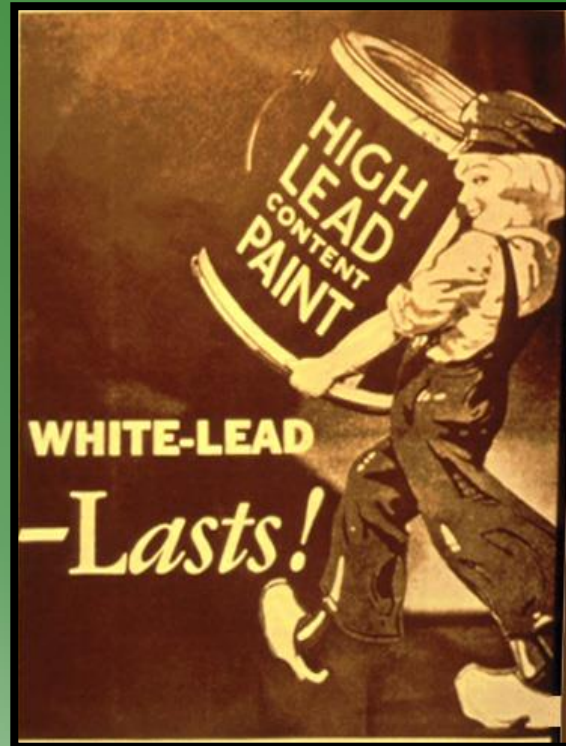


# LEAD AWARENESS



# CHEMICAL SYMBOL

<b>49</b> <b>In</b> <b>Indium</b> <b>114.82</b>	<b>50</b> <b>Sn</b> <b>Tin</b> <b>118.69</b>	<b>51</b> <b>Sb</b> <b>Antimony</b> <b>121.75</b>
<b>81</b> <b>Tl</b> <b>Thallium</b> <b>204.37</b>	<b>82</b> <b>Pb</b> <b>Lead</b> <b>207.19</b>	<b>83</b> <b>Bi</b> <b>Bismuth</b> <b>208.980</b>

# LEAD IS A METAL!

- heavy
- strong
- gray
- soft

*There is 8 lbs of Lead in computers*

# WHY WAS LEAD USED?

- Prevents corrosion
- Kills mold & mildew
- Is easy to shape

*Still used in industrial paint !*

# WHY WAS LEAD USED?

- Very strong
- Blocks radiation
- Blocks sound
- Helps paint dry

# Galena



◊ This person is holding galena, a common form of lead ore mined from the earth.

# Uses of Lead in Paint

- Lead was added to paint, stains, and varnishes for three main reasons
  - As a pigment
  - To add durability and corrosion resistance
  - As a drying agent



# *The Dutch Boy Painter*



Fall in line for good painting with pure White Lead  
("Dutch Boy Painter" trade-mark.)  
Copyright, 1910, by National Lead Company.



# ASPINALL'S ENAMEL

SURPASSES ALL OTHERS.  
AVOID IMITATIONS



THE FINEST COLORS  
IN THE WORLD

1837



SIXTY YEARS  
EVOLUTION  
IN DECORATIVE  
ART

IS NOT MADE  
WITH LEAD AND IS  
NON POISONOUS



COLOURS  
PERFECT

1897

PARIS. 24 RUE ALBERT

NEW CROSS LONDON. S.E.

NEW YORK. 98/100 BERKMAN

# Lead Causes Health Problems

- Ancient Egyptians knew that lead could kill people if they swallowed too much of it.
- In the Middle Ages, doctors realized that the health problems of painters, miners, and artists were caused by exposure to lead on the job.

# Lead Causes Health Problems

- In 1786, Ben Franklin wrote to a friend about work-related lead poisoning cases.
- In the early 1900's, doctors found that lead-based paint caused reproductive problems for workers and their families.

# Where is Lead Found?

- Paint: *(EPA's definition for target houses & child occupied facilities)*  
"paint, varnish, shellac, or other coatings on surfaces that contains at or above 1.0 mg/cm<sup>2</sup> of lead or more than 0.5 % lead by weight."

*Note: OSHA requires protection of the worker if any amount of lead is detected.*

# LAWS

- Airborne lead exposure
  - Action Level:  $30 \mu\text{g}/\text{m}^3$ 
    - If you work in an area at or above  $30 \mu\text{g}/\text{m}^3$  of air, your employer must continue air monitoring, give you medical surveillance and training in the hazards of working with lead.

# LAWS

- Airborne lead exposure

- Permissible Exposure Limit:  $50 \mu\text{g}/\text{m}^3$

- Your employer is not allowed to let you breathe in more than  $50 \mu\text{g}/\text{m}^3$  of air. This limit is for the average amount of lead in the air over an 8-hour day. It is called the Permissible Exposure Limit (PEL). If you work in an area with more lead in the air than the PEL, your employer must reduce your exposure.

# LAWS

- Requirements for work performed at or above the PEL:
  - Training
  - Regulated Area
  - Blood testing (*after 30 days of exposure in construction industry*)
  - Exposure monitoring
  - Decontamination
  - Respiratory Protection (*see class related tasks*)

