

**Did Phelps Dodge (or any of its predecessors or successors) the Oklahoma Department of Environmental Quality, the City of Blackwell, the Blackwell Industrial Authority, the Blackwell Municipal Authority, or any other entity of the City of Blackwell conspire to deprive the citizens of Blackwell of their health, safety, and/or welfare, by deliberately thwarting the inclusion of Blackwell within the Superfund list, and deliberately failing to comply with CERCLA quality standards?**

From 1919 to 1972 the Blackwell Zinc Smelter operated within the city of Blackwell. During its operation, the Zinc Smelter left behind residue that contained large amounts of hazardous contaminants, riddled with lead, zinc, cadmium, and arsenic. These contaminants ultimately infiltrated and harmed the Blackwell community by means of an underwater ground water plume, run off during rain storms, ambient air smog during smelter operation, and volunteer hauling of "fill material" from the Zinc Smelter.

Due to a request by the State of Oklahoma the EPA agreed to allow the Oklahoma Department of Environmental Quality to conduct a pilot program to handle the clean-up and any ongoing investigation of the site.

According to the Record of Decision ("ROD"), "[the] EPA agreed to not make a final determination to list the Site on the National Priorities List ("NPL") as long as the pilot project proceeds in a timely manner and achieves CERCLA quality results." (See attached page 7 of the ROD)

The ROD stated the remediation levels would be set at 750ppm in residential and recreational areas. The EPA set the standard for lead contaminated soil at 400ppm where children play. Clearly children play within the City of Blackwell and its parks. (See attached EPA and OSHA Standards)

The levels for Cadmium and Arsenic are also higher than what the EPA claims are safe levels for anyone, yet the ROD states that in residential and recreational areas for Cadmium it is at 75ppm for Blackwell. According to the National Institute of Occupational Safety and Health 7ppm is safe in an industrial environment. The ROD states that the 50ppm is standard for remediation of residential and recreational areas in Blackwell, yet 2ppm is reported safe by the EPA.

Although the ROD was written in 1996, 12 years later CERCLA standards have still not been complied with.

Submitted this day December 1, 2008

By, J. Pepper



<http://www.epa.gov/lead/pubs/leadhaz.htm>  
Last updated on Thursday, November 6th, 2008.

## Lead in Paint, Dust, and Soil

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# Residential Lead Hazard Standards - TSCA Section 403

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As part of EPA's ongoing efforts to protect children from lead poisoning, the Agency announces, new standards to identify dangerous levels of lead in paint, dust and soil. These new national standards are more protective than previous EPA guidance and will, for the first time, provide home owners, school and playground administrators, childcare providers and others with standards to protect children from hazards posed by lead, including children in federally-owned housing.

Under these new standards, federal agencies, including Housing and Urban Development, as well as state, local and tribal governments will have new uniform benchmarks on which to base remedial actions taken to safeguard children and the public from the dangers of lead. These standards will also apply to other Federal lead provisions, such as EPA's real estate disclosure requirements presently in place for people selling or renting a home or apartment. These hazard standards will also serve as general guidance for other EPA programs engaged in toxic waste cleanups. In addition, these standards will provide landlords, parents, and childcare providers with specific levels on which to make informed decisions regarding lead found in their homes, yards, or play areas.

Health problems from exposure to lead can include profound developmental and neurological impairment in children. Lead poisoning has been linked to mental retardation, poor academic performance and juvenile delinquency. Nearly one million children in America today have dangerously elevated levels of lead in their blood. Because of the potential dangers, any exposure to deteriorated lead-based paint presents a hazard.

Under the new standards, lead is considered a hazard when equal to or exceeding: 40 micrograms of lead in dust per square foot on floors; 250 micrograms of lead in dust per square foot on interior window sills and 400 parts per million (ppm) of lead in bare soil in children's play areas or 1200 ppm average for bare soil in the rest of the yard.

Identifying lead hazards through these standards will allow inspectors and risk assessors to assist property owners in deciding how to address problems which may include lead paint abatement, covering or removing soil or professional cleaning of lead dust.

This action appears in the [January 5, 2001 Federal Register \(PDF\)](#) (36 pp, 357 KB, [About PDF](#)).

