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## Lead Contamination in Vape Cartridges

The Bureau of Marijuana Regulation (BMR) identified lead contamination in tested vape cartridges when the failing test results were entered into the statewide monitoring system. BMR took immediate action and the products containing lead were destroyed in accordance with the administrative rules. According to a [study](#) conducted by Johns Hopkins Bloomberg School of Public Health, lead has been found in several brands of cartridges used for vaping. The lead is in the cartridge and can leach over time into the product. Patients who medicate by vaping should be aware of this potential contamination which may occur after initial passing tests.

Michigan is one of a few states which requires heavy metal testing on all licensed medical marijuana products. BMR is not aware of any reported heavy metal leaching in ceramic vape products. BMR encourages all licensed provisioning centers to have their vape cartridges tested. Patients and Caregivers who would like to have cartridges tested, at their own expense, can take them to a licensed safety compliance facility.

Historically, lead has been added to brass and copper to make the metals more moldable. More stringent environmental regulations have made this practice obsolete in the United States, but cartridges obtained from outside the United States may not be held to the same manufacturing standards. It is possible some manufacturers may be adding lead to the components used for e-cig and vaping cartridges, resulting in lead contamination of the products that are loaded into the cartridges.

While there is limited research on this topic, multiple studies have discovered elevated levels of lead in the vape liquids due to the composition of the vape cartridges:

- Researchers at John Hopkins [found](#) minimal amounts of metals in the e-liquids within refilling dispensers, but much larger amounts of some metals in the e-liquids that had been exposed to the heating coils within e-cigarette tanks. The difference indicated that the metals almost certainly had come from the coils. Most importantly, the scientists showed that the metal contamination carried over to the aerosols produced by heating the e-liquids.
- Among the samples collected in another [study](#), none of the bottled e-liquids contained detectable levels of lead, which suggests that lead concentrations in disposable e-cigarettes may be related to the proximity of e-liquid to metal components in the product (e.g., solder). There was also a significant difference in lead concentration between cartridge and open-wick disposable systems, which suggests that the design of the ENDS products evaluated in this study contributed to overall lead exposure.

For more information about BMR, please visit [www.michigan.gov/bmr](http://www.michigan.gov/bmr)

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