


Get the Lead Out!!

Know the Potential Hazards and Know the Rules

Presented by:



Energy • Environmental • Facilities



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Pb to the Max

- Soft, malleable, poor metal
- Naturally found as bluish-white color
- Quickly tarnishes to gray when exposed to air
- Poor electrical conductivity
- High density
- High resistance to corrosion



Pb lead
Atomic Number: 82
Atomic Mass: 207.20



Historical Uses

- Use dates back to 6400 BC in Turkey
- Pipes bearing insignias of Roman emperors in service in Italy & England
- Fuels (banned 1996)
- Shotgun pellets (banned 1992)
- Not in pencils






Where do We Find it Now?

- Some current producers are:
 - United States
 - Australia
 - China
 - Canada
 - Mexico
- Used in production of PVC plastics, batteries, ceramic glazes, stained glass, oil-based paints, & solder





At Home & At Work

- Architectural metals used on roofs (flashings, gutters, parapets, joints, etc.)
- Pb – Latin name *plumbum* for soft metals
 - Derived the terms plumbing, plumber, to plumb, and plumb-bob
- Added to paints to speed drying, increase durability, & resist moisture intrusion
- Estimated to run out of lead in 42 years









Coloring Agents

- Lead pigments used for white, red, orange, & yellow LBP
- Most discontinued based on health risks
- Lead chromate ($PbCrO_4$) still used in manufacturing industry



Doesn't that Sound Familiar?

- AP issued articles indicating elevated lead levels in football field surfaces in various locations across TX (December 2008)
- Lead chromate used in pigment of some artificial play surfaces
 - Concern that age, weather, impact damage could release lead-containing grass fibers into the air
- No current standards for lead levels in these materials



Where We Stand?


- CPSC issued press release including evaluation of various synthetic turf types (07/30/08)
 - Young children not at risk from lead exposure; greater risk of direct hand-to-mouth transfer; wash hands after playing outside, especially before eating
 - Requesting future standards of lead levels in these products
- Know exactly "what" you are purchasing
 - MSDS or constituent analysis from manufacturer

Educate your staff & your community



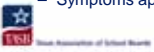

Health Effects of Lead Exposure

- Poisoning caused by increased levels in blood
- Compound interferes w/ various biological processes incl. cardiovascular, gastrointestinal, renal, nervous, & reproductive
- Major modes of entry are ingestion and inhalation
- Cannot taste, see, or smell contaminant in drinking water
- Symptoms include: abdominal pain, headaches, appetite loss, anemia, and irritability
- Sever cases can lead to seizures, coma, and death

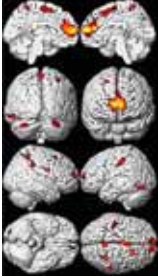


Who has the Greatest Risk?


- Contaminant impacts development of nervous system
- Can cause permanent learning and behavioral disorders in children & expectant mothers
- Adults have opportunity for environmental & occupational exposure
- No known safe exposure level
- Levels once deemed safe, now considered toxic
- Current action levels:
 - 10 µg/dL (CDC & WHO)
 - Symptoms appear in children at 25-60 µg/dL, on average



Are Adults Completely Safe?




- The brains of adults who were exposed to lead as children show decreased volume, especially in the prefrontal cortex, on this MRI.
- Areas of volume loss are shown in red, orange, and yellow over a template of a normal brain.
 - PLoS Medicine journal, May 2008.





Exposure Potential

- Potential sources are from air, drinking water, food, soil, and contact surfaces
- Proximity to applicable industrial facilities can increase levels
- Estimated 20% or more total lead exposure from drinking water
- Lead-based paint must be converted to dust particles, fumes, or chips by:
 - Damage/Impact such as cutting, prepping surface for painting, burning, sanding, etc.
 - Natural deterioration from wind, moisture, extreme temps



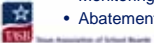

History of Regulations

- (1971-1976) - LBP Poison Prevention Act minimizes maximum lead allowed in paint
 - 1% to 0.06%
- 1974 – Safe Drinking Water Act
- 1978 - CPSC banned LBP for residential use
- 1994 – OSHA adopted worker protection standards for lead exposure
- 1994 – Texas Environmental Lead Reduction Rules
- 1996 – LBP Disclosure Regulation
- 2008 – Clean Air Act amendments allow maximum of 0.15 µg/m³ of lead released




Current Regulations

- Texas Environmental Lead Reduction Rules (25 TAC 295.201-220)
 - Must be TDSHS licensed Lead Inspector or Risk Assessor to conduct LBP inspections
 - Samples must be taken with approved methods & analyzed w/ licensed/accredited labs
 - Inspection report developed w/ results and recommendations
 - Encapsulant and/or enclosure
 - Monitoring schedule
 - Abatement





How Much is Too Much?

- LBP is deemed a hazard when content ≥ 1.0 mg/cm or 0.5% by weight



Who's Thirsty?

