2025 Los Angeles Fire – Household Item VOC Emission Test Report

Address: [redacted]

Items collected: Nine household items (or item groups) were collected, including two baseball hats, a shirt, two towels, three pillows, two pairs of socks, and a robe.

Date of collection: 7/13/2025

Items tested:

- Eight items (or item groups) collected from the referenced home (see Table 1)
- Five control items collected from a home located approximately 10 miles outside the burn zone

Date of test: 11/7/2025 - 11/8/2025

Key Takeaways

1. Compared to items from the control home not impacted by the fire, the tested items showed elevated emissions of volatile organic compounds (VOCs)—including alkanes, BTEX compounds (benzene, toluene, ethylbenzene, and xylenes), carbonyls, and other oxygenated compounds.

2. Among the tested items, the shirt and bathrobe in the master bedroom closet exhibited the highest VOC emissions. The pillow in the office emitted the least VOCs.

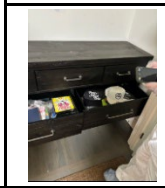
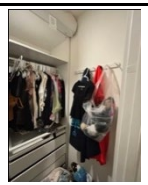
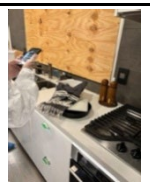
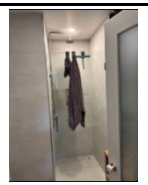
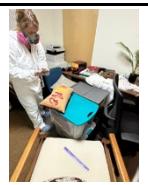
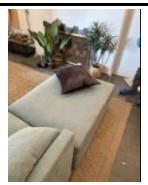
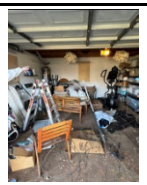
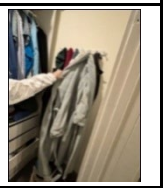
3. General guideline:
    a. If an industrial hygiene report indicates that lead or other contaminants exceed safety thresholds in an area, soft materials from that area are likely unsafe and may warrant disposal.
    b. For soft materials located in areas with lower contamination levels—such as those stored in enclosed spaces like closets or drawers—you may hold off on making decisions. We are currently evaluating remediation strategies (e.g., airing out, laundering) to determine their effectiveness in removing contamination and will share findings once available.

Detailed Results

80-liter test chambers were used to assess volatile organic compound (VOC) emissions from collected household items. Each item was preconditioned with Ultra Zero Air in the chamber 2 hours and air samples in the chamber are analyzed for fire-related VOCs using a Selected Ion Flow Tube Mass Spectrometry (SIFT-MS). The concentration of each VOC was corrected by the chamber background (from tests without items). Results for notable VOCs are reported in parts per billion by volume (ppbv).

Please note these chamber-testing data do not represent or imply human exposure levels. Our data and findings are intended for informational purposes only and do not constitute legal advice. Detailed results are provided in Table 1 on the second page.

Table 1. Concentrations (ppbv) of volatile organic compounds (VOCs) emitted from household items during 2-hour chamber tests. ND: not detected (treated as the detection limit of 0.01 ppbv). Bolded values indicate VOC concentrations at least two times higher than those measured in control items.

Item / VOC	Control	Baseball Hats	Shirt	Towel	Towel	Pillow	Pillow	Pillow	Bathrobe
	Average of five items	Office Drawer	Master Bedroom Closet	Kitchen	Bathroom	Office	Living Room	Garage	Master Bedroom Closet
									
Heptane	41.32	58.74	67.99	29.92	34.51	ND	24.18	12.17	30.51
Hexane	5.67	8.69	**13.87**	**22.66**	**27.51**	4.75	5.12	9.90	**33.51**
2-Methylpentane	0.77	**1.57**	**1.67**	**3.29**	**3.70**	0.74	1.28	**5.43**	**4.24**
Benzene	0.10	0.10	**0.57**	**0.22**	**0.60**	0.05	0.07	0.06	0.12
Toluene	4.46	4.72	5.48	4.18	4.50	4.03	2.49	4.33	1.94
Xylenes + Ethylbenzene	0.18	0.23	0.17	**0.36**	**0.39**	0.12	0.26	0.34	0.32
Formaldehyde	14.79	**39.02**	5.30	6.35	ND	6.12	7.30	1.58	9.58
Acetaldehyde	6.90	13.40	**22.33**	12.16	7.58	5.26	**20.04**	7.20	**14.12**
Acetic acid	5.66	**20.66**	**13.91**	9.89	**12.38**	4.41	9.34	8.74	7.48
Acetone	7.70	13.26	**51.74**	**30.51**	**173.00**	1.76	14.92	5.39	**29.47**
2-Ethylfuran	0.47	**0.97**	0.81	0.30	0.80	ND	0.35	0.23	0.47
1,4-Dioxane	0.07	0.13	**0.14**	0.08	0.05	0.07	0.08	0.07	0.12
Phenol	0.11	**0.52**	**0.29**	**0.49**	**0.62**	0.11	0.06	0.13	0.01

What Are VOCs and Off-Gassing?
Volatile organic compounds (VOCs) are a group of chemicals that easily evaporate into the air. They can originate from wildfire smoke, cleaning products, building materials, and even fabrics. Some VOCs are harmful to human health, for example, benzene is a known carcinogen linked to certain cancers. Porous materials, such as soft goods (like fabric, cushions, or stuffed animals), can absorb smoke during fires and later release VOCs into the air through a process called off-gassing. This can degrade indoor air quality and pose health risks, even after the fire has ended.

What is SIFT-MS?
Selected Ion Flow Tube Mass Spectrometry (SIFT-MS) is a real-time analytical technique used to detect and quantify trace levels of volatile organic compounds (VOCs) in air. It works by introducing selected reagent ions that react with target VOCs in a flow tube, allowing for sensitive and rapid identification using mass spectrometry.

Questions? Please contact info@cap.la

CAP.LA is intended to be a resource for the community to obtain information from noted experts involved in the fire recovery efforts. CAP.LA is not an expert in these fields, and any summaries of information provided by others should not be relied upon without consulting the full original materials from which these summaries are derived.