



East Palestine Health Tracking Study –Wristband Pilot Study

Silicone wristbands are a new method to measure exposure to chemicals in one's environment.

What chemicals were analyzed in the silicone wristband?

The wristbands were analyzed for 135 semi-volatile organic compounds (SVOCs) by the Human Health Exposure Analysis Resource Program at Duke University. These chemicals included dioxins, polyaromatic hydrocarbons (PAHs), phthalates, flame retardants, Polychlorinated Biphenyls (PCBs), pesticides, chemicals found in personal care products, and nicotine.

Who participated in the pilot study?

Residents who participated in the East Palestine Health Tracking Study were invited. Eighty (80) participant wristbands were worn from July 16 to July 23, 2023 and analyzed for SVOCs.

What did we find among participants in the pilot study?

No dioxins were detected in any of the wristbands. Dioxins were chemicals of concern following the train derailment and subsequent rail car burn. They form when burning occurs or during chemical reactions.

Every wristband had measurable levels of Polycyclic Aromatic Hydrocarbons (PAHs), phthalates, flame retardants, pesticides, and personal care products.

- PAHs can be produced during burning such as wildfires, trash, vehicle fuel, or cigarettes. Wildfires in Canada during July 2023 and heavy truck traffic removing the derailment debris may have increased the levels of PAHs in the air in and around East Palestine during the week the wristbands were worn.
- Phthalates are chemicals added to plastics to make them soft and flexible.
- Flame retardants are added to products to reduce the flammability of materials, including furniture, building materials, and clothing.
- Pesticides can persist a long time and exposure to banned pesticides continue in most US homes. Most wristbands had measurable levels of banned pesticides such as DDE, a byproduct of DDT.

Most wristbands had measurable levels of Polychlorinated Biphenyls (PCBs). PCBs are man-made chemicals which were banned in 1979. They were used widely as coolants and lubricants. People can be exposed to PCBs from contaminated food, water, air or soil, or from old electrical equipment.

A third of the wristbands had measurable levels of nicotine. Exposure to nicotine occurs from using tobacco products or being around others who use tobacco products.

Although most of these chemicals are not thought to be related to the February 2023 train derailment, subsequent burn, and cleanup, the information is useful in learning about personal exposures. At this time, we are not able to compare with levels with the general US population, and we do not know if the levels measured in wristbands are associated with any health effects.

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