



Compliance Bulletin *Hazardous Waste* **Lead-Based Paint Abatement and Waste Management**

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Lead is a naturally occurring metallic element found in the earth's crust at about 15 grams per ton. Lead does not generally occur in pure form, but exists in several mineral forms including lead sulfide, lead sulfate, and lead carbonate, to name a few. The metal is widely used for its malleability, density, low melting point, corrosion resistance, and opacity to x-rays and atomic radiation. Lead is also used as an ingredient in pigments for paints, enamels, ceramic glazes, glass, plastics and rubber. Lead is used in metallurgy to make lead alloys, such as those used for bearings. It is widely used in storage batteries and has also been used to make solder, foils, coverings for cable, and ammunition. Despite its usefulness, lead is toxic to humans.

Toxicity

The primary ways lead enters the body are through inhalation of lead dust and ingestion of lead paint chips, dust, or debris. In the general population, there is a fairly even split between ingestion and inhalation exposure routes. Adults who are exposed to lead can suffer from digestive problems, nerve disorders, memory and concentration problems, high blood pressure, hearing problems, muscle and joint pain, and reproductive problems.

Lead is even more dangerous to children than adults because children's growing bodies absorb lead more readily, and their brains and nervous systems are more sensitive to the damaging effects of lead. About 5-15% of ingested lead is absorbed by adults, with less than 5% retained. Children, however, absorb approximately 50% of ingested lead and retain about 30%. If not detected early, children with high levels of lead in their bodies can suffer from learning disabilities, behavioral problems, slowed growth, hearing problems, headaches and brain damage.

Sources of Lead

In young children, hand-to-mouth activities account for most lead exposure. The primary source of lead poisoning is the ingestion of paint in old deteriorating housing. However, lead also may be found in paints on toys and furniture, glazing on pottery and ceramics, lead pipes, lead solder in older plumbing fixtures, vinyl mini blinds, some clay pots and dishes, ammunition, stained

glass products, dust on topsoil, factory and automobile fumes, as well as some traditional medicines and cosmetics. It is also an integral component of certain industries such as battery recycling or manufacturing.

Lead Poisoning Prevention

A resident of pre-1978 housing can often protect themselves from lead-based paint by simply applying a fresh coat of "lead-free" paint to surfaces in question. The Consumer Product Safety Commission recommends testing homes built before 1978 prior to remodeling or renovating. The Department of Housing and Urban Development (HUD) recommends that action be taken to reduce exposure if X-ray fluorescence measurements for lead are $>1.0 \text{ mg/cm}^2$ or if lab measurements are $>0.5\%$ lead, especially if paint is deteriorating and children live in the house.

It is not advisable for homeowners to remove lead-based paint themselves. They are likely to increase their exposure by creating dust. The Consumer Product Safety Commission recommends do-it-yourself removal only for small areas, and then only by use of a wet method such as wet scraping or liquid paint stripper (never sanding or dry scraping). Preferably, the owner should hire a contractor familiar with lead-based paint hazards and safe paint removal techniques. State-certified contractors must follow established work practices for removing lead-based paint which includes procedures to minimize dust generation, clean up debris with High Efficiency Particulate Air (HEPA) filtered vacuums, and other measures to insure that post-remediation lead levels in the house do not increase due to the creation of fumes and dust. The National Lead Information Center operates a toll-free hotline (800-424-LEAD) to provide information on environmental lead poisoning and prevention to health professionals and the public.

Regulatory Overview

Lead is regulated under the authority of multiple statutes. The Environmental Protection Agency (EPA) regulates lead as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), as a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),

as a toxic substance under the Toxic Substances Control Act (TSCA), limits effluent discharges for lead in water under the Clean Water Act, limits the level of lead that is acceptable in drinking water via the Safe Drinking Water Act, and regulates lead as an airborne contaminant under the National Emission Standards for Hazardous Air Pollutants program (NESHAP) in accordance with the Clean Air Act. The Occupational Safety and Health Administration (OSHA) regulates lead in work-related exposures, while the Consumer Product Safety Commission regulates lead in consumer products, such as paint, toys, furniture, pottery and dishes.

The Colorado Department of Public Health and Environment (the Department) has in-state authority to regulate lead under the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act, the Resource Conservation and Recovery Act (RCRA) and the Colorado Solid Wastes Disposal Sites and Facilities Act. The Air Pollution Control Division, Water Quality Control Division and the Hazardous Materials and Waste Management Division share regulatory responsibility for lead. The Air Pollution Control Division regulates inspection and assessment activities for lead as well as the safe removal and handling of lead-based paint materials (abatement). The Water Quality Control Division has authority to regulate lead in public drinking water supplies via the Safe Drinking Water Act. Additionally, this division regulates any discharges of lead to state waters through a Colorado Discharge Permit System (CDPS) permit. Water quality standards are established to be protective of the designated uses associated with each specific water body. The Hazardous Materials and Waste Management Division regulates the proper disposal of lead wastes in Colorado.