[Contact the National Lead Information Center \(NLIC\)](#) to speak with an information specialist.

You will need the free Adobe Reader to view some of the files on this page.  
See [EPA's PDF page](#) to learn more.

### **Final Rules and Policy in Effect**

- [40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead; Final Rule - 1/5/2001 \(PDF\) \(36 pp, 357 KB\)](#)
  - [Authorization Status of States and Tribes \(PDF\) \(1 pg, 67 KB\)](#)
  - [Interpretive Guidance for the Federal Program, TSCA Sections 402/403](#)
  - [Economic Analysis of Toxic Substances Control Act Section 403: Hazard Standards \(PDF\) \(207 pp, 1 MB\)](#)
- [Risk Analysis to Support Standards for Lead in Paint, Dust, and Soil, June 1998 \(EPA 747-R-97-006\)](#)
- [Risk Analysis to Support Standards for Lead in Paint, Dust, and Soil: Supplemental Report, December 2000 \(EPA 747-R-00-004\)](#)
  - [Response to Comments \(PDF\) \(188 pp, 373 KB\)](#)
- [Fact Sheet: Identifying Lead hazards in Residential Properties - April 2001 \(PDF\) \(2 pp, 221 KB\)](#)

### **Proposed Rules and Other Notices**

- [40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead; Proposed Rule - 6/3/98](#)



<http://www.epa.gov/ttn/atw/hlthef/arsenic.html>

Last updated on Tuesday, November 6th, 2007.

## Technology Transfer Network Air Toxics Web Site

You are here: [EPA Home](#) [Air & Radiation](#) [TTN Web - Technology Transfer Network](#) [Air Toxics Web site](#) [Arsenic Compounds](#)

# Arsenic Compounds

## ARSENIC COMPOUNDS(A) 107-02-8

### Hazard Summary-Created in April 1992; Revised in January 2000

Arsenic, a naturally occurring element, is found throughout the environment; for most people, food is the major source of exposure. Acute (short-term) high-level inhalation exposure to arsenic dust or fumes has resulted in gastrointestinal effects (nausea, diarrhea, abdominal pain); central and peripheral nervous system disorders have occurred in workers acutely exposed to inorganic arsenic. Chronic (long-term) inhalation exposure to inorganic arsenic in humans is associated with irritation of the skin and mucous membranes. Chronic oral exposure has resulted in gastrointestinal effects, anemia, peripheral neuropathy, skin lesions, hyperpigmentation, and liver or kidney damage in humans. Inorganic arsenic exposure in humans, by the inhalation route, has been shown to be strongly associated with lung cancer, while ingestion of inorganic arsenic in humans has been linked to a form of skin cancer and also to bladder, liver, and lung cancer. EPA has classified inorganic arsenic as a Group A, human carcinogen.

Arsine is a gas consisting of arsenic and hydrogen. It is extremely toxic to humans, with headaches, vomiting, and abdominal pains occurring within a few hours of exposure. EPA has not classified arsine for carcinogenicity.

Please Note: The main sources of information for this fact sheet are EPA's [Integrated Risk Information System \(IRIS\)](#), which contains information on inhalation chronic toxicity and the [RfC](#) for arsine, oral chronic toxicity and the [RfD](#) for inorganic arsenic, and the carcinogenic effects of inorganic arsenic including the unit cancer risk for inhalation exposure, and the Agency for Toxic Substances and Disease Registry's (ATSDR's) [Toxicological Profile for Arsenic](#).

### Uses

- The major use for inorganic arsenic is in wood preservation; arsine is used in the microelectronics industry and in semiconductor manufacture. (2)
- Until the 1940s, inorganic arsenic solutions were widely used in the treatment of various diseases, such as syphilis and psoriasis. Inorganic arsenic is still used as an antiparasitic agent in veterinary medicine and in homeopathic and folk remedies in the United States and other countries. (2)