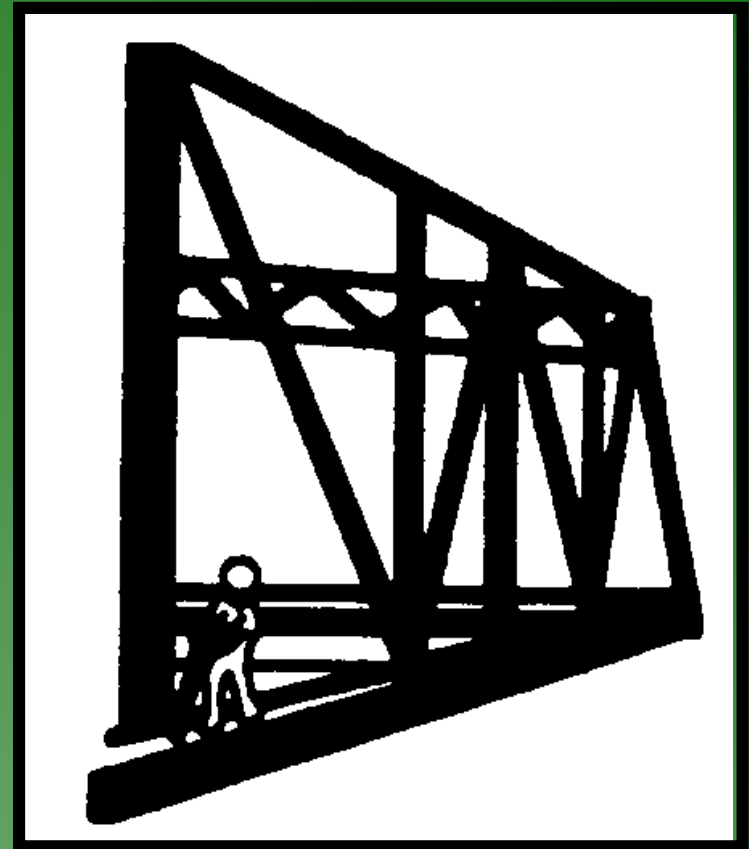
# OSHA's Class Related Tasks



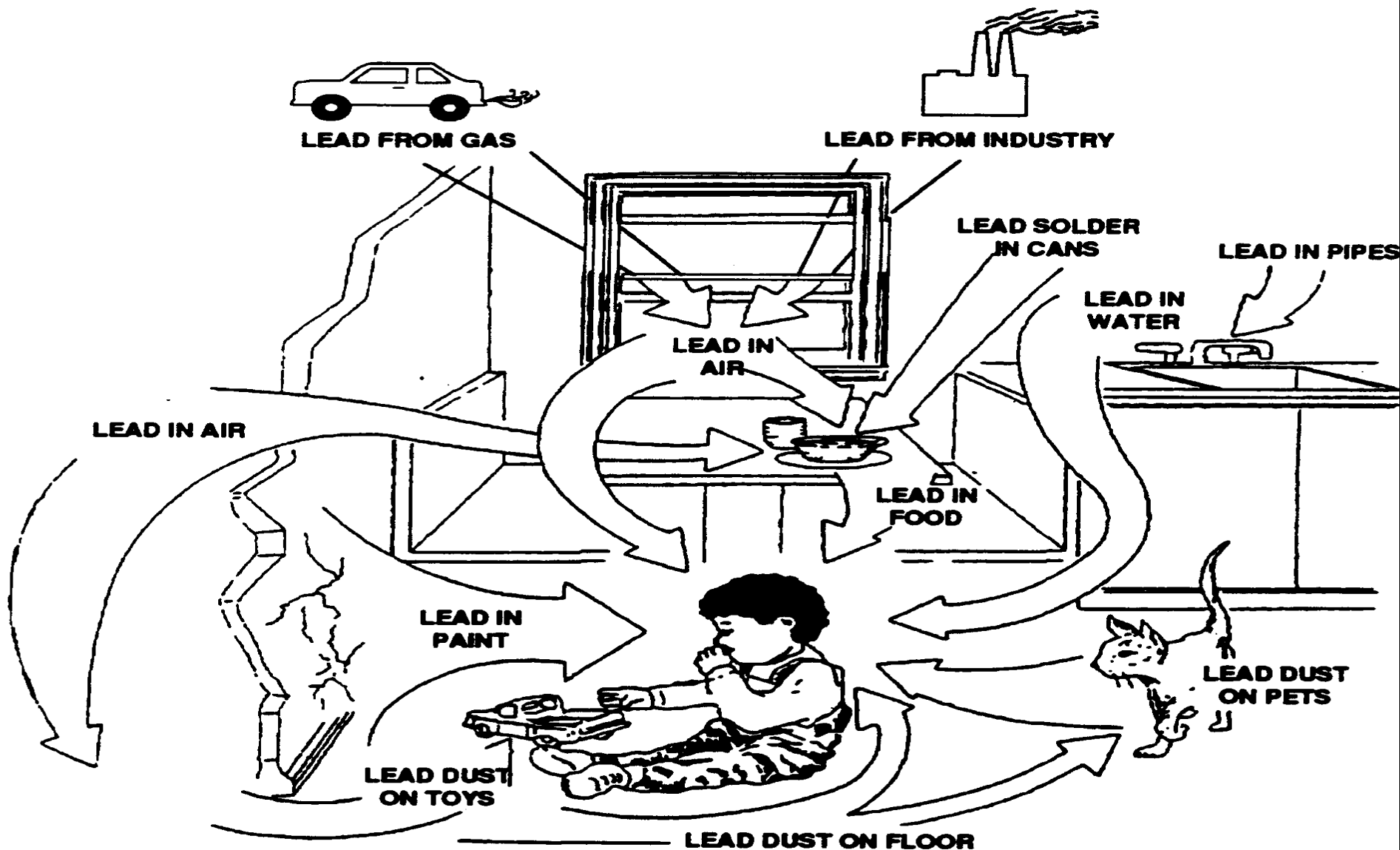
<b>Task Class</b>	<b>MUL</b>	<b>Respirator Types</b>
<b>Class 1</b>	<b>500 <math>\mu\text{g}/\text{m}^3</math></b>	<b><math>\frac{1}{2}</math> Mask Air, Purifying</b>
<b>Class 2</b>	<b>1250 <math>\mu\text{g}/\text{m}^3</math></b>	<b>Loose Fitting Hood/Helmet PAPR Hood/Helmet Cont. Flow SAR Type CE Continuous Flow</b>
<b>Class 2</b>	<b>2500 <math>\mu\text{g}/\text{m}^3</math></b>	<b>Full Face APR Tight Fitting PAPR Full Face SAR, Pressure Demand <math>\frac{1}{2}</math> Mask or Full Face Cont. Flow <math>\frac{1}{2}</math> Mask SAR, Pressure Demand</b>
<b>Class 3</b>	<b>50,000 <math>\mu\text{g}/\text{m}^3</math></b>	<b><math>\frac{1}{2}</math> Mask SAR, Pressure Demand</b>
<b>Class 3</b>	<b>100,000 <math>\mu\text{g}/\text{m}^3</math></b>	<b>Full Face SAR, Pressure Demand Type CE, Pressure Demand</b>
<b>Class 3</b>	<b>100,000 + <math>\mu\text{g}/\text{m}^3</math></b>	<b>Full Face SCBA Pressure Demand</b>

