CAS 7440-36-0

Antimony & Antimony Compounds

Sb

VERMONT DEPARTMENT OF HEALTH

Summary of Health Effects

Antimony trioxide may cause cancer in humans based on animal studies. Over time, breathing in antimony causes respiratory, cardiovascular and blood effects in humans. Antimony and antimony compounds cause a broad range of effects in animals including reproductive, developmental, immune, and effects on other body systems.

How are antimony and antimony compounds used?

Antimony is a silvery-white metal, found in the Earth's crust and throughout the environment. Antimony or antimony compounds have been detected in children's products and are often used in metal-alloy applications and as fire retardants.[1]

Toxicity: What are its health effects?

Antimony trioxide is a carcinogen on California's Proposition 65 list and is classified as possibly carcinogenic to humans (group 2B) by the International Agency for Research on Cancer. [2,3] Animals that chronically inhaled antimony trioxide developed lung tumors.[1,4,5] Antimony compounds are presumed to cause respiratory effects, and suspected to cause EKG (electrocardiogram) alterations, gastrointestinal tract irritation, decrease in blood serum glucose levels, and developmental effects by the Agency for Toxic Substance and Disease Registry.[1]

Lung inflammation and irritation, chronic bronchitis, emphysema, inactive tuberculosis, pleural adhesions (fibrotic bands in the lungs), increased blood pressure, heart muscle damage, altered pulmonary function, and altered EKG readings were reported in humans after long-term inhalation of antimony or antimony compounds. Rashes and conjunctivitis were reported in humans from short-term skin exposure.[1,5] Decreased body weight, respiratory, reproductive, developmental, gastrointestinal, immunological, central nervous system, skin, eye, blood and liver effects were observed in animals exposed to antimony or antimony compounds.[1,5,6]

Antimony was added to the 2014 Toxic Substance Control Act work plan due to possible human carcinogenicity, developmental and reproductive toxicity, acute and chronic toxicity from inhalation, high environmental persistence, and moderate bioaccumulation potential.[7]

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

A person can come in contact with antimony and antimony compounds by skin contact, eating or drinking contaminated food and water, or breathing in contaminated air.[3]

Antimony is used in metal-alloy applications including pipe, solder, sheeting, bearings, castings, and grid metal. Antimony oxides are used as fire retardants in paper, plastics, rubber, textiles, adhesives, and pigments.[1] Antimony has been detected in consumer products such as polyethylene terephthalate plastic bottles and food such as, vegetables, meat and seafood.[5]

The Danish Environmental Protection Agency detected antimony in children's products, including pencil cases, school bags, glitter glue, mattress pads, and fabric samples.[8]

There is widespread urinary detection of antimony in the U.S. with children having a higher body burden.[9] Antimony has also been detected in human blood, umbilical cord blood, milk, hair, and nails.[1,5]

References

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