## Sources and Potential Exposure

- Inorganic arsenic is found throughout the environment; it is released into the air by volcanoes, the weathering of arsenic-containing minerals and ores, and by commercial or industrial processes. (1,2)
- For most people, food is the largest source of arsenic exposure (about 25 to 50 micrograms per day [ $\mu\text{g}/\text{d}$ ]), with lower amounts coming from drinking water and air. Among foods, some of the highest levels are found in fish and shellfish; however, this arsenic exists primarily as organic compounds, which are essentially nontoxic. (1)
- Elevated levels of inorganic arsenic may be present in soil, either from natural mineral deposits or contamination from human activities, which may lead to dermal or ingestion exposure. (1)
- Workers in metal smelters and nearby residents may be exposed to above-average inorganic arsenic levels from arsenic released into the air. (1)
- Other sources of inorganic arsenic exposure include burning plywood treated with an arsenic wood preservative or dermal contact with wood treated with arsenic. (2)
- Most arsenic poisoning incidents in industry have involved the production of arsine, a short-lived, extremely toxic gas. (3)

## Assessing Personal Exposure

- Measurement of inorganic arsenic in the urine is the best way to determine recent exposure (within the last 1 to 2 days), while measuring inorganic arsenic in hair or fingernails may be used to detect high-level exposures that occurred over the past 6-12 months. (1)

## Health Hazard Information

### **Acute Effects:**

#### **Inorganic Arsenic**

- Acute inhalation exposure of workers to high levels of arsenic dusts or fumes has resulted in gastrointestinal effects (nausea, diarrhea, abdominal pain), while acute exposure of workers to inorganic arsenic has also resulted in central and peripheral nervous system disorders. (1)
- Acute oral exposure to inorganic arsenic, at doses of approximately 600 micrograms per kilogram body weight per day ( $\mu\text{g}/\text{kg}/\text{d}$ ) or higher in humans, has resulted in death. Oral exposure to lower levels of inorganic arsenic has resulted in effects on the gastrointestinal tract (nausea, vomiting), central nervous system (CNS) (headaches, weakness, delirium), cardiovascular system (hypotension, shock), liver, kidney, and blood (anemia, leukopenia). (1,2)
- Acute animal tests in rats and mice have shown inorganic arsenic to have moderate to high acute toxicity. (5)

#### **Arsine**

- Acute inhalation exposure to arsine by humans has resulted in death; it has been reported that a half-hour exposure to 25 to 50 parts per million (ppm) can be lethal. (4)
- The major effects from acute arsine exposure in humans include headaches, vomiting, abdominal pains, hemolytic anemia, hemoglobinuria, and jaundice; these effects can lead to kidney failure. (4,8)
- Arsine has been shown to have extreme acute toxicity from acute animal tests. (5)

### **Chronic Effects (Noncancer):**

## Inorganic arsenic

- Chronic inhalation exposure to inorganic arsenic in humans is associated with irritation of the skin and mucous membranes (dermatitis, conjunctivitis, pharyngitis, and rhinitis). (1,2)
- Chronic oral exposure to inorganic arsenic in humans has resulted in gastrointestinal effects, anemia, peripheral neuropathy, skin lesions, hyperpigmentation, gangrene of the extremities, vascular lesions, and liver or kidney damage. (1,2)
- No chronic inhalation exposure studies have been performed in animals for any inorganic arsenic compound. (1)
- Some studies have suggested that inorganic arsenic is an essential dietary nutrient in goats, chicks, and rats. However, no comparable data are available for humans. EPA has concluded that essentiality, although not rigorously established, is plausible. (1,6)
- EPA has not established a Reference Concentration (RfC) for inorganic arsenic. (6)
- The California Environmental Protection Agency (CalEPA) has established a chronic inhalation reference level of 0.00003 milligrams per cubic meter (mg/m<sup>3</sup>) based on developmental effects in mice. The CalEPA reference exposure level is a concentration at or below which adverse health effects are not likely to occur. It is not a direct estimator of risk, but rather a reference point to gauge the potential effects. At lifetime exposures increasingly greater than the reference exposure level, the potential for adverse health effects increases. (7)
- The Reference Dose (RfD) for inorganic arsenic is 0.0003 milligrams per kilogram body weight per day (mg/kg/d) based on hyperpigmentation, keratosis, and possible vascular complications in humans. The RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious noncancer effects during a lifetime. (6)
- EPA has medium confidence in the study on which the RfD for inorganic arsenic was based because, although an extremely large number of people were included in the assessment (>40,000), the doses were not well characterized and other contaminants were present. The supporting human toxicity database, while extensive, is somewhat flawed and, consequently, EPA has assigned medium confidence to the RfD. (6)