# Where is Lead Found?

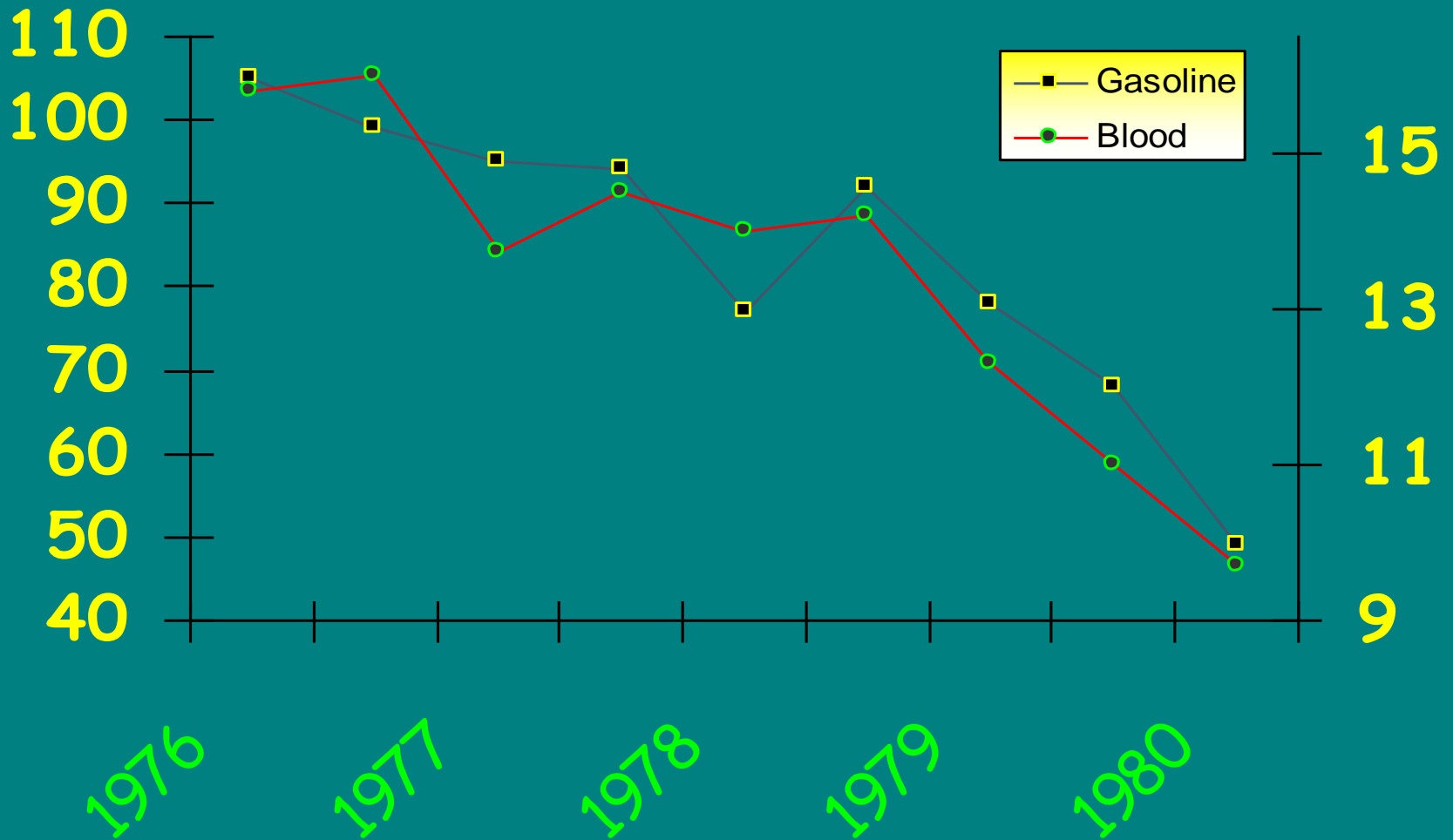
- Industrial use of lead-based paint
  - Structural steel coatings
  - Exterior siding
  - Water towers



# SOURCES OF LEAD EXPOSURE

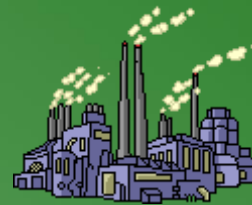


# Amounts of Lead found in Gasoline and Blood 1976 to 1980 NHANES II Study Results from Annest et. al. 1983.



# Where is Lead Found?

- Industrial releases
  - Lead smelter
  - Battery manufacturing
  - Paint pigment plants



# Where is Lead Found?

- Food
  - Solder on can goods
  - Up take of lead
    - Vegetables



# Where is Lead Found?

- Food
  - Solder on can goods
  - Up take of lead
    - Vegetables



# Where is Lead Found?

## Drinking Water





# Where is Lead Found?

- Hobbies
  - Home remodeling
  - Glazed pottery making
  - Target shooting at firing ranges
  - Painting-some art paints have lead pigments
  - Car and boat repair



# Where is Lead Found?

- Hobbies
  - Making lead fishing sinkers or lures
  - Painting-some art paints have lead pigments
  - Electronics
  - Refinishing furniture
  - Stained-glass window making



# Where is Lead Found?

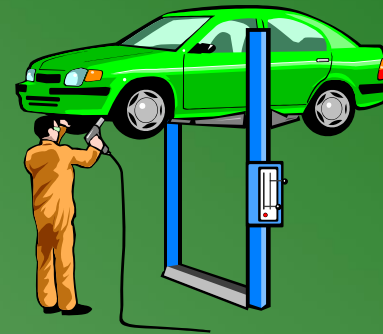
- Occupational exposure: (Construction)
  - Lead abatement workers
  - Carpenters
  - Remodelers
  - Renovators
  - Demolition workers
  - Iron workers
  - Steel welders and cutters
  - Sheet metal workers
  - Painters
  - Plumbers and pipe fitters
  - Cable splicers

