FACT SHEET

Cadmium and Cadmium Compounds

Various CAS Numbers
(Please see the cadmium development support document for a list of applicable cadmium compounds)

This fact sheet provides a summary of the Development Support Document (DSD) created by the TCEQ Toxicology Division (TD) for the development of Regulatory Guidelines (ESLs, AMCVs and ReVs) for ambient exposure to this chemical. For more detailed information, please see the DSD or contact the TD by phone (1-877-992-8370) or e-mail (tox@tceq.texas.gov).

What is cadmium?

Cadmium is a metal that has specific properties that make it suitable for a wide variety of industrial applications, including: excellent corrosion resistance, low melting temperature, high ductility, and high thermal and electrical conductivity. Although cadmium has many uses (e.g., in pigments and coatings on iron, steel, aluminum, and other non-ferrous metals), the primary use of cadmium is in electrodes for Ni-Cd batteries (in the form of cadmium hydroxide). Because of their performance characteristics (e.g., high cycle lives, excellent low- and high-temperature performance), Ni-Cd batteries are used extensively in the railroad and aircraft industry (for starting and emergency power) and in consumer products (e.g., cordless power tools, cellular telephones, camcorders, portable computers, portable household appliances and toys).

How is cadmium released into ambient air?

Particulate cadmium (as elemental cadmium and cadmium oxide, sulfide, or chloride) is emitted to the atmosphere from both natural and anthropogenic sources. Weathering and erosion of cadmium-bearing rocks is the most important natural source of cadmium. Other natural sources include volcanoes, sea spray, and forest fires. However, the majority (85-90%) of airborne cadmium emissions worldwide are from anthropogenic sources. The principal anthropogenic sources are non-ferrous metal production and fossil fuel combustion, followed by ferrous metal production, waste incineration, and cement production.

How can cadmium affect my health?

Permitted levels of cadmium should not cause short- or long-term adverse health or welfare effects. Laboratory animals exposed to much higher levels of cadmium have experienced effects on immunity (i.e., decreases in specific antibody-producing spleen cells) and pulmonary effects (i.e., alveolar histiocytic infiltrate and focal inflammation in alveolar septa), and humans exposed to high levels for a sufficiently long duration have experienced kidney effects (i.e., β2-microglobulin proteinuria). Additionally, an increase in lung cancer risk has been reported in workers exposed long term to high levels of cadmium in the workplace. The TCEQ considers cadmium and cadmium compounds as a group as *Likely to Be Carcinogenic to Humans* via inhalation. Permitted levels protect the public (including potentially sensitive subpopulations) against all adverse health effects of cadmium, including the most sensitive effects.

FACT SHEET

Cadmium and Cadmium Compounds

Various CAS Numbers
(Please see the cadmium development support document for a list of applicable cadmium compounds)

Is cadmium odorous to humans or harmful to plants?

Cadmium is odorless and adverse effects to plants from cadmium in the ambient air have not been documented.

Why does the TCEQ set Regulatory Guidelines for cadmium?

The TCEQ has set various air quality guideline levels (ESLs, AMCVs and ReVs) to protect human health and welfare. Please see Definitions of ESLs, ReVs, and AMCVs located on the TCEQ DSD webpage for more information. The air quality guideline levels for cadmium have been designed to protect the general public from short-term and long-term adverse health and welfare effects. The general public includes sensitive populations such as children, the elderly, pregnant women and people with preexisting health conditions. If you would like to know more about the specific ESLs, AMCVs and ReVs developed, what the values are and what they are used for, please see the DSD.