

CADMIUM (Cd)

MEDICAL SCREENING GUIDELINE FOR WORKERS

Manitoba Department of Labour and Immigration

Workplace Safety and Health

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CADMIUM (Cd)

- Why:**
- Cd found in copper, lead, zinc and sulfide ores, burning of fossil fuel, in cigarettes, emissions from batteries and other municipal waste
 - Cd is used in metal plating, solder and smelting, alloys, batteries, pigments in glazes and enamels, dyeing and printing and in the production of semiconductors
 - Cd is a skin and mucous membrane irritant (eye, nose, lungs)
 - Cd may cause acute and/or chronic lung disease including lung cancer
 - Cd may cause chronic kidney disease

A. Medical examinations for all workers exposed to cadmium:

- Who:** - workers exposed frequently (eg. > 30 days/year) to Cd at or above the occupational exposure limit (OEL) of 0.01 mg/m³ or 10 ug/m³
- When:** - preplacement and periodic (biannual)
- What:**
- work and medical history including smoking and dietary habits, organic disease such as high blood pressure and diabetes
 - Multi organ examination: skin, nose, lungs, kidneys
 - Other: respirator use, kidney function tests, etc.

B. Biological Monitoring (screening):

Frequency: Annual and after known high exposure

What:

1. Urine Cd (CdU): - normal: <5 ug/gCr - correlates with body burden of Cadmium.
 2. Blood Cd (CdB): - normal: <5ug/L - correlates with acute exposure.
 3. Urine Beta 2 Microglobulins (B(2)-M):- normal: <300 ug/gCr - correlates with kidney damage.
- Any positive screening test should be confirmed by repeating test in two weeks. Further diagnostic tests and medical examination may be indicated.
 - Medical removal from any Cd exposure may be necessary if levels are high: eg. CdU >15ug/gCr or CdB >15 ug/L or B(2)-M >1500ug/gCr.

* **The MB Regulation 217/2006, Part 36, requires that exposure must not exceed the occupational exposure limit (OEL). However since cadmium is also classified as a carcinogen it is prudent to limit exposure to as low as is reasonably practicable.**