

## Cadmium Exposure Summary

1. Cadmium is a blue-white metal compound with highly toxic and carcinogenic properties.
2. Cadmium is found in batteries, pigments, paints, coatings, stabilizing plastics and some electroplating applications.
3. A profile titled *Draft Toxicological Profile for Cadmium* by the Agency for Toxic Substances and Disease Registry lists the health effects of cadmium exposure.
4. Acute cadmium exposure causes lung damage, respiratory edema, respiratory failure and death.
5. Low-level cadmium exposure over time can cause kidney disease.
6. Employers should familiarize themselves with OSHA's strict regulations regarding the handling and use of cadmium.

## Related Examinetics Services

- Cadmium exposure
- Hazardous material (HAZMAT) exam

## Why The Need for Cadmium Testing?

Cadmium is a blue-white metal compound with highly toxic and carcinogenic properties. The metal has applications in batteries, pigments, paints, coatings, stabilizing plastics and electroplating. Workers involved in the production or use of these products can experience cadmium exposure unless stringent protective measures are in place. Welders are also at risk of inadvertent cadmium exposure. Welding on cadmium-containing surfaces or compounds may produce toxic fumes that are subsequently inhaled by nearby personnel. Given the severe health risks of working with the metal, employers should consider implementing stringent cadmium testing procedures.

### Health effects of Cadmium exposure

There is a plethora of research surrounding the toxicological and carcinogenic effects of cadmium exposure. A study titled *Draft Toxicological Profile for Cadmium* has been created by the Agency for Toxic Substances and Disease Registry and is listed under our Medical Director Review. Chapter 3 of that document discusses the health effects of cadmium exposure. It examines the main routes of exposure including inhalation of fumes and dust and accidental ingestion when food or tobacco products become contaminated by unwashed hands. Most tobacco products contain cadmium that accumulates in the smoker's body over time.

Acute cadmium exposure causes lung damage, respiratory edema, respiratory failure and death. Low-level cadmium exposure over time causes the metal to accumulate in the kidneys, causing damage and disease over time. Biological cadmium testing is the most effective method of monitoring exposure to this industrial metal.

### Regulatory measures

Given the severe health risks of cadmium exposure, working with the metal and its oxides is regulated tightly. Employers are advised to read the regulations and standards for cadmium testing as outlined on the relevant pages of the OSHA website ([www.osha.gov](http://www.osha.gov)). Particularly, the General Industry Standards under 29 CFR 1910 Subpart Z "Toxic and Hazardous Substances" and those related to shipyard employment 29 CFR 1915 Subpart Z, the construction industry 29 CFR 1926 Subpart Z, and the agricultural industry 29 CFR 1928 Subpart L, [Reserved]. The standards outline employers' responsibilities, cadmium exposure limits and requirements for employee training, medical monitoring, air monitoring, compliance programs, protective equipment, evaluation and recordkeeping.