Fact Sheet:

Lead-Based Paint: Activities at the CERL Paint Technology Center

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(FL 53)

The Problem

Exposure to lead is associated with adverse health effects, including permanent damage to the central nervous system. There are a number of sources of lead exposure, including soil, dust and water. However, lead from lead-based paints has been shown to be the most significant source of exposure. White lead pigments were once used to make durable house paints with good hiding power, and red lead makes an excellent corrosion-inhibiting primer for metal. Lead exposure can result from the ingestion of paint chips or dust from deteriorating house paints, or from improper paint removal. Young children are at the greatest risk from this exposure. Lead is no longer used in house paints, and the application of lead primers on steel structures is declining. Old paints with hazardous levels of lead, however, still remain on many surfaces today.

The Technology

The U.S. Army Construction Engineering Research Laboratories (CERL) has investigated new technologies for the identification and measurement of lead in paint on surfaces. Continuing research is looking at the abatement of lead-based paint on buildings, and the safe and cost effective removal of lead paint from steel structures.

Abatement of Lead Paint on Buildings. CERL is evaluating methods for the abatement of lead-painted surfaces on buildings. Research on paint removal methods has included the evaluation of vacuum blasting techniques, heat methods, and chemical stripping with new nontoxic chemical strippers. CERL has demonstrated an abrasive blasting method which can remove lead paint from exterior wood surfaces and generate wastes that will be classified as nonhazardous. A research program demonstrated a laser method for removing lead-based paint from exterior wood siding.

Guidance for Maintenance and Removal of Lead Paint from Steel Structures. CERL has conducted work to develop field guidance for safe removal and disposal of lead-based paints from steel structures. Guidance include provisions for monitoring quality of containment, insuring worker safety, and insuring proper disposal of hazardous waste. Formal guidance was provided through and update to the civil works painting guide specification CEGS 09940 and a revision to the U.S. Army Corps of Engineers Painting Manual EM-1110-2-3400, *Painting: New Construction and Maintenance*, in FY95. Work is underway to develop guidelines for extending the service life of lead-based paint systems using both standard coatings as well as newer epoxy mastic formulations.

Alternate Lead Paint Removal Techniques. CERL is conducting research programs which may lead to more economical lead removal methods. An in-situ vitrification process is being developed which will revove lead base paint from steel surfaces and immobilize the lead in a glass matrix. Work was conducted on an abrasive blast additive that renders the lead present in the waste non-leachable. Wastes that contain no leachable lead may be disposed of as non-hazardous waste.

Affiliation with Other Agencies and Industry. CERL researchers serve on key committees involved in the lead paint problem, including the Department of Defense Interagency Lead-Based Paint Task Force, the Federal Interagency Lead Paint Task Force, the Steel Structures Painting Council, and the American

Society for Testing and Materials. This interaction serves to keep CERL abreast of changing policies, regulations, and technology in the field.

Benefits/Savings

The most significant benefits of this work are the increased protection of the environment and the health of Army personnel and dependents. This work will yield methods of lead paint detection and management that are safe, effective, and reasonable in cost.

Points of Contact

CERL POCs are Ms. Susan Drozdz (for information regarding testing and abatement of lead paint in buildings), COMM (217) 373-6767; e-mail s-drozdz@cecer.army.mil and Mr. Al Beitelman (for information on the removal of lead paint from steel structures), COMM (217) 373-7237; e-mail a-beitelman@cecer.army.mil. Both may be reached toll-free 800-USA-CERL; or CERL, ATTN: CECER-FL-M, P.O. Box 9005, Champaign, IL 61826-9005.

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