



Lead Based Paint Review – 20080908

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*Additions or Corrections Solicited! Send these via email to Dr. James R. Tucker. Email: jim@emssales.net

1. Lead – Blue/Gray Malleable Metal
2. History
 3. One of 7 Metals of Antiquity
 4. Used in Egypt, Roman Empire
 5. Pb (PLUMBUM is Latin) for Lead
6. Uses
 7. Made into Sheets, Rods, Pipes, Containers
 8. Used in Building Trades, Plumbing, Solder
9. Sources in Environment
 10. Lead-Based Paint – Dust/Chips
 11. Lead Paint Max – 1920's
 12. Water- Small Hazard
 13. Avoid – Hot Water for Food, Boiling
 14. Hobbies – Stain Glass, Fishing, Bullets
 15. Gasoline – Contaminated Soil Along Roads
 16. EPA Removed Pb from Gasoline mid-1980's
 17. Food
 18. Lead Solder in Acidic Foods e.g. Tomatoes
 19. Additive to Wine
 20. Lead in Ethnic Candy Wrappers
 21. Air
 22. Industrial Sites e.g. Battery Manufacturing
 23. Construction Sites
24. Pb Health Effects
 25. Pb Affects ALL Body Systems
 26. Neurobehaviorial – Nervous System -Most Important in Children
 27. Needleman Study – Lowest Observed Effects
 28. High IQ Group, no High Lead Children >120 IQ
 29. Overall – High Lead 5 IQ points less than Low IQ group
 30. Low IQ Group = 2X Low Lead vs High Lead Children

31. Encephalopathy – Brain Swelling
32. Blood
 33. Low Iron – Anemic
 34. High Blood Pressure
35. Kidneys – Nephropathy
 36. Pee lead out of the body
37. Reproductive
 38. Low Libido – Low Sex Drive
 39. Miscarriages
 40. Erectile Dysfunction
41. Half Life in the Body
 42. Blood – 30-60 Days
 43. Organs – 60-90 Days
 44. Bone – 40 years
45. Screening
 46. High Risk Children 1,2,3,4,5 years old + 1.5 years
 47. Blood Levels – Children
 48. 10 ug/dl = CDC - Level of Concern
 49. 15-19 ug/dl = Mildly Lead Poisoned (Two Tests)
 50. 20-49 = Lead Poisoned (One Test)
 51. >70 Medical Emergency – Possibility of Death
 52. Blood Levels – Adults
 53. Planning to have children < 10 ug/dl
 54. NOT Planning to have children <25 ug/dl
55. Exposure
 56. Children – Home – Ingestion
 57. Adults – Work – Inhalation
58. Environmental Interventions
 59. Isolate Peeling Paint
 60. “White Glove” Clean
 61. Wash hands and Toys Frequently
62. Identify LBP
 63. XRF - Non-destructive
 64. LAB - Destructive
 65. Spot (Chemical) Tests
 66. Not Recommended by EPA/IDPH
67. LBP Hazards
 68. Accessible (Chewable) Surfaces
 69. Friction Surfaces
 70. Impact Surfaces
71. LBP Surveys
 72. Federal Inspection – Surface by Surface
 73. Federal Risk Assessment – LBP Hazards
 74. Iowa Inspection
 75. Surface by Surface + LBP Hazards
76. Personal Protective Equipment
 77. Respirators
 78. Written Respirator Protection Plan
 79. Medical Surveillance Plan
80. Coveralls, Gloves, Shoes, Hard-hats, etc.

