



## PERFORMANCE CHARACTERISTICS OF LeadCheck® SWABS (Cat. # PB2M) (Lead in Paint)

### I. The Reaction

A LeadCheck® Swab contains two glass ampoules each containing the reagents required for the colorimetric detection of lead (II). One ampoule contains a lead reactive dye which under the proper conditions of pH and solvent conditions turns red. The second ampoule contains the buffers and solvents required to optimize the reaction of lead with the dye. LeadCheck® provides careful control of the ratio of solvent to dye which provides a reproducible and reliable test with an indefinite shelf-life. The reaction leads to a pink to deep red result on the tip of the swab (depending on the concentration of lead present and/or the surface being tested). The color development is linear with concentration.

### II. Sensitivity

To determine the sensitivity of LeadCheck® Swabs, a standard curve was prepared with a standard paint solutions prepared by an outside laboratory. Dilutions of the standard paint were applied to one cm square areas on plate glass. These were used to determine the standard curve. The painted squares were scraped off the glass, digested and quantitated by atomic absorption spectroscopy.

The following table illustrates the reaction of LeadCheck® Swabs to each concentration of lead in paint. A clear gradation of color was observed and an arbitrary rating was assigned to each with 1.52+ indicating the 100% color saturation.

<u>Lead Tested (% w/w)</u>	<u>Color Result</u>	<u>Rating (%)</u>
1.0	Deep red	100
0.7	Deep red	98
0.54	Red	87
0.43	Red	68
0.22	Medium red	33
0.12	Light pink	20
0.06	Light pink - easily seen	9
0 (no Pb (II))	Colorless	0

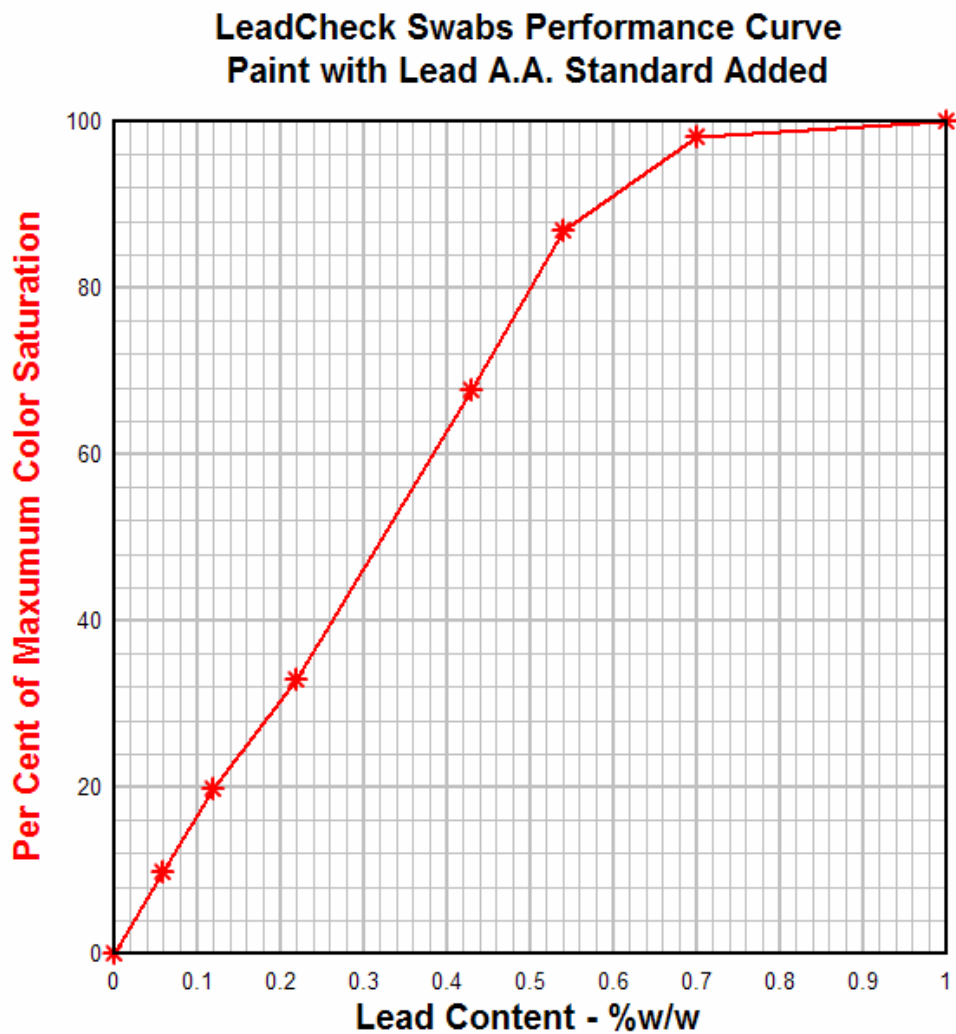
These reactions were repeated five times with the same results.

### III. Specificity

LeadCheck® Swabs are quite specific for lead. High levels of stannous chloride (tin) (5mg/ml) may interfere with color development; however the rate of reaction with lead is much faster than the rate of reaction with tin. High concentrations of silver may interfere with color development.

### IV. Reaction with Lead Chromate Paint

LeadCheck® Swabs (PB2M) detect lead in lead chromate paint at the same levels as found for the lead nitrate standard. The reaction with lead chromate is significantly slower than other lead compounds taking as long as 30 minutes of constant contact to develop.



### Legend

Standard curves were developed using several lots of the LeadCheck® Swabs. Paint was diluted with an A.A. standard solution of 1000 micrograms/ml lead to produce the concentrations used in each series of experiments. The color that developed on the swabs was visually proportional to the concentration. A graphical representation of the gradation observed is plotted above. The results of several curves were averaged and have been summarized in the above graph. The intensity of the pink color developed at each of the concentrations was scored as a percentage of the maximum color intensity (at the highest concentration).