in the absence of the others. See the prior slides for the list of 17 metal contaminants.

2. Are metals naturally occurring?

Some are, some are not. Naturally occurring metals often depend on the local geology. Historically, CalRecycle, counties, or both together conduct a “background” soil sampling study after a wildfire. That rapid study determines what levels of metals for the area are “background” (not associated with the wildfire). No background study was conducted after either the Palisades Fire or Eaton Fire.

FAQ

3. What is a soil cleanup goal?

Each metal has a different level you do not want to remain in your soil for human health and property economic value reasons. For simplicity, a cleanup goal is the target level of a chemical you do not want to exceed in the soil. Example:

- The California wildfire cleanup goal for residential soils of "total chromium" has historically been 2,499 milligrams of chromium per kilogram of soil (mg/kg). The hazardous waste limit of total chromium is 2,500 mg/kg as defined in the *California Code of Regulations*.
- The federal USEPA health-based screening level for chromium for residential soils is 125,000 mg/kg.
- Therefore, you would not want chromium to be equal to or exceed 2,500 mg/kg in soil or that soil would be classified as a *hazardous waste* …. if moved offsite (i.e., during rebuilding, construction, etc.).

FAQ

4. Why would a cleanup goal be higher (less stringent) for one fire compared to another fire - for the same chemical?

For this question we will not include the recent DTSC cleanup goals, where 8 DTSC levels are much less stringent (exceed California Code of Regulation hazardous waste levels) compared to cleanup goals used for prior California fires.

Local background levels of some metals (i.e., arsenic) may be higher than background levels at another fire site. Cleaning up the soil to background levels is a “goal”.

A key point for wildfire recovery is (1) to remove the health risks AND (2) to restore contaminated land for economic vitality. An important objective is to make certain that hazards have been removed so there’s no hazardous waste on the property as defined by the *California Code of Regulations*, which may lead to decreased economic value.

FAQ

5. Why are only 17 metal contaminants the target of soil testing after debris removal?

Metals have historically been the primary focus of wildfire soil debris removal. Research is needed to understand the presence of other metals and chemical types. For more than 10 years, metals have primarily driven soil safety decisions after wildfires in California.

FAQ

6. On the topic of soil, who is funding Purdue University to help households and universities?

While Purdue University researchers are involved in several activities and some have been funded, no organization has funded their soil efforts. In February, Purdue was asked to and has provided help to UCLA and LMU designing the CAP.LA soil research initiatives. The ongoing UCLA-LMU-Purdue soil study is funded by the R&S Kayne Foundation and by FireAid. Purdue has provided soils support without funding. Purdue experts were also asked to and shared soil lessons from other wildfires with elected officials, business leaders, government agencies, community groups, and researchers. Purdue expertise also contributed to part of the justification and design of soil testing efforts of a larger 15+ multi-institutional study proposal called CONSORTIUM. Purdue researchers have actively engaged on soil topics without financial backing since February 2025. Despite this, Purdue efforts have helped households and businesses to recover more safely and rapidly and helped other stakeholders better understand the topic as it pertains to wildfire.

FAQ

7. Is Purdue working with USC CLEAN? No, but the USC CLEAN team is an outstanding group of researchers. They are offering a great public service by testing soil.

8. Why is USC CLEAN only testing for lead? Persons seeking more information about this program can contact USC directly.

9. What is the website where wildfire support resources spearheaded by Purdue University researchers and their collaborators are being posted? The website is www.PlumbingSafety.org. Then, click on the link "L.A. Fires Public Health Response".

10. If my organization or I wanted to donate funds to the Purdue home testing support or other efforts, how would we do that? Please contact Professor Andrew Whelton at awhelton@purdue.edu and he can share information for providing support for the university research effort that's already tangibly helped improve household and business recover. Funds would primarily go to students to help with data analysis to generate recommendations. Student labor to help process the data is primarily why we need support.