

Good hazardous pollutants essay example

[Law](#), [Security](#)



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Toxic chemicals released from industries are serious pollutants of the environment. The United States Environmental Protection Agency keeps track of the chemicals that are released every year in different areas of the nation (See Table 1).

List of chemicals released in Fairfax County in 2013

Source: Releases: Chemical Report. United States Environment Protection Agency, 2013. Web. 01 October 2014.

Lead

Lead (Pb) is an odourless, tasteless metal that has a bluish-gray colour.

Though lead is a naturally- occurring metal on the earth’s crust, it is considered to be toxic to the environment and human-beings at increased concentrations.

Sources of lead pollution

Lead is released into the atmosphere as a result of a variety of human activities. A variety of house-hold items contain lead in them. The continued use of these items and improper disposal leads to environmental pollution.

Lead is an ingredient of lead-based paints, cosmetics, batteries and

plumbing materials. The deterioration of plumbing material releases lead into the water, thereby contaminating it. Lead is also found in ceramics, batteries and ammunition. Tetraethyl Lead had been used as an ingredient of gasoline to prevent knocking of car engines till its ban in 1995. However, lead is still used as part of fuel in aircrafts, ships and farm equipment (Lead).

Routes of lead exposure

Humans can be exposed to lead through contaminated soil, air and water. Scraping or sanding lead-based paint causes lead to settle in the dust and air. This enters the human body through the respiratory tract. Lead enters the air from aviation, smelters and battery manufacturing units. This is inhaled by humans. Another source of lead exposure is through ingestion. Soil gets contaminated with lead from paint-chips and disposal of lead-containing objects. Use of leaded gasoline in farm equipments also contaminates the soil. Children have a high risk of exposure to lead in the soil due to ingestion during outdoor activities. Moreover, lead in the soil is sometimes absorbed by plants. Consumption of such plant products is another cause of lead exposure. Another way in which lead enters the human system is by the consumption of contaminated water. Lead exposure is an occupational hazard for people working in smelting industries, battery-manufacturing units, shooting ranges and aviation (Tox Town: Lead).

Health effects of lead exposure

Children are at a higher risk for lead exposure than are adults. At concentrations as low as <10g/dl of blood, lead causes behavioural defects, growth impairment and cognitive defects in children. In adults, lead

poisoning affects the central nervous system, the circulatory system and kidney. Even at lower concentrations, lead is known to cause convulsions and hypertension. Lead poisoning has also been correlated with anemia. Pregnant women are likely to undergo miscarriages with prolonged exposure to lead. Fetal lead exposure can lead to developmental delays and low weight. Lead is classified as a probable human carcinogen. Though there is no conclusive proof of lead causing cancers in humans, studies in rat models have shown tumor generation after exposure to lead (Toxic Substances Portal: Lead).

RfD for lead

RfD or reference dose refers to the minimum dose of a toxic compound that human beings can be exposed to on a daily basis without having lifelong effects on health. RfD is an estimate that assumes that toxic compounds may be non-toxic up to a certain level. EPA has decided that it is inappropriate to designate an RfD for lead. The basis for making this decision was that even minute concentrations of lead in the blood can be toxic; it is difficult to determine a threshold level. Also, lead has a tendency to accumulate in body tissues which makes the assessment of toxicity more difficult. However, EPA has concluded an action level of 0.015mg/L for lead in drinking water.

Centers for Disease Control and Prevention (CDC) has identified that any concentrations of lead over 10g/dl is a cause of concern. RfD calculation for a compound is done based on its non-carcinogenic effects and therefore its carcinogenic effects need to be assessed separately (Lead and Compounds).

Works Cited

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