



Clean Highways and Water!

**An End to Lead Wheel Balancing Weights in
California**



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Introduction

This report announces a ground-breaking agreement to end the use of a common but not well-known lead product in California — wheel balancing weights.

Lead is a stunningly toxic metal. A long list of problems has been linked to lead exposure: lowered intelligence, behavior problems, cancer, strokes, high blood pressure, kidney problems, anemia, cavities, and delayed puberty. Children are particularly susceptible to lead's toxic effects.

While lead is a mineral that occurs naturally in our soils, people's activities have caused our exposure to lead to dramatically increase. Levels in our environment are about a thousand times what they were a few hundred years ago.

One of the significant sources of lead in our environment is lead wheel balancing weights. These weights are used on many of the cars and trucks on the road today. They frequently fall from tires. Once on roadways, they disintegrate into dust and can end up washing into streams or reservoirs and contaminating sources of drinking water.

Facts about Wheel Weights

Wheels on cars and trucks need to be balanced in order to function efficiently. A wheel that is out of balance vibrates, causing the tire to wear out sooner than it should and making the vehicle difficult to handle. Wheel weights are used on about 80 percent of cars and trucks to keep wheels balanced.

Wheel weights have been made out of lead since the 1930s. Typically, lead wheel weights are made of a mixture of 95 percent lead and 5 percent antimony, another metal.

According to the U.S. Geological Survey, about 65,000 tons of lead wheel weights are in use on the over 200 million cars and trucks that are driven in the U.S. About 2,000 tons of these weights fall from vehicles every year and into roadways. Most weights are lost on city streets when vehicles hit curbs, bounce over potholes, stop or accelerate suddenly, or turn sharply. Once lost from the vehicle, they are worn down by traffic, and the lead is spread around by wind or water.

A scientist who has researched accumulation of lead wheel weights on urban roads describes their impacts in far-reaching terms: “Small lead particles from abraded wheel weights likely contribute to the lead found in urban runoff. Storm water can sweep this lead into nearby culverts and arroyos, and ultimately washes it into nearby waterways where it can adversely affect water quality and aquatic ecosystems.” The small particles can also be tracked into homes where they add to the lead burdens of people who live near busy streets.

Wheel weights can be made out of materials other than lead, including steel and zinc. Lead wheel weights have been banned in Europe since 2005. Our agreement is the first state-level agreement in the United States to end lead wheel weight use.

Most new cars (with the exception of those made by Chrysler) use lead-free weights. However, until now most wheel weights used on replacement tires are made from lead.



Lead in California Wheel Weights

Based on the number of miles that vehicles drive in urban California, or the number of vehicles registered in the state, about half a million pounds of lead wheel weights fall on California roadways every year. Because quick stops and sharp turns cause wheel weights to fall off of vehicles, most of these fallen wheel weights are in urban areas.

We estimated the contribution of lead wheel weights to the total lead in water collected in California Department of Transportation (Caltrans) storm water drainage systems. Caltrans surveyed highway storm water systems in 2003 and found an average of almost 50 parts per billion of lead. This lead comes from the soil near the highways on which rain falls. There are two major sources of this lead: the use of leaded gasoline until the 1995 elimination of leaded gasoline and the use of wheel weights.

The widespread use of leaded gasoline in the past raised lead concentrations in highway soils to about 250 parts per billion. We calculated that this amount of lead, at most, could result in a concentration of 15 parts per billion in storm water. This means that about two-thirds of the lead in California highway runoff comes from lead wheel weights.

Not Good for Children

Lead has a profound ability to damage children's intellectual and behavioral development. Children who have been exposed to higher levels of lead score lower on IQ tests than children with less exposure. Children with higher exposures are also more impulsive and have shorter attention spans.

