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$_2$S/H$_2$O spray bottle
- H$_2$O$_2$ 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$_2$S/H$_2$O 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**