## Arsine

- No information is available on the chronic effects of arsine in humans.
- The RfC for arsine is 0.00005 mg/m<sup>3</sup> based on increased hemolysis, abnormal red blood cell morphology, and increased spleen weight in rats, mice, and hamsters. (4)
- EPA has medium confidence in the RfC based on: (1) high confidence in the studies on which the RfC for arsine was based because the sample sizes were adequate, statistical significance was reported, concentration dose-response relationships were documented, three species were investigated, and both a no-observed-adverse-effect level (NOAEL) and a lowest-observed-adverse-effect level (LOAEL) were identified, and (2) medium confidence in the database because while there were three inhalation animal studies and a developmental/reproductive study, there were no data available on human exposure. (4)

## ***Reproductive/Developmental Effects:***

### **Inorganic arsenic**

- Several studies have suggested that women who work in, or live near, metal smelters may have higher than normal spontaneous abortion rates, and their children may exhibit lower than normal birthweights. However, these studies are limited because they were designed to evaluate the effects of smelter pollutants in general, and are not specific for inorganic arsenic. (1)
- Ingested inorganic arsenic can cross the placenta in humans, exposing the fetus to the chemical. (2)
- Oral animal studies have reported inorganic arsenic at very high doses to be fetotoxic and to cause birth defects. (1)

#### **Arsine**

- Human studies have indicated higher than expected spontaneous abortion rates in women in the microelectronics industry who were exposed to arsine. However, these studies have several limitations, including small sample size and exposure to other chemicals in addition to arsine. (4)

#### **Cancer Risk:**

##### **Inorganic arsenic**

- Human, inhalation studies have reported inorganic arsenic exposure to be strongly associated with lung cancer. (1,2,6)
- Ingestion of inorganic arsenic in humans has been associated with an increased risk of nonmelanoma skin cancer and also to an increased risk of bladder, liver, and lung cancer. (1,6)
- Animal studies have not associated inorganic arsenic exposure via the oral route with cancer, and no cancer inhalation studies have been performed in animals for inorganic arsenic. (1)
- EPA has classified inorganic arsenic as a Group A, human carcinogen. (6)
- EPA used a mathematical model, using data from an occupational study of arsenic-exposed copper smelter workers, to estimate the probability of a person developing cancer from continuously breathing air containing a specified concentration of inorganic arsenic. EPA calculated an inhalation unit risk estimate of  $4.3 \times 10^{-3}(\mu\text{g}/\text{m}^3)^{-1}$ . EPA estimates that, if an individual were to continuously breathe air containing inorganic arsenic at an average of  $0.0002 \mu\text{g}/\text{m}^3$  ( $2 \times 10^{-7} \text{ mg}/\text{m}^3$ ) over his or her entire lifetime, that person would theoretically have no more than a one-in-a-million increased chance of developing cancer as a direct result of breathing air containing this chemical. Similarly, EPA estimates that continuously breathing air containing  $0.002 \mu\text{g}/\text{m}^3$  ( $2 \times 10^{-6} \text{ mg}/\text{m}^3$ ) would result in not greater than a one-in-a-hundred thousand increased chance of developing cancer, and air containing  $0.02 \mu\text{g}/\text{m}^3$  ( $2 \times 10^{-5} \text{ mg}/\text{m}^3$ ) would result in not greater than a one-in-ten thousand increased chance of developing cancer. For a detailed discussion of confidence in the potency estimates, please see IRIS. (6)
- EPA has calculated an oral cancer slope factor of  $1.5 (\text{mg}/\text{kg}/\text{d})^{-1}$  for inorganic arsenic. (6)

#### **Arsine**

- No cancer inhalation studies in humans or animals are available for arsine. (1)
- EPA has not classified arsine for carcinogenicity. (4)