LEAD-BASED PAINT ABATEMENT

Due to the hazards of lead exposure, the Colorado Air Quality Control Commission adopted Regulation No. 19 governing the abatement of lead-based paint from “target housing” (i.e., constructed prior to 1978) and child occupied facilities. The removal of lead-based paint or lead-contaminated soil from these facilities must be completed by state-certified professionals. The Air Pollution Control Division certifies lead contractors, workers, supervisors, inspectors, risk assessors, and project designers. Each must complete Air Pollution Control Division-approved course work and pass the appropriate state test in order to be certified by the State of Colorado. (Lead workers must complete the course work but do not have to take a state test.)

Regulation No. 19 does not apply to renovation, remodeling, landscaping, or other activities when such activities are not intended nor designed to permanently eliminate lead-based paint hazards but instead are intended to repair, restore or remodel a given structure or dwelling.

For questions regarding lead-based paint abatement or certification, please contact the Air Pollution Control Division at (303) 692-3150. A list of certified abatement contractors is available at their web site <http://www.cdphe.state.co.us/ap/leadhome.asp>. This web site also lists laboratories providing blood lead analysis; lead analysis in soil, paint chips and dust wipe samples; laboratories certified by the State to analyze drinking water for lead; environmental consultants in Colorado with portable x-ray fluorescence analyzers; and lists outlets where do-it-yourself home test kits are sold.

Lead-Based Paint Disclosure Rule

Lead-based paint disclosure regulations were jointly published by EPA and HUD in 1996. These regulations require sellers, landlords and real estate agents to warn homebuyers and tenants of lead-based paint hazards in pre-1978 housing. The regulations apply to *all* transactions to sell or lease target housing, except the following:

- foreclosure sales
- short-term leases of 100 days or less
- renewal of leases where information has been disclosed previously
- leases of housing which have been inspected and found to be free of lead-based paint by a certified inspector

Under the disclosure rule, the purchaser or lessee must receive certain information from the seller or landlord prior to becoming obligated under any contract to lease or purchase target housing. This information includes any *known information* concerning the presence or location of lead-based paint and the condition of the painted surfaces; any *records and reports* on lead-based paint which are available to the seller or landlord; an EPA-approved *information pamphlet* on identifying and controlling lead-based paint hazards; and, an attachment to the contract or lease which includes a *lead warning statement* and confirms that the seller or landlord has complied with all notification requirements. Additional information about this rule can be found on the web at www.hud.gov/offices/lead/disclosurerule/index.cfm.

Pre-renovation Lead Information Rule

The Pre-Renovation Lead Information Rule, also known as Section 406(b) of the Toxic Substances Control Act, is a rule requiring people performing renovation for compensation to distribute a lead hazard information pamphlet prior to commencing the renovation. Under the rule, one is considered a “renovator” if their job is for compensation and will require them to disturb more than 2 ft² of paint in pre-1978 housing. This is not dependent upon whether what they do is typically considered a renovation. Whether the activity involves plumbing, drywalling, painting, or electrical work, if more than 2 ft² of paint must be disturbed, this rule applies.

The term “compensation” extends beyond money. Providing services in exchange for other goods or services (e.g., bartering) is included within the term. This rule applies to owners renovating their own apartment buildings using maintenance staff, as well as neighborhood handymen providing services to others. Work that is performed for free (no exchange of money, goods or services) or work performed by do-it-yourselfers in their own home is not covered by this rule.

The EPA pamphlet “Protect Your Family From Lead in Your Home” has been made available to the general public as well as the regulated community. Single copies of the pamphlet are available in both English and Spanish from the National Lead Information Center, by calling (800) 424-LEAD. Multiple copies are available through the Government Printing Office (GPO), and may be ordered by calling the GPO Order Desk at (202) 512-1800. Request the publication by title, “Protect Your Family From Lead in Your Home,” and/or GPO stock #055-000-00507-9.

When a renovating activity is performed, the renovator must give the owner of the housing a copy of the lead hazard information pamphlet and get their acknowledgment of receipt. If the housing is tenant occupied, then in addition to giving a copy of the pamphlet to the owner, a copy must be provided to the tenant and their signature must be obtained as well.

The same requirements apply to apartments in housing with more than four separate dwelling units. A copy of the pamphlet must be provided to each tenant living in a “to-be-renovated” unit. If the renovation is to occur in a common area (e.g., laundry room, hallway, playground) all residents of the building must be provided with information on the timing and extent of the renovations scheduled to occur. If the tenant or owner refuses or is unavailable to accept the pamphlet, the rule allows for

the renovator to certify the attempt. It also allows the renovator to mail the pamphlet (at least 7 days prior to the renovation) if he/she purchases a certificate of mailing from the Post Office.

