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THE FACTS LEAD

In the EU 1.5 million workers are estimated to be potentially exposed to lead and inorganic lead compounds. The most common route of occupational exposure to lead is inhalation of lead fumes or lead-laden dusts in air and absorption of lead through the respiratory system. Lead exposure has been associated with increased risk of lung, stomach, and urinary-bladder cancer in diverse human populations. The strongest epidemiological evidence is for lung and stomach cancer, which are consistently but weakly associated with occupations and industries entailing lead exposure. Lead is classified as Group 2B carcinogen by the IARC, meaning it is probably carcinogenic to humans.

Where risks occur

Lead fumes are produced during metal processing, when metal is being heated or soldered. Lead dust is produced when metal is being cut or when lead paint is sanded or removed with a heat gun. Lead fumes and lead dust do not have an odor, so you may not know you are being exposed. Though used less often, lead is still common in many industries, including construction, mining, and manufacturing. In each of these industries, workers are at risk of being exposed to lead, by breathing it in, ingesting it, or coming in contact with it.

More about the substance

Lead is a naturally occurring bluish-gray heavy metal found in small amounts in the earth's crust. It can be used as a pure metal, combined with another metal to form an alloy, or in the form of a chemical compound. A primary use of lead is for automobile lead-acid storage batteries, a type of rechargeable electric battery which uses an almost pure lead alloy.

Lead can also be used in the production of ammunition, metal products (solder and pipes), and devices to shield X-rays. Because of health concerns, lead from paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years.

How symptoms can affect you

Lead passes through the lungs into the blood where it can harm many of the body's organ systems. Health effects from short-term overexposure to lead can vary from abdominal pain to headache and tiredness. Prolonged exposure to lead may lead to abdominal pain, depression, nausea, heart disease, kidney disease and fertility problems. The precise mechanisms by which lead causes cancer are unknown. Lead compounds do not appear to cause genetic damage directly, but may do so through several indirect mechanisms, including inhibition of DNA synthesis and repair, oxidative damage, and interaction with DNA-binding proteins and tumor-suppressor proteins.

What you can do

Perform proper exposure measurements continuously so it is known when actions should be taken. Investigate if workers report early symptoms.

The most effective way to prevent exposure is through substitution with lead-free or lower lead content products. Where lead-containing products cannot be replaced, train workers on hazards and safe work practices. Use proper engineering controls to ensure the work area is well-ventilated. Eating and/or drinking should only be done in areas where lead-containing products are not being handled or processed.

Ensure workers have appropriate personal protective equipment, such as goggles, proper respiratory protection, coveralls and gloves. In some cases a respirator may be necessary. Personal protective equipment should only be used as a last resort, after introducing the possible engineering solutions.

References: IARC, NIEHS, NIOSH, CAREX

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