Recent research has documented that lead exposure causes significant problems for children as they grow and develop:

- Scientists at Duke University found that increased blood lead levels in toddlers (1 to 2 years old) were linked with lower test scores in fourth grade.
- A 2007 study led by a scientist at the Harvard School of Public Health found that lead exposure in children ages 5 to 10 was linked with lower scores on IQ tests, lower scores on standardized reading and math achievement tests, decreased attention, and memory problems.
- Recent research looked at children and teens ages 4 to 15 who participated in a national monitoring program at the Center for Disease Control and Prevention. The study showed that lead exposure may be responsible for Attention Deficit Hyperactivity Disorder (ADHD) in almost 300,000 children.
- University of Cincinnati researchers found that arrest rates of young adults (both for violent crimes and all arrests) were linked to the blood lead levels of these adults when they were children. Higher childhood lead exposure was associated with higher arrest rates.

Not Good for Adults

Lead also causes a wide spectrum of health problems in adults.

One significant disease caused by lead exposure is cancer. The International Agency for Research on Cancer, the U.S. Environmental Protection Agency, and the National Toxicology Program, have all identified lead as a cancer causing chemical.

Lead also reduces our ability to have healthy children. Two recent studies, one from the Taiwan Institute of Occupational Safety and Health and the other from Brown Medical School, showed that women with higher lead exposures were more likely to have infertility problems. A third study, led by a researcher from the Harvard School of Public Health, found that mothers with higher lead exposure during the first part of their pregnancies were more likely to have babies with slower mental development.

Because of these kinds of problems, the state of California has identified lead as a chemical that causes developmental toxicity.

Other important diseases are also linked to lead exposure. Researchers from Tulane University and Johns Hopkins University recently showed that low level lead exposures are linked to a greater risk of heart attacks and strokes. Other recent studies showed that lead exposure increases blood pressure problems, accelerates kidney failure in patients with chronic kidney disease and is linked to an increased risk of Lou Gehrig's disease.

Not Good for Animals or Plants Either

Scientists have known for decades that lead is toxic to animals and plants. In 1988, a review by the U.S. Fish and Wildlife Service stated that lead “is neither essential nor beneficial to living organisms, and that all measured effects are adverse.” The report summarized evidence that lead reduces survival, growth, reproduction, development, behavior, and learning in a variety of wildlife species.

Lead is toxic to all kinds of aquatic animals, including fish and waterfowl. Some animals are impacted by lead concentrations as low as 1 part per billion. In fish lead can cause anemia, reduced ability to swim, and abnormal sex organs.

Lead is also toxic to plants, reducing growth and photosynthesis. (Photosynthesis is the process by which plants use sunlight, water, and carbon dioxide to produce sugar.)

In some animals, scientists have measured the same effects seen in lead-exposed children: hyperactivity and learning difficulties.

New Legal Agreements about Wheel Weights

CEH has just finalized legal agreements with the three largest wheel weight manufacturers and with Chrysler. The timelines in these agreements are given below.

Perfect Equipment, Inc.	Cease shipping lead wheel weights into California as of December 31, 2009
Hennessy Industries, Inc.	Cease shipping lead wheel weights into California as of December 31, 2009
Plombco Inc.	Cease shipping lead wheel weights into California as of December 31, 2008
Chrysler LLC	55% of vehicles sold in California with lead free weights as of July 31, 2008 100% of vehicles sold in California with lead free weights as of July 31, 2008

What You Can Do

If you live in California, ask your tire retailer to use lead-free wheel weights when you have tires replaced or balanced before December 31, 2009. Encourage local businesses and government agencies to start using lead-free wheel weights prior to December 31, 2009.

If you live outside of California, encourage your state to follow California's lead.

During the past decade, the Center for Environmental Health has successfully negotiated agreements with manufacturers of other products that contain toxic chemicals. These agreements reduced the amount of toxic chemicals in children's medicines, wood play equipment, lunchboxes, jewelry, and candy. We used California's Safe Drinking Water and Toxic Enforcement Act of 1986, commonly known as Proposition 65, to initiate these actions. We are pleased to announce the same kind of agreements with manufacturers and users of wheel weights.

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