# Where is Lead Found?

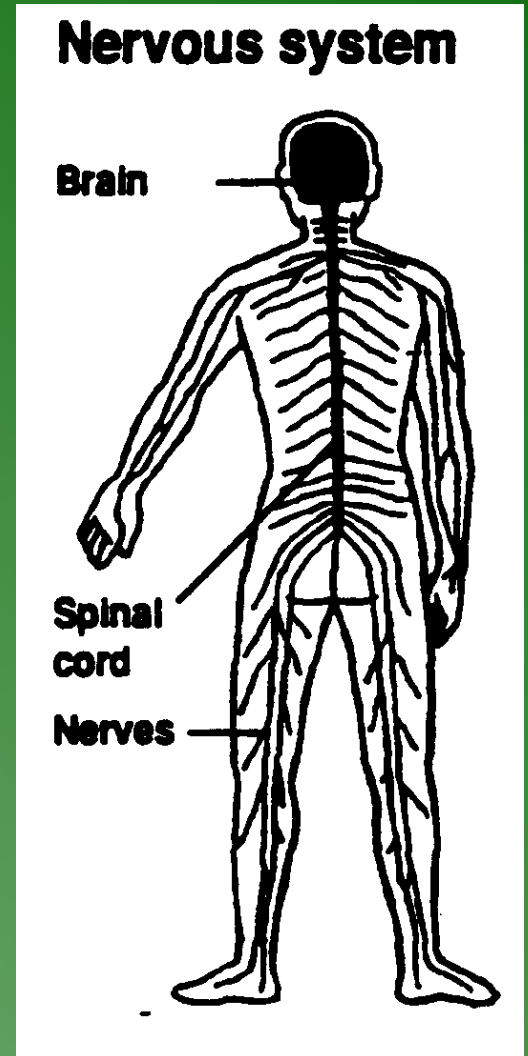
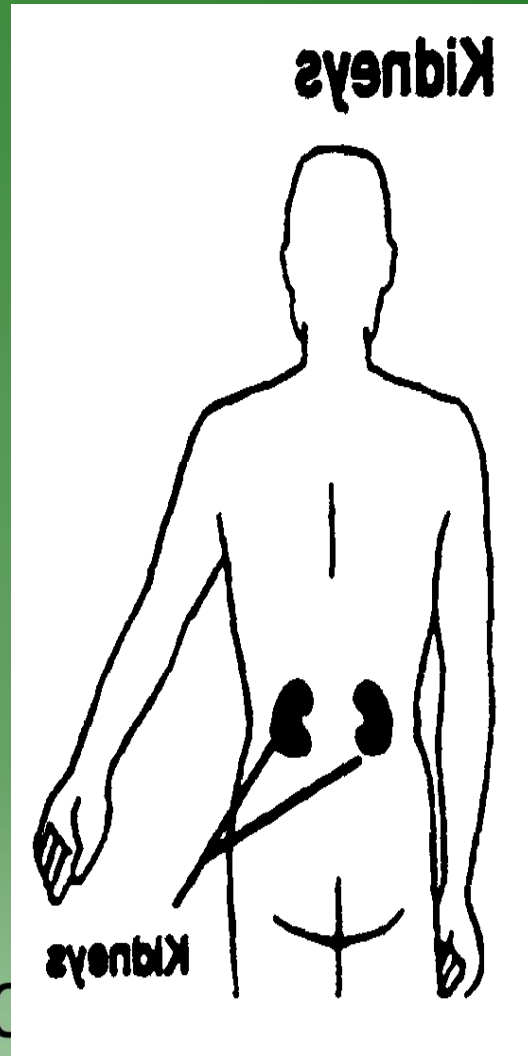
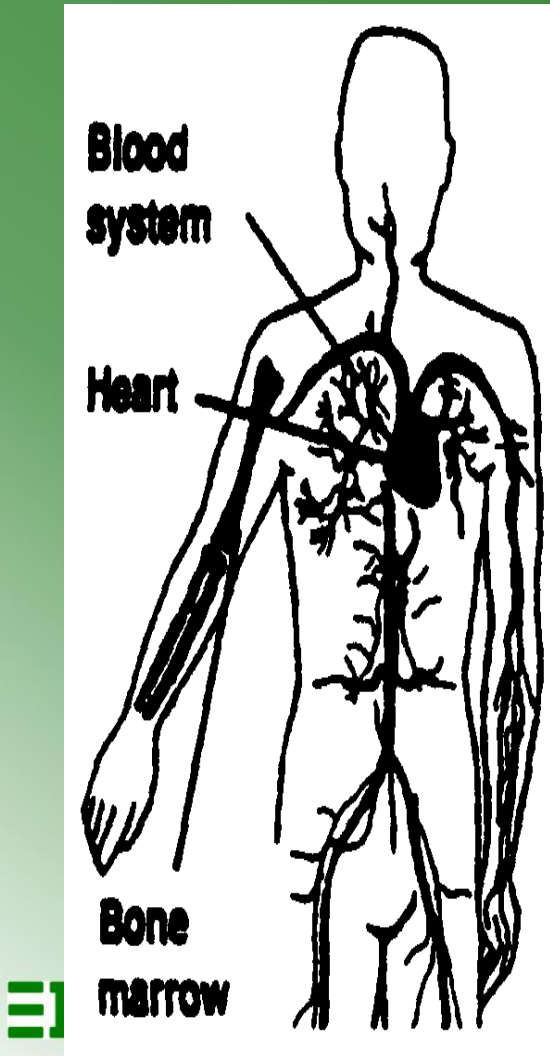
- Occupational exposure: (Industry)
  - Lead miners
  - Lead smelter workers
  - Lead refinery workers
  - Lead crystal makers
  - Ceramic glaze
  - Plastic manufacturers
  - Wire and cable manufacturers
  - Electronics makers

# Where is Lead Found?

- Occupational exposure: (Others )
  - Firing range employees
  - Police officers
  - Artists
  - Radiator repair workers
  - Car mechanics
  - Printers



# How Can Lead Harm You



# How Can Lead Harm You

- Lead can be stored in your bones for more than 30 years!



# How Can Lead Harm You

- Lead can cause reproductive problems for both men and women!
- Pre-natal Danger
  - Small amounts can make a pregnant woman sick
  - Lead can cause miscarriages and birth defects
- Lead can cause difficulty having an erection
- Lead can damage sperm and cause infertility





# Signs of Lead Poisoning

- You may not know that you have lead poisoning
- Lead poisoning may be mistaken for the flu.