- Lead enters supply as result of corrosion and/or deterioration of plumbing systems or solder connections
- Federal action level for suppliers
 - 0.015mg/L (15ppb)
- Requires public notification of elevated levels
- Check your quarterly report



Future Regulations



- Renovation, Repair, & Painting (RRP) Rules
 - Issued in April 2008 by US EPA
 - Effective April 22, 2010
 - Require the use of lead-safe practices to prevent exposure and minimize health-related risks of children and adults
 - Apply to homes, childcare facilities, apartments, and schools built before 1978
 - Target activities with potential to disturb lead-based paint (LBP)







RRP 101

- Who Does it Apply to?
 - Applies to property owners, general contractors, and maintenance employees
 - All school districts with applicable facilities must obtain firm certification status to conduct work
- Where Does it Apply to?
 - Facilities older than 1978 that are occupied by children 6yrs or younger

RRP 101

- What Activities Does it Apply to?
 - Any with potential to disturb LBP (i.e. remodeling, repair work, electrical work, plumbing, painting, carpentry, window replacement, etc.)
 - Must impact >6ft² per room on interior painted surfaces or >20ft² on exterior painted surfaces
 - Accumulates over 30-day period, per room
 - Complete demolition of a facility is not included in RRP

RRP: Basic Requirements

- Apply for Certified Firm status
- Test Your Suspect Areas
- Applicable Workers must be Properly Trained
 - Designate Certified Renovator
 - Applies to Outside Contractors also
- Follow the RRP work practices during any applicable projects
- Maintain Proper Records



Certified Firms

- All firms must be certified under RRP to perform renovations or post-renovation dust sampling (i.e. school districts & GCs)
- All firms must be certified for lead-based activities to conduct abatement, inspections, or risk assessments (i.e. consulting companies)
- Certification obtained by:
 - Submit application to EPA w/ app. fee (\$300) via mail or online
 - Recertify w/ app. fee every 5 years
 - 90 day TAT allowed





Test Your Suspect Areas

- Must utilize EPA-approved test kits/methods
 - Certified renovators can use:
 - Professional LeadCheck® test kit
 - Swabs can be used on all surfaces except plaster and drywall
 - \$19/per 8 swab kit + shipping
 - Single layer results only
 - Licensed professionals can use:
 - X-ray fluorescence (XRF) machine
 - Bulk analysis
 - Sodium sulfide
 - Cannot use wipe kits because of inaccuracy





Applicable Workers Must be Trained

- All workers must be trained and/or certified:
 - Certified Renovators
 - At least 1 for each jobsite
 - Complete 8-hr initial renovator course (EPA accredited)
 - Trained Jobsite Workers
 - Receive on-the-job training (OTJ) about work practices from renovator
 - Individuals already licensed through TDSHS for lead practices (inspector, abatement, etc.) complete 4-hr refresher renovator course (EPA accredited)


Certified Renovators

- Responsibilities include:
 - Ensure overall compliance at each project
 - Be present during containment set-up, when warning signs posted, & while clean-up performed
 - Monitor work to verify proper practices followed
 - Be on-site or available via phone during project
 - Perform project cleaning verification
 - Maintain all required paperwork during & upon completion of project



Follow the RRP Work Practices

- General Work Practices
 - Workers must be certified/trained in RRP rules
 - Warning signs must be posted to designate work area; multiple languages may be required
 - Work area must be contained to prevent dust/debris from escaping during project
 - Prohibited activities include: open-flame/torch, high-speed tools unless equipped w/ HEPA exhaust; heat gun (temps >=1100°F)
 - Waste material contained/disposed properly



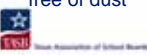



Work Practices: Interior Surfaces

- Remove objects or cover/seal w/ poly sheeting
- Close/cover all ducts, windows, & doors w/ taped sheeting
- Cover floor w/ taped sheeting minimum 6ft beyond work surfaces or as much needed to contain dust
- Work area must be sufficiently clean to pass cleaning verification tests





Cleaning the Interior Work Area

- Collect all waste in heavy duty bags (6 mil poly recommended)
- Clean all objects/surfaces within 2ft radius
 - Walls: HEPA vacuum or wet wipe from ceiling to floor
 - Cloth objects/surfaces: wet wipe or mop; keep rinse water separate
 - Other objects/surfaces: HEPA vacuum completely
- All workers, equipment, & furniture must be free of dust





Work Practices: Exterior Surfaces

- Close all doors/windows within 20 ft of project
- Any doors to be used must be covered w/ sheeting to capture dust/debris
- Cover ground w/ sheeting minimum 10ft beyond work surfaces or as much needed to collect debris
- Vertical containment may be necessary if close to other buildings or windy conditions
- Visibly clean jobsite & disposal in heavy duty bags
- No cleaning verification cards required






Maintain Proper Records

- 3-year record retention for all applicable documents including:
 - Suspect materials testing records/survey reports
 - Distribution of informational pamphlets
 - RRP project information (date, location, assigned renovator, etc.)
 - Purchase/bill-of-sale for applicable facilities
 - Facility exemptions




Compliance Penalties

- Determined by:
 - Jobsite inspections
 - Routine inspections to review paperwork
 - Follow-up to complaints and/or tips
- Maximum penalty is \$32,500 per violation, per day



Helpful Resources

- Environmental Protection Agency (EPA)
 - www.epa.gov/lead/index.html
 - Renovation, Repair, and Painting (RRP) Rules
- Centers for Disease Control and Prevention (CDC)
 - www.cdc.gov/nceh/lead
 - Exposure prevention; health risk information; product recalls



Helpful Resources

- Consumer Product Safety Commission (CPSC)
 - www.cpsc.gov
 - Product safety requirements & recalls
- Department of Housing & Urban Development
 - www.hud.gov/offices/lead/index.cfm
 - Regulations specific to HUD housing




In the News...






Helpful Resources

- Texas Department of State Health Services (TDSHS)
 - www.dshs.state.tx.us/elp/
 - Environmental Lead Program (ELP)
 - Peter Tadin
ELP Coordinator
(888) 778-9440, ext. 2434
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