

# THE FACTS CADMIUM



In the EU 10.000 workers are estimated to be potentially exposed to cadmium and its compounds. Workers may be exposed to cadmium from the smelting and refining of metals or from air in industrial plants that manufacture batteries, coatings, or plastics. Exposure to cadmium that may be dangerous may occur in jobs in which workers are exposed to cadmium dust or fumes, where they heat compounds or surfaces that contain cadmium, or where workers weld or cut with materials or solders that contain cadmium. The main exposure routes are through inhalation of dust and fumes, although there may be incidental ingestion of dust from contaminated hands. Cadmium and cadmium compounds are classified as Group 1 carcinogen by the IARC, meaning they are carcinogenic to humans. Cadmium and cadmium compounds cause cancer to the lungs, but associations with cancer of the kidney and the prostate have also been observed.

## Where risks occur

Workers in many industries face potential exposure to cadmium. The potential for exposure is highest among workers in cadmium production and refining, Ni-Cd battery manufacture, electroplating, pigment manufacture and welding operations. Exposed workers are mainly found in construction, manufacture of metal products (especially batteries), non-ferrous base metal industries and manufacture of plastic products.

## More about the substance

Cadmium is a naturally occurring element found in the earth's crust. Cadmium metal has specific properties such as corrosion resistance, low melting temperature, high thermal and electrical conductivity, that make it suitable for a wide variety of industrial applications. This soft, odorless, silver-white metal was first used in paint pigments and as a substitute for tin. Today, about three-fourths of cadmium is used as an electrode component in alkaline batteries, with the remainder used in pigments, coatings, and platings and as a stabilizer for plastics.

## How symptoms can affect you

Exposure to cadmium may cause local skin or eye irritation. Acute inhalation exposure (high levels over a short period of time) can result in flu-like symptoms (chills, fever and muscle pain) and can damage the lungs. Chronic exposure (low level over an extended period of time) can result in kidney, bone and lung disease. The primary and most serious adverse health effects of long-term exposure to cadmium include kidney dysfunction, lung cancer and prostate cancer.

Latency period between exposure and cadmium related cancer is approximately 10 years.

## What you can do

Perform proper exposure measurements continuously so it is known when actions should be taken. Investigate if workers report early symptoms. Employees must be made aware of the dangers associated with exposure to cadmium in the workplace.

The most effective way to prevent exposure to a hazardous metal such as cadmium is through elimination or substitution. Substitution with viable, less toxic alternatives to cadmium is available for rechargeable batteries (nickel-metal hydride), plating (zinc, vapor-deposited aluminum), pigments (cerium sulfide), and plastics stabilizers. Administrative actions include limiting the amount of time a worker performs work involving potential exposure to cadmium. Personal Protective Equipment (PPE) includes wearing the proper respiratory protection and clothing, but should only be used as a last resort, after introducing engineering solutions.

*References: IARC, OSHA, NIEHS, EC, CDC*