**LEAD CAN ALSO  
CAUSE DAMAGE  
WITHOUT  
SYMPTOMS.**

# Signs of Lead Poisoning

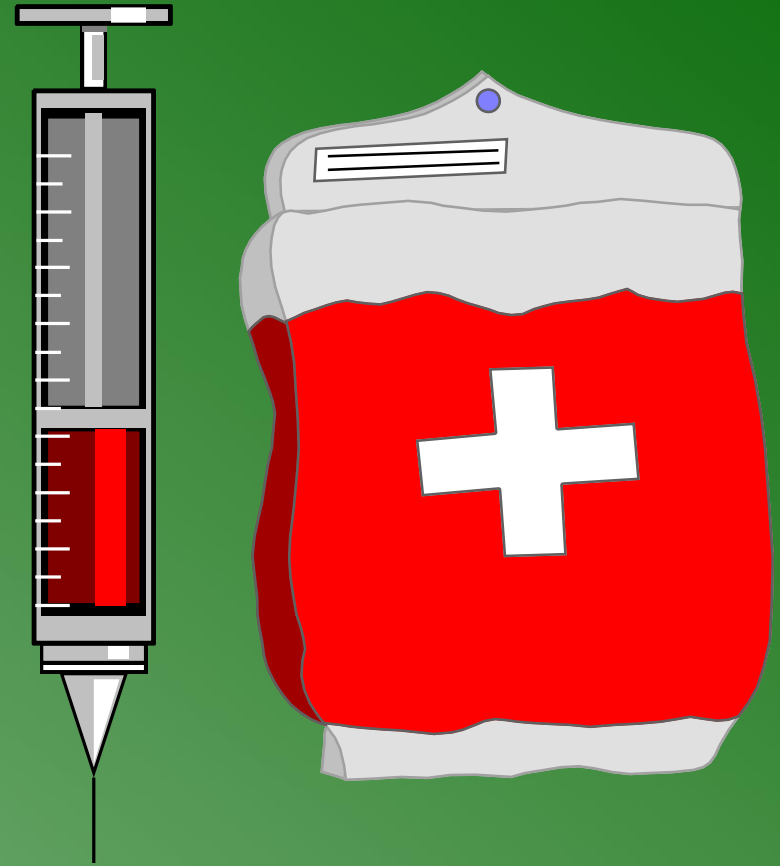
- Tiredness
- Sleep Problems
- Dizziness
- Irritability
- Nervousness
- Headaches
- Difficulty Concentrating
- Depression
- Forgetfulness
- Hyperactivity (children)
- Numbness
- Foot Drop
- Weakness
- Clumsiness
- Joint and Muscle Pain
- Vomiting
- Loss of Appetite
- Stomach Aches
- Constipation
- Metal Taste in the Mouth
- Problems Having Healthy Children

# Effects of Lead Poisoning:

- ANEMIA
- HIGH BLOOD PRESSURE
- DAMAGE TO BLOOD CELL FORMATION
- KIDNEY DISEASE
- BRAIN DAMAGE
- NERVE DAMAGE
- DECREASED FERTILITY
- MISCARRIAGES

# How do we test for poisoning?

- BLOOD TESTING
  - $\mu\text{g}/\text{dl}$
  - Zinc Protoporphyrin
  - Blood Lead Level





**BLOOD LEAD  
LEVELS**

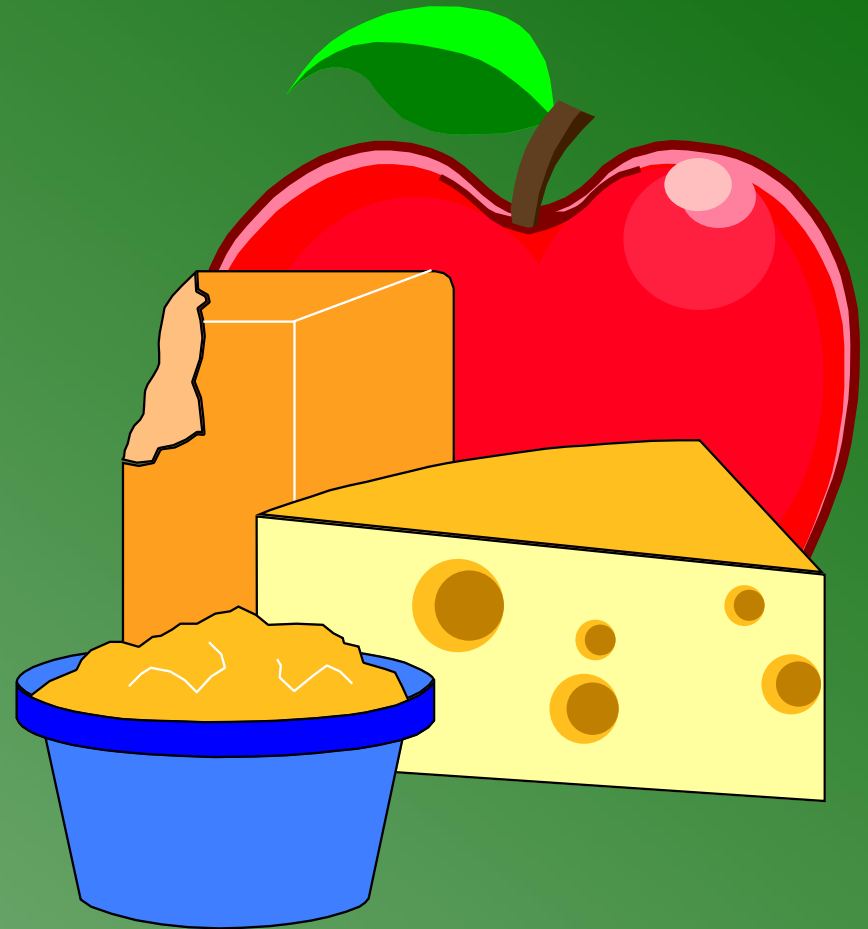
# How much lead is dangerous?



- Children may experience health effects at **10  $\mu\text{g}/\text{dl}$**
- Adults may experience health effects at **15  $\mu\text{g}/\text{dl}$**
- OSHA permissible blood lead level **40  $\mu\text{g}/\text{dl}$**
- OSHA medical removal blood lead level **50  $\mu\text{g}/\text{dl}$**

# Preventing Lead Poisoning

- Prevent Exposure
- Work Safely
- Good Nutrition





# Occupational Exposures

- Demolition or salvage of structures



# Occupational Exposures

- Removal or encapsulation of materials



# Occupational Exposures

- New construction, alteration, repair or renovation of items



# Occupational Exposures

- Installation of materials
- Lead contamination or emergency cleanup



# Occupational Exposures

- Maintenance operation involving the disturbance of lead containing materials, or LCM
- Firing range operations



# OSHA Standard

## 29 CFR 1910.1025 – “Lead”

- (c)(1) - The employer shall assure that no employee is exposed to lead at concentrations greater than  $50\text{mg}/\text{m}^3$  (PEL) averaged over an 8 hour period (TWA)
- (d)(1)(i) - Employee exposure – defined as that exposure that would occur if an employee were not wearing a respirator

# Exposure

Commonly found in soil, especially near:

- Roadways
- Older houses
- Old orchards
- Mining areas
- Industrial sites



# Exposure

Can also be found in soil near:

- Power plants
- Incinerators
- Landfills
- Hazardous waste sites





# Initial Determination

- (d)(1)(ii) - Employer must collect a full shift of personal samples, representative of monitored employee's regular, daily exposure to lead



- (d)(2) - Employer must determine if any employee may be exposed to lead at or above the action level

# Initial Monitoring

- (d)(4)(i) – If positive determination is made where the possibility of an employee exposure is at or above the action level, the employer will conduct monitoring representative of each employee who is exposed to lead
- (d)(5) – If negative determination is made where no employee exposure is at or above action level, the employer will make written record of it, to include date, location within the worksite, employee name and social security number who was monitored

# Employee Notification

- (d)(8) – The employer must, within 15 working days, notify each affected employee of monitoring results either individually in writing or by posting the results in an appropriate location accessible to the employee

**Table 1: Breakdown of blood lead levels measured in exposed male workers 2007/2008**

Sector	<10ug	10-19ug	20-24ug	25-29ug	30-34ug	35-39ug	40-49ug	50-59ug	60-69ug	70-79ug	80+ug	Total
01	349	465	190	137	86	55	37	9	3	0	0	1331
02	431 (1)	155	102	111	82	84	102	41	4	0	0	1112 (1)
03	1	0	0	0	0	0	1	1	0	0	0	3
04	46	45	19	18	20	236	78	28	0	0	0	490
05	15	19	5	9	1	3	5	2	0	0	0	59
06	27	7	6	6	3	0	1	0	0	0	0	50
07	117	127	75	78	87	100	76	55	10	1	0	726
08	21	1	1	1	0	0	3	1	0	0	0	28
09	132	38	16	6	10	5	10	7	3	0	0	227
10	271 (2)	131 (1)	53	50	27	23	28	17	6	0	2	608 (3)
11	197	130	64	55	33	17	24	16	1	0	0	537
12	776	407 (1)	164	119	80 (1)	81	67	22	4	3	0	1723 (2)
13	284	136	34	14	15	11	9	5	1	1	1	511
Missing	142	94 (1)	18	21	33	19	9	2	2	0	0	340 (1)
<b>Total</b>	<b>2809 (3)</b>	<b>1755 (3)</b>	<b>747</b>	<b>625</b>	<b>477 (1)</b>	<b>634</b>	<b>450</b>	<b>206</b>	<b>34</b>	<b>5</b>	<b>3</b>	<b>7745 (7)</b>

Numbers are for male workers over 18yrs, those in brackets are for male workers under 18yrs

01: Smelting, refining, alloying and casting, 02: Lead battery industry, 03: Badge and jewellery enamelling, 04: Glass making, 05: Manufacture of pigments and colours, 06: Potteries, glazes and transfers, 07: Manufacture of inorganic and organic compounds, 08: Shipbuilding, repairing and breaking, 09: Demolition industry, 10: Painting of buildings and vehicles, 11: Work with metallic lead and lead containing alloys, 12: Other Processes, 13: Scrap Industry

# Methods of Compliance

- (e)(1)(i) – Where an employee is exposed to lead above the permissible exposure limit for more than 30 days per year, the employer shall implement engineering and work practice controls (including administrative controls) to reduce and maintain employee exposure
- (e)(2) – Where engineering and work practice controls do not reduce employee exposure to below the permissible exposure level, the employer shall supplement these controls with respirators

# Compliance Program

- (e)(3)(i) – Each employer shall establish and implement a written compliance program to reduce exposures to or below the permissible exposure limit
- (e)(3)(iv) – Written programs must be revised and updated annually to remain current



# Compliance Program

- (e)(3)(ii) - Written program must have the following elements:
  - Description of each operation in which lead is emitted
  - What technology was used to determine need for this program
  - Air monitoring data to document the source of emissions
  - What engineering controls are used
  - What work practice controls are used
  - What administrative controls are used
  - What respirators are provided
  - Other relevant information



# Engineering Controls

- Mechanical ventilation – (e)(4)
  - Capture velocity
  - Duct velocity
  - Static pressure
  - Measure effectiveness when production/process changes
- Recirculation of air
  - HEPA filter with backup filter
  - Controls to monitor concentration of lead in return air



# Work Practice Controls

- Housekeeping – (h)
  - All surfaces shall be maintained as free as practical from accumulations of lead
  - Floors and surfaces where lead accumulates may not be cleaned by the use of compressed gas
  - Vacuums shall be used and emptied in a manner which minimizes re-entry of lead into the workplace





# Work Practice Controls/PPE

- Use of protective work clothing – (g)
  - Coveralls or full-body work clothing
  - Gloves, hats and shoes or disposable shoe coverlets
  - Face shields or vented goggles



# Personal Protective Equipment

- In working with lead in any form, at a minimum, employees should wear gloves, either latex or leather, and safety goggles.
- Some tasks may require disposable coveralls, a half-face respirator with a HEPA filter and possibly steel-toed shoes.
- In all cases, wash hands immediately after working with lead.



# Maintaining PPE

- Employer shall repair/replace all equipment to maintain its effectiveness.



- Employer shall clean, launder or dispose of any damaged or contaminated clothing or equipment.

## Respiratory Protection -(f)(2)

- The employer must implement a respiratory protection program to cover each employee required to use a respirator.
- The employer must provide each employee with an appropriate respirator for the task/operation.
- Respirator must be used when installing or implementing engineering or work practice controls.
- Employee must go through a pulmonary function test and fit test for a respirator.
- Must provide HEPA filters for powered and non-powered respirators.



# Respiratory Protection



- Employers must provide employees with full face piece respirators for protection against lead aerosols that cause eye or skin irritations.
- Employers must provide employees with a powered air-purifying respirator (PAPR) instead of a negative pressure respirator when the *employee* chooses to use one and it provides adequate protection to the employee.

# Employee's Responsibilities

Employees will:

- Inform the supervisor of any respiratory hazards they believe are not adequately addressed.
- Receive instruction of workplace hazards requiring respiratory protection.
- Wear a respirator only after evaluated and approved by the HCP.
- Attend training in the proper use, wear, fit and maintenance of their respirator.
- Wear their respirator when and where it is required.
- Use, care for and maintain their respirator(s).

# Respirator Use Procedures

- Employees will use their respirators in accordance with the training they received.
- All respirators will be used according to their NIOSH certification.
- All respirator users will conduct positive or negative pressure seal checks each time they wear the respirator.
- Employees are not permitted to wear respirators if they have facial scars, facial hair, or missing dentures that prevent them from achieving a good seal.
- Employees are not permitted to wear headphones, jewelry or other items that may interfere with the seal.
- If a respirator malfunctions, employee should stop work, leave the area and report it to a supervisor.
- Work should not continue until a replacement respirator is obtained.

# Respirator Inspection Procedure

- Before using any respirator, employees will perform an inspection that includes the following items:
  - Face piece (cracks, tears and holes; facemask distortion; cracked or loose lenses/face shield)
  - Head straps (breaks or tears; broken buckles)
  - Valves (residue or dirt; cracks or tears in valve material)
  - Filters/cartridges (NIOSH approval designation; gaskets; cracks or dents in housing; proper cartridge for hazard)
- Respirators found to have defects will not be used.



## Change Rooms - (i)(2)

- The employer shall provide clean change rooms for employees who work in areas where the exposure to lead is above the PEL.
- The employer shall assure that change rooms are equipped with separate storage facilities for protective work clothing and for street clothes to prevent cross contamination.



## Showers – (i)(3)

- Employer shall assure that employees who work in areas where exposure to lead is above PEL shower at the end of the work shift.
- Employees should not leave the workplace with any clothing or equipment worn during the work shift.



# Personal Hygiene

- Personal hygiene is critical in controlling lead exposure for employees.
- Hygiene facilities with soap, water and disposable towels must be provided for employees.
- Smoking, chewing tobacco, gum or food will not be allowed in the work area.
- Employees must wash their hands and face thoroughly before *all* breaks and at the end of the work shift.



## Lunchrooms - (i)(4)

- The employer shall provide lunchroom facilities for employees who work in areas where exposure to lead is above the PEL.



- Lunchroom must have controlled temperature, positive pressure, filtered air supply and be readily accessible to employees.

# Medical Surveillance – (j)(1)

- Employer shall institute a program for all employees who may be exposed at or above action level for more than 30 days per year; and,
- Shall assure all medical exams and procedures are performed by a licensed physician; and,
- Shall provide exams without cost to the employee; and,
- Shall conduct a test every six months for blood, lead and zinc levels.



## Biological Monitoring- (j)(2)

- Shall conduct test every two months if blood sampling and analysis show an employee tested at or above 40 ug/100 g of whole blood, until two consecutive blood samples indicate blood lead level *below* 40 ug/100 g of whole blood
- Shall conduct test monthly on each employee removed from exposure to lead due to elevated blood lead level, with follow-up blood sampling two weeks after results of first test
- Laboratory must be licensed by CDC or USDOH

## Medical Examinations- (j)(3)

Employer shall make available medical examinations and consultations to each employee:

- Annually for each employee with a blood sampling conducted during the preceding 12 months that indicated a blood lead level at or above 40 ug/100 g
- ASAP for an employee that has:
  - Developed signs of lead intoxication, or
  - Desires advice concerning the effects of exposure on his/her ability to have a child, or
  - Has demonstrated difficulty breathing with a respirator

# Medical Examinations- (j)(3)

- Exams shall include:
  - Detailed work history
  - Medical history, with attention to past lead exposure(s), personal habits (smoking, hygiene)
  - Any past gastrointestinal, hematologic, renal, cardiovascular, reproductive and neurological problems
  - Thorough physical examination, attention to teeth, gums, systems listed above including pulmonary
  - Blood pressure measurement
  - Blood sample and analysis
  - May include pregnancy testing or male fertility evaluation



# Medical Examinations- (j)(3)

## Multiple physician review mechanism

- If the *employer* selects the initial physician to conduct the medical exam/consultation, the *employee* may designate a second physician to review findings of the initial physician including conducting any additional exams deemed necessary.
- The employer notifies the employee of the right to a second opinion.
- The employee must inform the employer of intention to seek a second opinion and initiate steps to make that appointment *within 15 days* of initial physician's written opinion.

## Medical Examinations- (j)(3)

- If the two physicians differ, the employer will designate a third physician to review findings of both prior physicians to resolve the disagreement.
- The employer will act upon the findings of the third physician, unless employer and employee reach an agreement which is otherwise consistent with at least one of the three physicians.
- All medical opinions made by the physician(s) **shall not** be revealed to the employer in any means of communication.



## Medical Removal Protection-(k)

- Employer shall remove employees from work who have an exposure to lead each time the employee's blood lead level is at or above 60 ug/100 g of whole blood, and
- Employer shall remove employees from work having an exposure to lead at or above the action level that the average of the last three blood samplings conducted (or each sampling conducted over the previous six months) indicate a blood lead level at or above 50 [ $\mu$ ]g/100 g of whole blood
- Employer shall remove an employee from work when a final determination detects a medical condition of increased risk of material impairment to health.

- The employer shall return an employee to his or her former job status when:
  - Two consecutive blood samplings indicate the employee's blood lead level is below 40[ $\mu$ ]g/100 g of whole blood.
  - A subsequent final determination *no longer* detects a medical condition of increased risk of material impairment to health.
  - A subsequent final determination indicates that the limitations or special protective measures placed on an employee are no longer necessary.

