Lead Removal from Drinking Water:
Pour-Through and Faucet-Mounted Point-of-Use Devices

PEHSU Pediatric Environmental Health Specialty Units

Why should we be concerned about lead?

- Even small amounts of lead can cause learning and behavior problems in children. At very high blood levels lead poisoning can be fatal.
- Children under the age of six and the developing fetus are especially vulnerable to health problems from exposure to lead, including elevated lead in drinking water.
- Infants who drink formula prepared with lead-contaminated water are at high risk because their brains are rapidly developing and because they consume large volumes of formula relative to their body size. Even in exposed women, lead levels in breast milk are low and breast milk is highly nutritious for babies.
- In addition to drinking water, other important sources of exposure are peeling lead-based paint and lead-contaminated dust. Additional sources include lead-contaminated soil and air, some toys and cosmetics.

How does lead get into my drinking water?

- Some parts of the plumbing system may contain lead. These include most faucets and some solders, fittings, connectors, and pipes. Lead in drinking water comes from contact with these materials, which may be present in your home, high rise building, or city's water distribution system.
- Lead is rarely found in source water (groundwater or surface water) used for drinking water.

What can I do to decrease lead in my drinking water?

- Flush your water pipes before drinking or drawing water for cooking by running the water until it reaches the coldest temperature possible. This may take only a few seconds if water use in your home was heavy recently (i.e. showering), or it could take longer than a few minutes if the water sat in the pipes overnight.
- Use only the cold-water tap for drinking, cooking, and <u>especially for making baby formula</u>.

How do I know if my tap water is contaminated with lead?

- The only way to know is to test your water (< $50 per test). You cannot see, taste, or smell lead in water.
- Testing the water is especially important for apartment dwellers, because flushing may not be effective in high-rise buildings.

How do I test my water for lead?

- Contact your local health department or water supplier as some provide lead testing at no or low cost.
- Use a state-accredited laboratory. To find one, use the below information to contact your State Drinking Water Officer or the EPA Safe Drinking Water Hot Line.
- To ensure the results are accurate, select a lab that provides a sample collection kit with instructions on how to collect a water sample and the required acid-washed sample container.
- Collect a water sample from a frequently used location such as the kitchen tap or where food is prepared.
- <u>Water test kits available at local hardware stores are NOT recommended by the EPA</u>.

Are faucet or pitcher water devices effective at removing lead?

- Lead in drinking water is present in both soluble (dissolved) and particulate forms. It is harder to remove lead particulates. Most faucet-mounted devices effectively remove both soluble and particulate lead, but most pour-though water pitcher devices are not effective at removing the particulate lead.

Who tests water filtration systems?

- NSF International, an independent organization with a commitment to public safety, certifies consumer products. In 2006, NSF changed their filter testing standard to include lead particles. Pour-through water pitchers met the old standard, but the vast majority does not meet the new standard. NSF certification is voluntary so companies do not have to meet standards before they can sell their products.

How can I find a pitcher or faucet device to remove soluble and particulate lead from my water?

- Go to the NSF WEB page to verify the effectiveness of the system you want to purchase. http://www.nsf.org/Certified/DWTU/
- The only pour-through pitcher currently NSF certified is by Zero Technologies. NSF has certified faucet-mounted products by Culligan, Kaz, and Brita.

For additional questions contact the NW PEHSU. The University of Washington based Pediatric Environmental Health Specialty Unit (PEHSU) serves medical and public health professionals in Alaska, Washington, Idaho, and Oregon. For more information contact us at 1-877-KID-CHEM or pehsu@uw.edu, or visit our website. www.depts.washington.edu/pehsu/

Resources and References

State Drinking Water Officer and accredited laboratories:
http://water.epa.gov/scitech/drinkingwater/labcert/statecertification.cfm
US EPA Home Water Testing:
https://www.epa.gov/sites/production/files/2015-11/documents/2005_09_14_faq_fs_homewatertesting.pdf
US EPA Basic Information about Lead:
https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water
US EPA Health Effects of Lead: http://www.epa.gov/lead/pubs/leadinfo.htm#health
NSF Lead Reduction Certification:
http://info.nsf.org/Certified/DWTU/listings_leadreduction.asp?ProductFunction=053|Lead+Reduction&ProductFunction=058|Lead+Reduction&ProductType=&submit2=Search
Deshommes et al. Lead removal from tap water using POU devices. JAWWA; 102:10. 91-105. Oct 2010.
Renner R. Drinking Water Quality: Lead Particles on Tap. Environ Health Perspect 116:A201-A201.
http://pubmedcentralcanada.ca/pmcc/articles/PMC2367671/
CDC Lead Exposure, Pregnancy and Breast Milk:
https://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf

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