#### **Physical Properties**

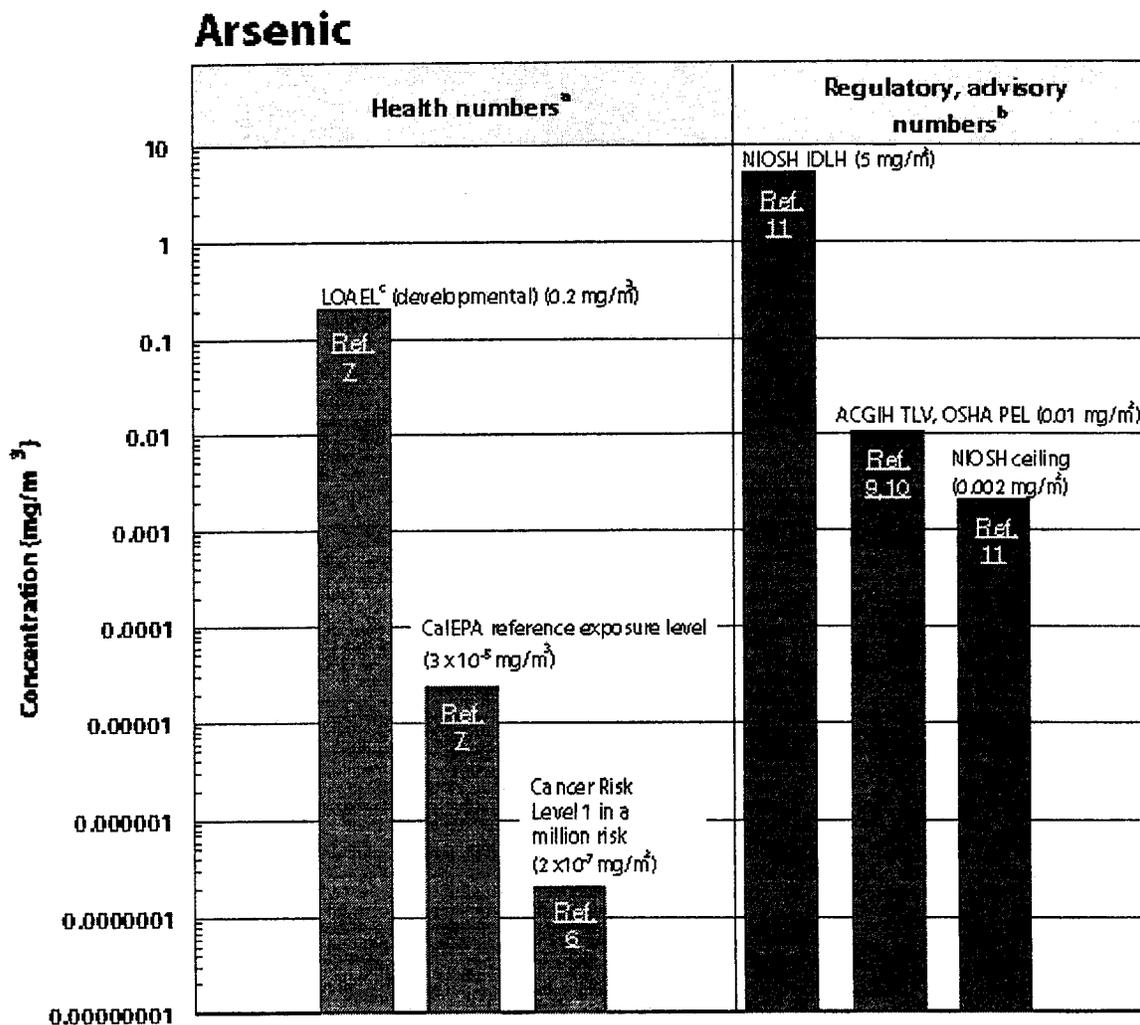
- Inorganic arsenic is a naturally occurring element in the earth's crust.(1)
- Pure inorganic arsenic is a gray-colored metal, but inorganic arsenic is usually found combined with other elements such as oxygen, chlorine, and sulfur. (1)

- The chemical symbol for inorganic arsenic is As, and it has an atomic weight of 74.92 g/mol. (3)
- The chemical formula for arsine is AsH<sub>3</sub>, and it has a molecular weight of 77.95 g/mol. (8)
- Arsine is a colorless gas with a disagreeable garlic odor. (8)
- Arsenic combined with elements such as oxygen, chlorine, and sulfur forms inorganic arsenic; inorganic arsenic compounds include arsenic pentoxide, arsenic trioxide, and arsenic acid. Arsenic combined with carbon and hydrogen forms organic arsenic; organic arsenic compounds include arsanilic acid, arsenobetaine, and dimethylarsinic acid. (1)