## Medical Removal Protection Benefits

- Shall provide an employee up to 18 months of benefits on each occasion that employee is removed from exposure to lead
- Shall maintain the earnings, seniority and other employment rights of the employee as though the employee has not been removed
- Employee must participate in follow-up medical surveillance while removed
- If employee files a WC claim, employer shall continue to provide benefits pending disposition of claim
- If an award is made, the medical removal protection obligation will be reduced by that amount

## Medical Removal Protection Benefits

- If an employee's blood lead level does not adequately decline within 18 months of removal:
  - Employer shall make a medical exam available to make a final determination.
  - Shall assure the final determination indicates whether or not the employee may be returned to former job status
  - If not, what steps should be taken to protect the health of the employee
  - Shall continue to provide benefits until employee is returned to former job status, *or* is determined incapable to ever safely return to former job status

## Employee Information and Training- (I)(1)

### Training program:

- Employer shall institute a training program and ensure employee participation in the program.
- Shall provide initial training by 180 days from the effective date of those employees covered and prior to the time of initial job assignment
- Shall train employees who are subject to exposure to lead at or above the action level, or if the possibility of skin or eye irritation exists
- Shall repeat training at least *annually* for each employee

## Employee Information and Training- (I)(1)

- Employer shall assure each employee is informed of the following:
  - The content of the lead standard and its appendices
  - The specific nature of operations that could result in exposure to lead above the action level
  - The purpose, proper selection, fitting, use and limitations of respirators
  - The purpose and description of the medical surveillance program and the medical removal protection program
  - The engineering controls and work practices associated with the job assignment
  - The contents of any compliance program in effect



## Access to Information and Training Materials- (I)(2)



- The employer shall make readily available:
  - A copy of this standard and its appendices to all affected employees
  - All materials relating to the employee information and training program to the assistant secretary and the director (DOL-OSHA)
  - Any materials pertaining to the Occupational Safety and Health Act as part of the training program

## Signs- (m)

- Employer shall post the following sign in each work area where the PEL is exceeded:



- Employer shall ensure that signs are illuminated and cleaned as necessary so that the legend is readily visible.

## Recordkeeping: Exposure Monitoring – (n)(1)

- Employer shall establish and maintain an accurate record of all exposure monitoring.



- Employer shall maintain these records for 40 years or duration of employment plus 20 years, whichever is longer.

## Recordkeeping: Exposure Monitoring- (n)(1)

- This exposure monitoring record shall include:
  - Date, number, duration, location and results of each of the samples taken, including a description of the sampling procedure used
  - A description of the sampling and analytical methods used and evidence of their accuracy
  - The type of respiratory devices worn, if any
  - Name, SSN and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent
  - The environmental variables that could affect the measurement of employee exposure

## Recordkeeping: Medical Surveillance – (n)(2)

- Employer shall establish and maintain an accurate record of each employee subject to medical surveillance.
- Medical surveillance records shall include:
  - Name, SSN and description of employee's duties
  - A copy of the physician's written opinions
  - Results of any airborne exposure monitoring done for the employee and representative exposure levels supplied to the physician, and
  - Any medical complaints related to exposure to lead made by the employee

## Recordkeeping: Medical Surveillance – (n)(2)

- Employer shall keep, or assure that the examining physician keeps, the following medical records:
  - A copy of the medical examination results including medical and work history
  - A description of the laboratory procedures and a copy of the standards or guidelines used to interpret the test results or references to that information
  - A copy of the results of biological monitoring
- Employer shall maintain or assure the physician maintains those medical records for at least 40 years or duration of employment plus 20 years, whichever is longer.



## Recordkeeping: Medical Removals – (n)(3)

- Employer shall establish and maintain an accurate record for each employee removed from current exposure to lead.
- Each record shall include:
  - Name and SSN of the employee
  - Date of each occasion the employee was removed from exposure to lead as well as the employee's corresponding return date
  - Brief explanation of how each removal was or is being accomplished, and
  - Statement with respect to each removal indicating whether the reason for the removal was an elevated blood lead level
- Employer shall maintain each record for at least duration of employee's employment.

## Recordkeeping: Availability – (n)(4)

- Employer shall make available upon request all records required to be maintained to the assistant secretary and the director for examination and copying.
- Environmental monitoring, medical removal and medical records shall be provided upon request to employees, designated representatives and the assistant secretary.
- Medical removal records shall be provided in the same manner as environmental monitoring records.





## Recordkeeping: Transfer of Records – (n)(5)



- Whenever the employer ceases to do business, the successor employer shall receive and maintain all records required to be maintained.
- Employer shall also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

## Observation of Monitoring- (o)

- Employer shall provide affected employees or their designated representatives an opportunity to observe any exposure monitoring being conducted.
- Employer shall provide respirators and protective clothing/equipment if observation necessitates entry into an area where their use is required.
- Employer shall require the observer to comply with all other safety and health procedures.



# Observation of Monitoring- (o)

Observers shall be entitled to:

- Receive an explanation of the measurement procedures
- Observe all steps related to the monitoring of lead performed at the place of exposure, and
- Record the results obtained or receive copies of the results when returned by the laboratory



# Appendices – (p)

- Appendix A – Substance Data Sheet for Occupational Exposure to Lead
  - Substance identification
  - Health hazard data
- Appendix B – Employee Standard Summary
  - Permissible exposure limit
  - Exposure monitoring
  - Methods of compliance
  - Respiratory protection
  - Protective work clothing
  - Housekeeping
  - Observations of monitoring
  - Hygiene facilities
  - Medical surveillance
  - Medical removal protection
  - Employee info/training
  - Signs
  - Recordkeeping

# Appendices – (p)

- Appendix C – Medical Surveillance Guidelines
  - Medical surveillance and monitoring requirements for workers exposed to inorganic lead
  - Adverse health effects of inorganic lead
  - Medical evaluation
  - Laboratory evaluation



# References

- OSHA 29 CFR 1910.1025

[www.osha.gov](http://www.osha.gov)

- EPA 40 CFR Part 745

[www.epa.gov](http://www.epa.gov)

- National Lead Information Center  
800-424-5323

NIOSH Pocket Guide to Chemical Hazards

# Summary

- What is lead?
  - EPA - LBP contains  $>1.0$  mg/cm<sup>2</sup> or more than 0.5% lead by weight.
  - OSHA- Any detectable amount
- Health Effects
  - Lead can be stored in your bones
  - Lead can cause reproductive problems for both men and women!
  - BRAIN DAMAGE
  - NERVE DAMAGE
  - KIDNEY DISEASE

