

# Cadmium & Cadmium Compounds

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## Summary of Health Effects

Cadmium and cadmium compounds are known to cause cancer in humans. Cadmium and cadmium compounds may affect male reproduction and the way babies develop, based on animal studies.

## How are cadmium and cadmium compounds used?

Cadmium sulfide is used in pigments for paints, glass, ceramics, plastics, textiles, and paper.<sup>1</sup> Cadmium metal is also used in metal alloys including jewelry.<sup>2</sup>

## Toxicity: What are its health effects?

The International Agency for Research on Cancer classified cadmium and cadmium compounds as carcinogenic to humans.<sup>3</sup>

The National Toxicology Program considers cadmium to be a known human carcinogen.<sup>2</sup>

The Environmental Protection Agency (EPA) determined that cadmium is a probable human carcinogen.<sup>4</sup>

Cadmium and cadmium compounds are listed on California's Proposition 65 as male reproductive toxicants, developmental toxicants and carcinogens.<sup>5</sup>

A study in the United Kingdom showed that at some cadmium-processing plants, there was an increase in mortality from lung cancer among workers.<sup>6</sup>

The Agency for Toxic Substances and Disease Registry Public Health Statement on cadmium states that low doses of cadmium over long periods of time can lead to kidney damage and can cause bones to be fragile.<sup>2</sup>

## Exposure: How can a person come in contact with it?

A person can come in contact with cadmium and cadmium compounds by eating contaminated food, drinking contaminated water, and breathing in contaminated air or tobacco smoke.<sup>2</sup>

Cadmium is regularly found in the urine of the general population.<sup>7</sup>

Because it is bioaccumulative, or accumulates in the body, its presence in the body could indicate recent or chronic exposure.<sup>6</sup>

Once absorbed by the body, cadmium's half-life is estimated to be between seven and 16 years, which means after 16 years, the level of cadmium in the body should have decreased by half.<sup>4</sup>

Cadmium has been identified in the EPA's Urban Air Toxics Strategy as one of 33 hazardous air pollutants that present the greatest threat to public health in urban areas.<sup>8</sup>

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## References

1. U.S. Department of Health and Human Services, National Toxicology Program (2014). *Report on carcinogens, thirteenth edition*. Retrieved from [ntp.niehs.nih.gov/ntp/roc/content/profiles/cadmium.pdf](http://ntp.niehs.nih.gov/ntp/roc/content/profiles/cadmium.pdf)
2. Agency for Toxic Substances and Disease Registry (2012). *ATSDR Toxicological profile for cadmium*. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Services. Retrieved from [www.atsdr.cdc.gov/toxprofiles/tp.asp?id=48&tid=15](http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=48&tid=15)
3. World Health Organization, International Agency for Research on Cancer (2012). *IARC Monograph on the evaluation of carcinogenic risks to humans: "Cadmium and cadmium compounds", volume 100C-8*. Retrieved from [monographs.iarc.fr/wp-content/uploads/2018/06/mono100C-8.pdf](http://monographs.iarc.fr/wp-content/uploads/2018/06/mono100C-8.pdf)
4. U.S. Environmental Protection Agency (1987). Integrated Risk Information System (IRIS) for cadmium. Retrieved from [cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance\\_nmbr=141](http://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=141)
5. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. *List of chemicals known to the state to cause cancer or reproductive toxicity*. Retrieved November 9, 2018, from [oehha.ca.gov/prop65/prop65\\_list/files/P65single012315.pdf](http://oehha.ca.gov/prop65/prop65_list/files/P65single012315.pdf)
6. Llewellyn, T.O. (1994). *Cadmium (materials flow)*. U.S. Department of Interior, Bureau of Mines, Information Circular 9380. Retrieved from [pubs.usgs.gov/usbmic/ic-9380/cadmium.pdf](http://pubs.usgs.gov/usbmic/ic-9380/cadmium.pdf)
7. Centers for Disease Control and Prevention (2014). *Fourth report on human exposure to environmental chemicals, updated tables, (August, 2014)*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Retrieved from [www.cdc.gov/exposurereport/](http://www.cdc.gov/exposurereport/)
8. U.S. Environmental Protection Agency, National Air Toxics Program: Integrated Urban Strategy (1999). *List of the 33 urban air toxics*. Retrieved from [www2.epa.gov/sites/production/files/2014-08/documents/07061999-fs-air-toxics-strategy.pdf](http://www2.epa.gov/sites/production/files/2014-08/documents/07061999-fs-air-toxics-strategy.pdf)