**Conversion Factors (only for the gaseous form):**

To convert concentrations in air (at 25°C) from ppm to mg/m<sup>3</sup>:  $mg/m^3 = (ppm) \times (molecular\ weight\ of\ the\ compound)/(24.45)$ . For inorganic arsenic: 1 ppm = 3.06 mg/m<sup>3</sup>. For arsine: 1 ppm = 3.19 mg/m<sup>3</sup>. To convert concentrations in air from µg/m<sup>3</sup> to mg/m<sup>3</sup>:  $mg/m^3 = (\mu g/m^3) \times (1\ mg/1,000\ \mu g)$ .

**Health Data from Inhalation Exposure (Inorganic Arsenic)**



**ACGIH TLV**--American Conference of Governmental and Industrial Hygienists' threshold limit

value expressed as a time-weighted average; the concentration of a substance to which most workers can be exposed without adverse effects.

**NIOSH IDLH**--National Institute of Occupational Safety and Health's immediately dangerous to life or health concentration; NIOSH recommended exposure limit to ensure that a worker can escape from an exposure condition that is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from the environment.

**NIOSH REL ceiling value**--NIOSH's recommended exposure limit ceiling; the concentration that should not be exceeded at any time.

**OSHA PEL**--Occupational Safety and Health Administration's permissible exposure limit expressed as a time-weighted average; the concentration of a substance to which most workers can be exposed without adverse effect averaged over a normal 8-h workday or a 40-h workweek.

The health and regulatory values cited in this factsheet were obtained in December 1999.

<sup>a</sup> Health numbers are toxicological numbers from animal testing or risk assessment values developed by EPA.

<sup>b</sup>Regulatory numbers are values that have been incorporated in Government regulations, while advisory numbers are nonregulatory values provided by the Government or other groups as advice. OSHA numbers are regulatory, whereas NIOSH and ACGIH numbers are advisory.

<sup>c</sup>The LOAEL is from the critical study used as the basis for the CalEPA chronic reference exposure level.

## References

1. Agency for Toxic Substances and Disease Registry (ATSDR). *Toxicological Profile for Arsenic* (Draft). U.S. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. 1998.
2. Agency for Toxic Substances and Disease Registry (ATSDR). *Case Studies in Environmental Medicine. Arsenic Toxicity*. U.S. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. 1990.
3. U.S. Environmental Protection Agency. *Health Assessment Document for Inorganic Arsenic*. EPA/540/1-86/020. Environmental Criteria and Assessment Office, Office of Health and Environmental Assessment, Office of Research and Development, Washington, DC. 1984.
4. U.S. Environmental Protection Agency. *Integrated Risk Information System (IRIS) on Arsine*. National Center for Environmental Assessment, Office of Research and Development, Washington, DC. 1999.
5. U.S. Department of Health and Human Services. Registry of Toxic Effects of Chemical Substances (RTECS, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD. 1993.
6. U.S. Environmental Protection Agency. *Integrated Risk Information System (IRIS) on Arsenic*. National Center for Environmental Assessment, Office of Research and Development, Washington, DC. 1999.
7. California Environmental Protection Agency (CalEPA). *Technical Support Document for the Determination of Noncancer Chronic Reference Exposure Levels. Draft for Public Comment*. Office of Environmental Health Hazard Assessment, Berkeley, CA. 1997.
8. M. Windoliz. *The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals*. 10th ed. Merck and Co., Rahway, NJ. 1983.
9. American Conference of Governmental Industrial Hygienists (ACGIH). *1999 TLVs and BEIs. Threshold Limit Values for Chemical Substances and Physical Agents. Biological Exposure Indices*. Cincinnati, OH. 1999.
10. Occupational Safety and Health Administration (OSHA). Occupational Safety and Health Standards, Toxic and Hazardous Substances. *Code of Federal Regulations*. 29 CFR 1910.1000. 1998.
11. National Institute for Occupational Safety and Health (NIOSH). *Pocket Guide to Chemical Hazards*. U.S. Department of Health and Human Services, Public Health

Service, Centers for Disease Control and Prevention. Cincinnati, OH. 1997.

