Cadmium Information Sheet

What is cadmium?

Cadmium is a naturally occurring metal. In nature it is usually found as a mineral. All soils and rocks, including coal and mineral fertilisers, contain some cadmium. Cadmium does not corrode easily and is used in the manufacture of batteries, pigments, metal coatings and plastics.

Can cadmium be harmful?

The extent to which cadmium can affect health depends on how much of it you are exposed to, how much is taken into the body, whether you are exposed for a long or a short time, whether you contact it through breathing, eating, drinking or skin contact, and other individual factors such as your age, sex and state of health.

Workers in industries that use or produce cadmium are at risk of exposure. The highest risk of occupational exposure to cadmium is when it is heated to a high temperature, such as in welding, brazing, smelting and electroplating. The risk will vary depending on the workplace. Where proper industrial hygiene is generally practiced, inhaling very high levels of cadmium at work is unlikely.

Unusual industrial accidents may result in inhalation of smoke from burning cadmium or from cadmium oxide, which is toxic to the respiratory system.

Tobacco smoke is the main source of cadmium indoors. Smoking roughly doubles the body burden of cadmium in comparison to not smoking.

Cadmium has been shown to cause cancer and birth defects in experimental animals, but it is not known whether cadmium can cause birth defects in people.

Repeated low exposure to cadmium can cause permanent kidney damage that may go unnoticed. Lung scarring can occur from a single high exposure or repeated low exposures to cadmium. Long-term exposures can cause anaemia, fatigue and loss of the sense of smell. High exposures can cause rapid lung damage, shortness of breath, chest pain, and a build-up of fluid in the lungs. In severe cases death or permanent lung damage could occur.

Breathing air with lower levels of cadmium over long periods of time (for years) results in a build-up of cadmium in the kidney, which may result in kidney disease if the level builds up enough. Some workers occupationally exposed to cadmium in the air have developed lung cancer.

Exposure to cadmium through public drinking water sources is controlled by law, and is not a major health concern.

Cadmium is found in trace amounts in a wide range of foods including green leafy vegetables, root vegetables, meat, kidneys, seafood and peanuts, but these levels are controlled by law so that cadmium will not build up even if these foods are eaten throughout a lifetime.
What medical tests are available for cadmium?

Cadmium can be measured in blood, urine, hair, or nails.

The amount of cadmium in your blood will show your recent exposure to cadmium, but because cadmium levels in blood are easily increased through smoking or smoke exposure, a blood test alone is not sufficient reason for treatment to remove cadmium from the body.

The amount of cadmium in your urine shows both your recent and your past exposure. Cadmium levels in hair or nails are not as useful as an indication of when or how much cadmium you may have taken in, partly because cadmium from outside of your body may attach to the hair or nails. Tests are also available to measure the amount of cadmium inside the liver and kidneys.

Technical information

Further information may be obtained from the following website: