Appendix P - DIY Lead Paint Detection Methods and their Availability

Author: Ananda Card, Lead Aware NZ

Background

Historically, there were two main methods of lead paint detection: sodium rhodizonate, which turned red upon reaction with lead, and sodium sulfide which turned black upon reaction with lead. While under perfect conditions both could detect the same minimum level of lead (~600 ppm), in practice the sodium rhodizonate method was more effective because it would react fully within 2 minutes, whereas the sodium sulfide method could take up to 2 hours and a well-trained eye to detect lead at the lower lead concentrations.

For decades, the 3M Leadcheck swabs were the predominant product for sodium rhodizonate detection. They were high quality, easy to use, well validated (1), and the only widely available product approved by the US EPA. In New Zealand, Resene offered a sodium sulfide test kit which was reasonably priced and the favourite method of painters. In 2023-2024 both these options became unavailable. The gap in the market was filled by an assortment of unvalidated new products of widely varying quality.

There is a new product on the market that detects lead by glowing upon reaction with lead, as viewed with a UV torch. "The perovskite test kits use a solution of methylamine and hydrobromic acid in >90% isopropanol (household rubbing alcohol is 70% isopropanol). When sprayed on a surface, the compounds in the solution combine with lead to form lead halide perovskite that glows green when exposed to UV light." (2)

Currently available testing methods:

Sodium rhodizonate methods: Safehome, iQuip, Scitus, Leadcheck, and generic kits with the white label available from overseas online retailers

Perovskite "glow" kits: Lumetallix and Fluorospec

Assessment of Current Products

All currently available products are effective at detecting lead, with many caveats. The sodium rhodizonate swabs cross-react with zinc and copper and possibly other elements, to give false positives. The cheap generic kits have so many false positives

that there are reports of them reacting with tap water and plain paper. While this could have the benefit of the public's heightened concern about lead, it also may invalidate the test method as a whole if people see them as unreliable. It's thought to be the case that the Leadcheck swabs had less issues with cross-reactivity than the newer rhodizonate kits currently do, potentially due to better pH control or optimised ingredients, but this has not been adequately tested.

The Leadcheck kits have recently (mid-2025) returned to the market, being sold by the company Luxfer, the original contract manufacturer for 3M, so it's expected the product will be equivalent to the previous. These are not being sold in New Zealand yet.

The perovskite tests are gaining traction by professionals in the US. They do not appear to have the cross-reactivity issue that the sodium rhodizonate kits do, but are more fiddly to use and difficult to use in bright light or outdoors in broad daylight. They are also more expensive.

Availability

All aforementioned kits are widely available in New Zealand through online sources, with the exception of Leadcheck currently. Some Mitre 10 and Guthrie Bowron stock the Safehome kits and all Resene stores sell the iQuip kits. There do not appear to be any organisations consistently providing free swabs to the public.

References

1) Validation of Leadcheck swabs: https://www.epa.gov/sites/default/files/documents/3M-leadcheck-report.pdf

2) https://unleadedkids.org/test-kits-potential-game-changer/2025/07/15/