A. \* This fact sheet addresses the toxicity of the inorganic arsenic compounds as well as the toxicity of the gaseous arsenic trihydride: arsine.

**Case Studies (CSEM)**

CSEM Home  
 Continuing Education  
 Online Registration

**ATSDR Resources**

Case Studies (CSEM)  
 Exposure Pathways  
 GATHER (GIS)  
 Health Assessments  
 Health Statements  
 Interaction Profiles  
 Interactive Learning  
 Managing Incidents  
 Medical Guidelines  
 Minimal Risk Levels  
 Priority List  
 ToxFAQs™  
 ToxFAQs™ CABS  
 Toxicological Profiles  
 Toxicology Curriculum

**External Resources**

CDC  
 eLCOSH  
 EPA  
 Healthfinder®  
 Medline Plus  
 NCEH  
 NIEHS  
 NIOSH  
 OSHA

<p><b>Health Standards</b></p>	<p>Many health agencies have set exposure standards to protect the general public from excess cadmium exposure from various sources.</p> <p><b>FDA</b></p> <ul style="list-style-type: none"> <li>● Maximum limit of cadmium in bottled water is 0.01 mg/l.</li> </ul> <p><b>ATSDR</b></p> <ul style="list-style-type: none"> <li>● Chronic durational oral minimal risk level (MRL) for cadmium is 0.0001 mg/kg/day. This MRL standard states how much cadmium a person can ingest without risk of adverse health effects (ATSDR 2004).</li> </ul> <p><b>EPA</b></p> <ul style="list-style-type: none"> <li>● Food – Reference dose is <math>1 \times 10^{-3}</math> mg/l</li> <li>● Water - Reference dose for human exposure is 0.0001 mg/kg/day</li> <li>● Reference dose (Rfd) is an estimate of the amount of a substance that can be ingested by a 70 kg person (including sensitive subgroups) without appreciable risk of deleterious effects during a lifetime (EPA 2004).</li> </ul> <p><b>World Health Organization (WHO)</b></p> <ul style="list-style-type: none"> <li>● Tolerable weekly intake for cadmium at 70 kg is 7 micrograms (WHO 2004).</li> </ul>
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<p><b>Carcinogenicity</b></p>	<p>Positions on carcinogenicity of cadmium by U.S. and international organizations.</p> <ul style="list-style-type: none"> <li>● EPA classifies cadmium as a probable human carcinogen.</li> <li>● International Agency for Research on Cancer (IARC) classifies cadmium as a known human carcinogen.</li> <li>● American Conference of Industrial Hygiene (ACGIH) classifies cadmium as a suspected human carcinogen.</li> <li>● National Toxicology Program (NTP) classifies cadmium as a known carcinogen (NTP 2004).</li> </ul>
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<p><b>Environmental Standards</b></p>	<p><b>EPA</b></p> <ul style="list-style-type: none"> <li>● Drinking water - maximum contaminant 0.005 mg/L. (ATSDR, 1999)</li> <li>● Air - Cadmium is on the EPA National E Pollutants (NESHAP) list of 189 hazardous one of 33 hazardous air pollutants that health in urban areas (ATSDR 1999).</li> <li>● Soil - EPA biosolids rule states that the can be applied to land is 85 mg/kg fill r</li> </ul>
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<p><b>Key Points</b></p>	<ul style="list-style-type: none"> <li>● Because much is known about the hum large database from which to set stand</li> <li>● With increasing evidence of its toxicity, have sought to regulate cadmium expo</li> </ul>
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<p><b>Progress Check</b></p>	<p>6. Guidelines issued by U.S. agencies are designed to of the following?</p> <ul style="list-style-type: none"> <li><input type="radio"/> A. The ATSDR MRL, which states how much cadmi without risk of adverse health effects, is 0.0002 mg/k effects.</li> <li><input type="radio"/> B. NIOSH has set an IDLH of 9 mg/m<sup>3</sup>.</li> <li><input type="radio"/> C. The EPA reference dose for daily exposure to th without appreciable risk of deleterious effects during i water.</li> <li><input type="radio"/> D. The OSHA PEL for people occupationally expose</li> <li><input type="radio"/> E. All of the above.</li> </ul> <p>Answer:</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin-top: 10px; text-align: center;">Clear</div>
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Revised 2008-05-12.

