



# CDC/NIOSH Develops Safety Management Tool for Recognition, Evaluation, and Control of Lead

## HEALTH & SAFETY

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Health and safety professionals have addressed the hazards of lead as early as 370 BC when Hippocrates identified lead poisoning in miners. Sadly, in the year 2003, lead remains the number one environmental health hazard to children, the result of lead paint in the home and workplace lead brought into the home on the hands, clothing, shoes, and tools of parents. Therefore, lead safety management programs that involve the worker in the recognition, evaluation, and control of lead are essential to stopping the toxic legacy of lead.

In December 2002, a safety publication reported that behavior-based safety programs, which were popular in the 1990's, are now in decline. Safety experts report that this decline is due to:

- Too much focus on worker behavior and not on the root cause of the hazard.
- Typically, no inclusion of worker input into the development of standard operating procedures and safety practices.
- No worker incentive to recognize hazards and make recommendations to control them.

As behavior-based programs fade away, experts are looking toward safety management programs.

### Complete Safety Management Tool for Lead

Researchers at the Center for Disease Control and Prevention (CDC) and the National Institute for Occupational Safety and Health (NIOSH) have recently developed and patented a colorimetric wipe that is a complete safety management tool for lead. Within one kit are all the materials for lead-exposed individuals to recognize, evaluate, and control lead. The practice of recognition, evaluation, and control of hazards is the foundation of occupational health and safety.

The CDC/NIOSH method for disclosing the presence of lead (US Patent No. 6,248,593) quickly and easily detects the presence of lead on skin, including the face, and surfaces such as tables, shoes, steering wheels, safety glasses, and windowsills. This is a significant breakthrough in bringing lead detection to

the worker because previously developed colorimetric test kits for lead cannot be used safely on skin. The CDC/NIOSH lead wipe technology has been licensed by SKC Inc. and will be sold commercially as Full Disclosure Lead Wipes.

### Recognition of Lead Hazards

Lead residue on workers' hands can be a considerable health risk because the lead may be ingested during eating, drinking, or smoking. In addition, workers may expose their families to the toxic metal if there is lead residue remaining on their hands, arms, shoes, lunchbox, etc. Careful handwashing and surface cleaning can remove all lead residues, however, it is difficult for workers to determine if lead has been removed completely. Using the CDC/NIOSH-developed lead wipes quickly alerts workers to the existence of lead residue with an immediate color change.

### Evaluation of Lead Hazards

The principle of operation is simple. A test surface is wiped with a prepackaged hand wipe to collect lead residue. The wipe is sprayed with a mildly acidic solution followed by a spray test reagent. If lead is present on the wipe, a pink to red color will appear. The intensity of the color bloom indicates the relative amount of lead present. Frequently, the industrial hygienist or safety professional requires information on the quantity of a hazard to which workers have been exposed. Lead wipes that indicate lead is present (pink to red bloom) can be sent to a laboratory for quantitative analysis using standard procedures.

### Control of Lead Hazards

The presence of a pink or red color on the wipe alerts the exposed individual that the hazard control measure used, i.e., hand or surface washing, was not effective and that additional hazard controls are required. The exposed individual can return to the washing station and can be tested again to document effective hazard control.

### A Safety Management Tool with Many Applications

This CDC/NIOSH lead safety management tool will prove to be valuable to:

- Workers in industries where lead is an occupational hazard
- Children and adults exposed to lead paint in their homes and schools
- Law enforcement officers and other individuals exposed to lead dust at shooting ranges
- Evaluating the effectiveness of lead abatement activities

Ron Miller, Director of Training/Consulting in Occupational Safety and Health at the National Safety Council (NSC), sums up the basis for development of CDC/NIOSH lead wipes ? the most important part of a company safety program is worker involvement. Clearly, the CDC/NIOSH-developed lead wipes involve workers in the recognition, evaluation, and control of lead hazards.