DISPOSAL

Household Waste

Home remodeling and repair projects can create various kinds of waste and debris including paint chips, door frames, windows, carpet, chemical strippers, wastewater, sponges, filters, and duct tape. If the home was built before 1978, the paint chips, dust, and other debris may contain lead. In this case, all wastes should be kept out of the reach of children and pets until pick-up or disposal. Drop cloths, sponges, gloves, and disposable, non-washable work clothes used during remodeling and clean-up should be sealed in heavy-duty garbage bags. These materials may be covered with lead dust and paint chips. Larger pieces of demolition debris should be wrapped in two layers of 6 mil plastic and sealed with duct tape.

Because household hazardous waste is exempt from hazardous waste regulatory requirements, a “do-it-yourself” homeowner may dispose of their lead-bearing wastes in the trash. Keep in mind, however, that wastes with free liquids, such as paint, should never be sent to a municipal landfill. Liquid wastes should first be solidified by mixing them with an absorbent such as kitty litter and allowed to dry. In the event that a local trash hauler refuses to accept large pieces of debris like door frames and windows, the homeowner may wish to haul these pieces to a municipal solid waste landfill or a demolition debris landfill themselves.

Waste that is generated by a contractor performing abatement or remodeling activities *at a residence* is also considered household waste. (A residence would include a single family home, apartment building, public housing, or military barrack.) Such waste, whether generated by a resident or contractor, falls within the household waste exclusion. This approach will facilitate lead abatement activities in target housing by reducing the costs of managing and disposing of lead-based paint waste from residences.

Non-residential Waste

A generator of lead-containing waste that is not exempt as household hazardous waste is obligated to make a waste determination prior to disposal. Lead-bearing waste may be managed as either a solid waste or a hazardous waste depending upon the results of Toxicity Characteristic Leaching Procedure (TCLP) tests for lead.

The TCLP maximum contaminant concentration for lead is 5.0 mg/L (5.0 ppm). Wastes with 5.0 ppm or greater TCLP exhibit the toxicity characteristic for lead and require management as a hazardous waste. Total constituent analysis can be performed as a screening tool in lieu of TCLP if the waste is a solid. Wastes containing less than 20 times the maximum contaminant concentration of 5.0 ppm for lead (less than 100 ppm) using total constituent analysis will not fail TCLP due to the dilution factor of the TCLP test. In cases where total lead content is approaching 100 ppm or greater, a TCLP test should be completed or the waste handler may assume the waste is hazardous and manage it accordingly.

If the waste consists of lead-based paint as an integral part of demolition debris, the appropriate way to collect samples is by coring a representative portion of the material to be disposed (i.e. core through the wall, including both paint and wood). Because of the relatively small amount of lead present in the paint film on a wall, these wastes may not fail TCLP, and many can be disposed of as solid waste. If the material to be disposed is lead-based paint chips or blasting wastes, TCLP should be used on the waste to determine if it is a hazardous waste. Due to the more concentrated nature of these wastes, they will often fail TCLP and require management as a hazardous waste.

If the waste is electronic equipment, a representative sample of the equipment should be used for TCLP. Please refer to our compliance bulletin on electronic waste management at <http://www.cdphe.state.co.us/hm/electronicbrochure.pdf>

LEAD CONTAMINATION IN SOILS

For lead contamination in soils, a risk-based assessment may be completed to determine if remediation is necessary. Such a determination is made on a case-by-case basis and requires Department approval. A site-specific soil concentration objective for lead can be calculated by taking into account factors such as likely exposure pathways, land use, etc. In some cases, institutional controls may be required to restrict contact with contamination that may be left behind. The preferred alternative is to clean up contamination to a concentration equal to or less than EPA 's action level of 400 ppm total lead in soil, which allows for unrestricted use of the impacted area. The Department also uses this concentration level as a soil cleanup objective at release sites. Clean up to this level is usually very achievable given the fact that lead is relatively immobile and contamination is often restricted to surface soils where it

can be easily removed.

For more information:

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Public Health & Environment**

**Hazardous Materials and
Waste Management Division**
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(888) 569-1831 ext. 3320 toll-free

Division Website <http://www.cdphe.state.co.us/hm/>
Regulations <http://www.cdphe.state.co.us/regulate.asp>
E-mail comments.hmwm@state.co.us

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This Compliance Bulletin is intended to provide guidance on the appropriate management of wastes based on Colorado solid and hazardous waste statutes and regulations only. The wastes described in this guidance may also be regulated under other statutes and regulations.