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Agency for Toxic Substances and Disease Registry  
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Department of Health and Human Services

# **The Chain of Command**

*The Chain of Law and Who It Applies to.*

## **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**

**\*Gives power to the Environmental Protection Agency (EPA) to regulate and establish the Superfund Program**



### **The Solid Waste Disposal Act**

**\*Under the Hazardous Waste Amendments, are regulations the control how such wastes are disposed of. These can serve as a standard form of Institutional Controls**

### **The Toxic Substance Control Act**

**\* States how to monitor and remediate Lead Contamination. This Act under it's Lead Based Paint rules can serve as a form of standard Institutional Controls**

**Both of the above are Enforcements under the  
CERCLA**



### **Memorandum of Understanding**

**\*Give the Oklahoma Department of Environmental Quality the chance to participate in a EPA pilot program to handle the investigation and remediation of the Blackwell Zinc Smelter Site**



### **The Record of Decision of 1996**

**\*Written by the Oklahoma Department of Environmental Quality to establish standards for soil remediation of the Blackwell Zinc Smelter Site. Note: ROD states that if the ODEQ does not comply with the CERCLA the EPA can reclaim jurisdiction over the Blackwell Zinc Superfund Site.**

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) 42 U.S.C. § 9621

onsite remedial actions or other land disposal for reasons unrelated to protection of human health and the environment.

(III) The State arranges for, and assures payment of the incremental costs of utilizing, a facility for disposition of the hazardous substances, pollutants, or contaminants concerned.

(iv) Where the remedial action selected by the President does not conform to a State standard and the State has initiated a law suit against the Environmental Protection Agency prior to May 1, 1986, to seek to have the remedial action conform to such standard, the President shall conform the remedial action to the State standard. The State shall assure the availability of an offsite facility for such remedial action.

(3) In the case of any removal or remedial action involving the transfer of any hazardous substance or pollutant or contaminant offsite, such hazardous substance or pollutant or contaminant shall only be transferred to a facility which is operating in compliance with section 3004 and 3005 of the Solid Waste Disposal Act [42 U.S.C. 6924, 6925] (or, where applicable, in compliance with the Toxic Substances Control Act [15 U.S.C. 2601 et seq.] or other applicable Federal law) and all applicable State requirements. Such substance or pollutant or contaminant may be transferred to a land disposal facility only if the President determines that both of the following requirements are met:

(A) The unit to which the hazardous substance or pollutant or contaminant is transferred is not releasing any hazardous waste, or constituent thereof, into the groundwater or surface water or soil.

(B) All such releases from other units at the facility are being controlled by a corrective action program approved by the Administrator under subtitle C of the Solid Waste Disposal Act [42 U.S.C. 6921 et seq.].

The President shall notify the owner or operator of such facility of determinations under this paragraph.

(4) The President may select a remedial action meeting the requirements of paragraph (1) that does not attain a level or standard of control at least equivalent to a legally applicable or relevant and appropriate standard, requirement, criteria, or limitation as required by paragraph (2) (including subparagraph (B) thereof), if the President finds that--

(A) the remedial action selected is only part of a total remedial action that will attain such level or standard of control when completed;

(B) compliance with such requirement at that facility will result in greater risk to human health and the environment than alternative options;

(C) compliance with such requirements is technically impracticable from an engineering perspective;

(D) the remedial action selected will attain a standard of performance that is equivalent to that required under the otherwise applicable standard, requirement, criteria, or limitation, through use of another method or approach;

(E) with respect to a State standard, requirement, criteria, or limitation, the State has not consistently applied (or demonstrated the intention to consistently apply) the standard, requirement, criteria, or limitation in similar circumstances at other remedial actions within the State; or

(F) in the case of a remedial action to be undertaken solely under section 9604 of this title using the Fund, selection of a remedial action that attains such level or standard of control will not provide a balance between the need for protection of public health and welfare and the environment at the facility under