



Testing* Personal Sampling Pumps for Airborne Lead

Background

In 1993, as part of Title X, OSHA announced new action and permissible exposure limit (PEL) levels for airborne lead in the workplace. The new regulations require workers to wear protective equipment (respirators) unless it can be demonstrated that a work activity generates less than $30\mu\text{g}/\text{m}^3$ airborne lead dust over an eight-hour period. If airborne lead dust exceeds $50\mu\text{g}/\text{m}^3$ over an eight-hour period, workers are required to wear both protective equipment and clothing.

According to the National Institute of Occupational Safety and Health (NIOSH) method 7700, kits like LeadCheck® Swabs may be used in the field to monitor the collection of lead dust on personal sampling pump filters. The following method is an adaptation of NIOSH method 7700 using LeadCheck® Swabs to screen pump filters in the field at the OSHA PEL of $50\mu\text{g}/\text{m}^3$ over an 8-hour work period.

Method

For an accurate test, run the personal sampling pump at 2 liters/minute during the work activity for the time intervals specified below.

1. Run the personal sampling pump for 10 minutes.
2. Open the air filter cassette.
3. Activate a LeadCheck® Swab according to the instructions. Drop 2 - 3 drops of the yellow LeadCheck® reagent onto the center of the filter. Do not touch the Swab tip to the filter.
4. Examine the filter for pink to red color development. If no pink or red develops on the filter, repeat the test method after running the pump for 2 hours.

Interpretation of Results

1. If the center of the filter turns pink or red after running the pump for 10 minutes the airborne lead level generated by the work activity will exceed $50\mu\text{g}/\text{m}^3$ over 8 hours. Workers should wear protective clothing and respirators during this work activity.
2. If the filter does not turn pink or red after running the pump for 2 hours the test is negative for lead. The amount of airborne lead generated by the work activity is under the OSHA PEL ($50\mu\text{g}/\text{m}^3$). Workers need not wear respirators during this work activity.

Note: The addition of LeadCheck® reagents onto the filters will not interfere with subsequent quantitative analysis of the filters at a laboratory.

*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.