Experiment 3: Determination of Lead Sulphide

SYNOPSIS Lead exposure is measured by a sulphide wipe test. The goal is to spot places of high exposure in the lab or to the worker (1).

READINGS *Pages 269-272 in Critical Reviews.*

Solutions:

1/2% Na_2S/H_2O spray bottle
H_2O_2 1/2%
cotton balls
distilled vinegar (4% acetic acid)

Procedures:

1. Soak cotton ball in vinegar
2. Wipe surface to be detected for lead.
3. Spray cotton ball with Na_2S/H_2O solution.
4. Observe for brown/black instanteous color.

REPORT In addition to materials, methods, and results your report should include the following information in an essay format:

1. Write out balanced chemical reactions for the methodology.
2. What is the purpose of the acetic acid solution?
3. What is the chemistry behind the color development?
4. Will this method be specific for lead?
5. What is the approximate limit of detection for this method?
6. Are there any health effects in the use of the method?
7. Would you recommend this method for random public health screening of homes?

References Cited

1. Askin, D., Alvarez, B., Occuptaional Health and Safety, Feb. 1993, 34.