

# California Human Health Screening Level for Lead - 80 mg/kg (ppm)

- What is it based on?
- What is it used for?
- Effects of lead in children
- Sources of lead exposure

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# What is the basis for the Screening Level?

- An analysis of 1333 children showed an inverse relationship between their blood lead levels and their IQ test results.
- Using this relationship, OEHHA estimated the lowest blood lead level that could result in a loss of 1 IQ point.
- That level was 1 microgram per deciliter ( $\mu\text{g}/\text{dL}$ )

# National Toxicology Program conclusions



NTP MONOGRAPH ON HEALTH EFFECTS OF LOW-LEVEL LEAD

June 13, 2012

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National Institute of Environmental Health Sciences  
National Institutes of Health  
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

NTP concludes that at  $\leq 5 \mu\text{g/dL}$  there are changes in:

- Cognitive ability (thinking, understanding, learning, and remembering)
- achievement
- behavior
- ADHD (attention deficit hyperactivity disorder)

# How was the screening level developed?

- We used DTSC's Leadsread model to estimate the soil lead concentration that could increase a child's blood lead concentration by up to 1  $\mu\text{g}/\text{dL}$ .
- The model incorporates health-protective assumptions:
  - We based the screening level not on an average child, but one with high exposure:
    - For example a toddler who plays on bare soil, exhibits hand-to-mouth behavior, and therefore ingests higher-than-average amounts of soil.
  - Lead in soil is assumed to be 44% bioavailable. In most cases bioavailability would be less.

## How is the 80 ppm lead Screening Level used?

- Because of the conservatism incorporated in the screening level, levels less than that are considered “safe” under any reasonable set of conditions.
- Lead levels greater than 80 ppm require further evaluation.

# Exposure to Lead in Soil

- The location of lead in soil affects the likelihood of exposure to lead.
  - Children are more likely to be exposed to lead that is at the surface than to lead that is below the surface.
  - Lead that is in vegetated or covered areas has less exposure potential than lead that is in bare dirt.

# Sources of lead exposure

- Lead in soil is not the only source of lead exposure. Other potential sources include:
  - Lead-based paint
  - Lead in some crystal and glazing on pottery and ceramics
  - Lead in indoor dust
  - Occupational exposures and take-home lead
  - Lead in some traditional medicines and cosmetics
  - Lead in some imported toys, jewelry and candy