81. Iowa LBP (e.g.)
 82. # IA LBP Children ~ 3 X National Average
 83. Why
 84. Older Housing (<1950) = ~2X Nat. Avg.
 85. 6th in nation in older housing
 86. Need Maintenance – Rural Economy
 87. Lack of Previous LBP Program
 88. Work site Preparation
 89. Relocate Residents
 90. Disturb > 10 Sq. Ft. Interior
 91. Disturb > 50 Sq. Ft. Exterior
 92. If Bathroom not available
 93. 2 Layers – 6 mil plastic
 94. Disturb >2 Sq. Ft.
 95. Warning Signs
 96. Remove or Wrap Furniture
 97. Regulations
 98. Title X – Residential LBP Hazard Reduction Act of 1992
 99. “Target Housing”
 - 100.<1978, Not for Elderly or 0 Bedroom
 - 101.HUD Guidelines – 1995
 - 102.EPA
 - 103.Training & Certifications
 - 104.March 1, 2000 Individuals
 - 105.September 15, 2000 - Firms
 - 106.Real Estate Disclosure
 - 107.Sale or Rent
 - 108.December 6, 1996
 - 109.Notification before Renovation
 - 110.June 1, 1999
 - 111.> 7days but < 60 Days
 - 112.Pamphlet
 - 113.Written Acknowledgment
 - 103.Training & Certifications
 - 104.March 1, 2000 Individuals
 - 105.September 15, 2000 - Firms
 - 106.Real Estate Disclosure
 - 107.Sale or Rent
 - 108.December 6, 1996
 - 109.Notification before Renovation
 - 110.June 1, 1999
 - 111.> 7days but < 60 Days
 - 112.Pamphlet
 - 113.Written Acknowledgment
 - 114.HUD Assisted Properties
 - 115.September 15, 2000
 - 116.IA – Disturb >0.1 Sq. Ft.
 - 117.Clearance Test after Repairs
 - 118.General
 - 119.LBP Inspection NOT Required
 - 120.LBP Repairs NOT Required
 - 121.No Landlord Retaliation
 - 122.No Bias against Families with Children
 - 123.Worker Protection
 - 124.OSHA Requirements
 - 125.Written Compliance Plans
 - 126.Competent person
 - 127.Exposure Assessments
 - 128.Task Related Triggers
 - 129.Engineering & Work Practice Controls
 - 130.Respiratory Protection Plan
 - 131.Medical Surveillance
 - 132.PPE
 - 133.Record Keeping
 - 134.Lead Hazard Control
 - 135.Interim Controls - Temporary
 - 136.Clean
 - 137.Fix Moisture Sources
 - 138.Paint Film Stabilization

- 139.Wet Scrape and Paint, etc.
 - 140.Abatement =Permanent > 20 Years
 - 141.Component Removal and Replacement
 - 142.Encapsulation
 - 143.Enclosure
 - 144.Paint Removal
 - 145.Chemical Stripping or Heat Gun
 - 146.Prohibited Practices
 - 147.Open Flame Burning
 - 148.Dry Scraping or Sanding
 - 149.Methylene Chloride Strippers
 - 150.Abrasive Machines with NO HEPA
 - 151.Uncontained Hydro-blasting
 - 152.Heat Guns > 1,100 Degrees F
 - 153.Cleaning
 - 154.Clean Wet, Clean Smart, Clean Well
 - 155.WET WIPE, WET RINSE, Throw Away
 - 156.HEPA VAC, WET WASH, HEPA WASH
 - 157.Work Top to Bottom, Back To Exit
 - 158.Clearance Testing
 - 159.Visual Examination
 - 160.No Paint Chips, No Dust
 - 161.Sample 4 Rooms
 - 162.1 Floor
 - 163.1 Window Sill (Stool)
 - 164.1 Window Trough (Well)
 165. Plus 1 per 2,000 sq. ft. common areas
 166. 1 Sample within 5 feet outside containment
- LEAD EXPOSURE LIMITS**
- PAINT 600ppm - CPSC
1.0mg/cm2 or 0.5% or 5,000ppm - HUD
- DUST 40 ug/ft2 - HUD & EPA Clearance for Floors
250ug/ft2 - HUD & EPA Clearance for Window Sills
400ug/ft2 - HUD & EPA Clearance for Window Wells
- SOIL 500-1000ppm EPA Superfund Limit
400ppm - High Contact Play Areas {Communicate}
1200ppm - Other Residential Yard Areas {Average}
5000ppm - Require Permanent Abatement
200ppm – EPA Replacement Soil
- AIR 1.5ug/m3 - EPA National Air Quality Standard (Quarterly)
30ug/m3 - OSHA Action Level (8 Hour Avg.)
50ug/m3 - OSHA Exposure Limit
- BLOOD 10ug/dl (CDC) Level of Concern for children
40ug/dl (OSHA) Permissible Blood Lead Level
50ug/dl (OSHA) Worker Removal - Lead Level
- WATER - 15ppb (ug/liter)
GASOLINE - 0.1 g/gallon
- CERAMIC OR POTTERY GLAZES – FDA - AOAC Method 973.32
3ppm Leachate – Plates, Saucers and other Flatware
2ppm Leachate – Small Hollowware – (Cereal Bowls)
1ppm Leachate – Large Hollowware
0.5ppm Leachate – Cups, Mugs and Pitchers
- HAZARDOUS WASTE – Other Metals – Leachable TCLP
Arsenic (As) - 5ppm Lead (Pb) – 5ppm
Barium (Ba) – 100ppm Mercury (Hg) - 0.2ppm
Cadmium (Cd) – 1ppm Selenium (Se) – 1ppm
Chromium (Cr) – 5ppm Silver (Ag) – 5ppm
- CLEARANCE TESTING (Dust Wipes)
Visual Examination - No Paint Chips, No Dust
Sample 4 Rooms
1 Floor + 1 Window Sill (Stool) +
1 Window Trough (Well) +
1 per 2,000 sq. ft. common areas +
1 Sample within 5 feet outside containment