

# Lead in Construction Materials

# Qualities of Lead

- Lead is
  - Very heavy
  - Soft
  - Easily worked
  - Metal



# History of Lead Use

- Goes back several centuries
  - Used during the Roman Empire
    - Line water storage tanks
    - Line aqueducts
    - Make water pipes
    - Pottery



# Lead Affects the Body

- Lead is a poison that adversely affects
  - Blood forming systems
  - The brain
  - The nervous system
  - The kidneys
- Children are the most vulnerable



# Exposure Limits

- The exposure limit for lead
  - In air is 50 micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ) over 8-hours
  - In blood levels the upper limit in adults is 10  $\mu\text{g}/\text{dL}$



# Lead in Our Environment

- Lead is very pervasive in our environment
  - Leaded gasoline is a major contributor
- All have been exposed to lead and have a baseline blood level
- The important aspect is to limit exposure as much as possible



# Use of Lead

- Over the years lead has been used in building construction
  - Roofing
  - Electrical conduit
  - Water and sewer pipes



# Use of Lead, continued

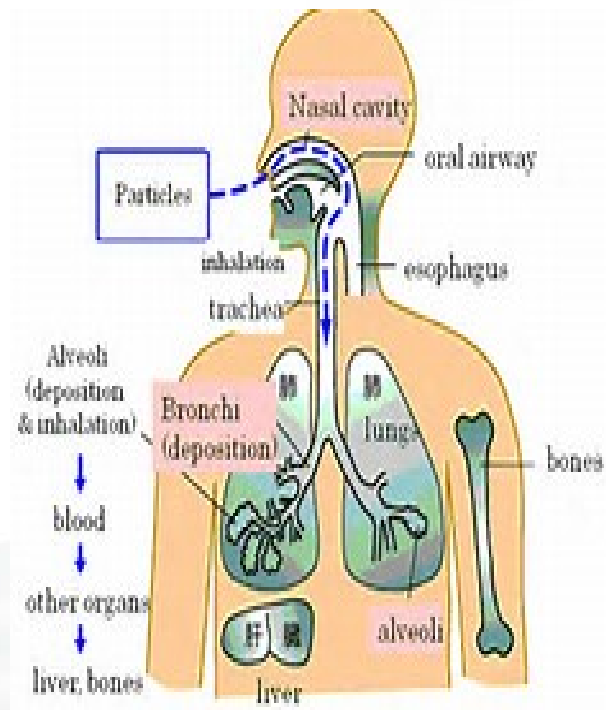
- Most extensive use of lead in construction that would likely be encountered today is lead based paint.





# Exposure to Lead

- For adults the most likely route of exposure is inhalation



# Inhalation

- Inhalation would most likely occur from grinding, sanding or heating lead based paint



# Scraping

- It is possible for scraping to produce an exposure if a large amount of scraping is done or if the paint has a very high lead content



# Building Components with Lead Based Paint

- The most likely building components where lead based paint were used are
  - Window and door trim
  - Baseboards
  - Metal
- Generally not a lot of lead paint was used on campus and when it was used the lead content was not very high



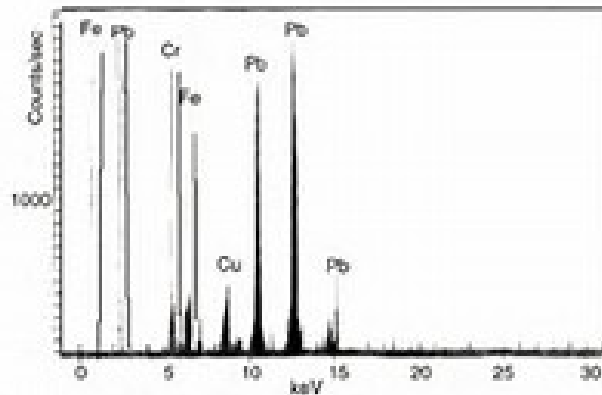
# Paint Scraping Projects

- Projects involving large amounts of paint scraping or preparation should be checked for lead prior to initiation



# Lead Based Paint Analysis

- EHS has the capability of analyzing painted surfaces for the presence of lead



**Yellow Pigments.** XRF of the yellow sample reveals a mix of Chromium Yellow (Lead Chromate) and Yellow Ochre (Ferric Oxide Hydrate). The absence of cadmium lines at 23.3 and 26.6 keV indicates Cadmium Yellow is not present. No lines at 32.3 keV, confirm the absence of Barium.

# Lead Based Paint Analysis, continued

- The analysis is completed with a Niton XRF which uses x-rays to identify the presence of lead



# Certified Lead Inspectors

- Certified lead inspectors complete the analysis as they are qualified to operate the XRF
- Jay Thomas is the inspector currently responsible for lead based paint inspections on campus



Jay Thomas



# Database

- EHS has a fairly extensive database which we can utilize for information regarding lead based paint on campus.



# General Procedure for Dealing with Painted Surfaces

- Have all large projects checked for lead based paint
- Never sand, grind or heat painted material unless you know it doesn't contain lead
- Collect all paint chips even if on the exterior of the building



# General Procedure for Dealing with Painted Surfaces, continued

- If lead based paint is present, EHS will assist in the development of a lead management plan which may include abatement
- If abatement is necessary, EHS personnel can address small projects
- Large scale operations may require a contractor complete abatement



# Limited Exposure

- The key to working with lead based paint and other lead construction components is to limit your exposure as much as possible
- For additional information or assistance contact EHS at 205-348-5905

