



Testing for Lead Containing Solder in Electronic Circuit Boards

Background: Lead/tin solder has been used in the electronic industry for decades. In recent years manufacturers have sought alternatives to lead/tin solder, partly in response to recent scientific evidence showing that there is no lower limit for the adverse effects of lead exposure in young children. LeadCheck® Swabs can provide a valuable low cost screening tool for manufacturers wishing to confirm that components are lead free. Two test methods follow. The first (and easiest) method is to simply use the LeadCheck® Swab as provided to test solder connections. The second method was developed to allow testing of small solder connections where the size of the LeadCheck® Swab tip makes testing difficult. All of the test reagents and developing materials used in the methods described below are provided in the LeadCheck® Circuit Board Test Kit (cat# PB-2M48CB).

I. Direct Test Method – For large test areas:

1. Wipe the test area with isopropyl alcohol to remove any coating on the solder surface.
2. Activate a LeadCheck® Swab and rub the tip directly on the test area. The Swab tip will instantly turn pink if lead is present.

Warning: *Chemical residue from this test method may interfere with the performance of the component tested.*

II. Indirect Test Method – For small test areas and areas sensitive to test chemicals.

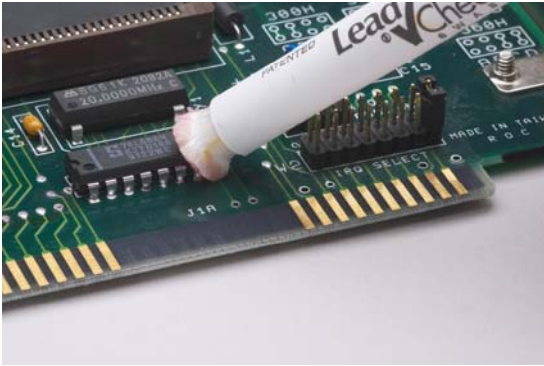
1. Abrade the surface to be tested with a fine grit sandpaper or emory cloth. (Please note: sandpaper/emory cloth is not provided in the test kit).
2. Aggressively rub one of the small, sharp tipped cotton swabs provided with the kit over the test area.
3. Squeeze one drop of reactive dye from a LeadCheck® Swab into a well of the developing tray.
4. Dip the sharp tipped swab that was exposed to the solder into the drop of reactive dye.
5. Examine the tip carefully. Swab tips exposed to leaded solder will turn pink to red instantly.

Comments:

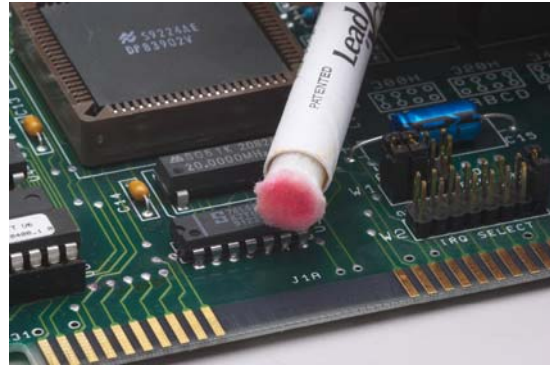
1. Test several different areas of the board, using a new sharp tipped swab for each test area. (A numbered clay holding tray is supplied to accommodate developing multiple tests).
2. For each sharp tipped swab used, place one drop of reactive dye into a different well of the developing tray.
3. Quickly dip each dry exposed swab into the reactive dye remembering that the greatest sensitivity occurs within **one minute** of activating the LeadCheck® Swab.
4. The reactive dye must be orange in color to be effective. If not, activate a new LeadCheck® Swab.

*LeadCheck® Swabs are a versatile and sensitive screening tool for the detection of lead on any surface. This applications note provides a suggested method to allow testing for a specific application. Additional information and help are available by calling 800-262-5323 or 508-651-7881.

Direct Test of Circuit Board for Lead Using LeadCheck® Swabs

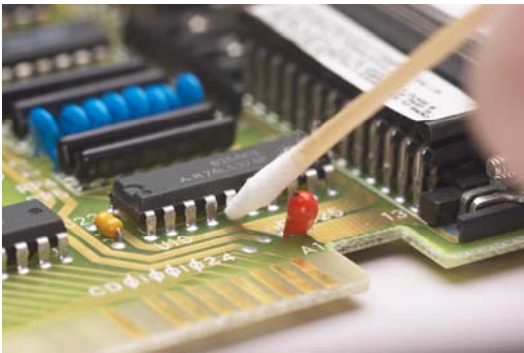


Rub the test area with an activated **LeadCheck® Swab**.



If the tip of the **LeadCheck® Swab** is pink or red, there is lead.

Indirect Test Method (No chemicals touch the board)



Vigorously rub a test area with the tip of a small swab. The diameter of the tip is about 3mm.



Dip the swab tip that was exposed to the solder into the drop of reactive dye.



Swab tips exposed to leaded solder will turn pink or red instantly. Any remaining dye, if negative, will become pale yellow to colorless.



Dry swabs can be used on different areas of the board. Use the numbered clay tray to hold exposed swabs. Place a drop of dye from an activated **LeadCheck® Swab** either directly on the exposed swab or rub the exposed swab into a drop of dye on the tray. Positive swabs turn pink or red.